Monitors

Universal Controller 7.8.x

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4.1 Overview

The Task Monitor task monitors another task or tasks for one or more specific statuses.

When setting up a Task Monitor task, you can monitor:

- All tasks
- Specific task
- Task type, such as a Windows task
- Group of tasks based on the name, such as all tasks whose name contains the string **DEV**

You also can monitor for any combination of task statuses.

For example, you can monitor for:

- All tasks with a status of RESOURCE WAIT or UNDELIVERABLE
- All Windows tasks in a FAILED status
- All tasks whose name contains **REPORT** that have a status of SUCCESS.

For Task Monitors within a workflow, you can also specify a Time Scope, or window of time, during which the event being monitored for must be satisfied.

4.2 Built-In Variables

The following built-in variables can be used in a Task Monitor task to pass data where appropriate:

- Task Instance variables

- Task Monitor Task variables

4.3 Processing Flow for Task Monitors

The processing on a Task Monitor may differ depending on which of the following methods was used to launch it:

- Launched by a workflow
- Launched by a Task Monitor trigger
- Launched manually or by another trigger

Each method is described in detail below.

Note

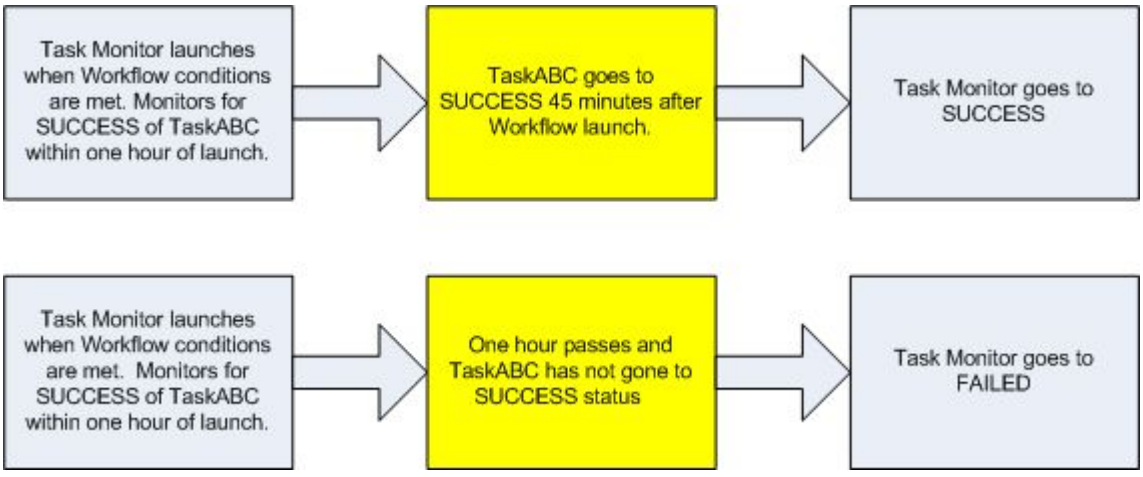
Any changes made to a Task Monitor task are not recognized by its respective Triggers until those Triggers are disabled and re-enabled.

4.3.1 Launching a Task Monitor Task Within a Workflow

Within a Workflow, the Task Monitor task launches like any other task in the Workflow; that is, whenever the Workflow conditions warrant it. The Task Monitor runs until one of the conditions described below occurs:

- When the conditions specified in the Task Monitor are met, the Task Monitor goes to a status of SUCCESS.
- When the time window specified in the Task Monitor passes and the conditions in the Task Monitor are not met, the Task Monitor goes to a status of FAILED. If the time window is entirely in the past and Universal Controller does not locate the required event in the Activity table when the Task Monitor launches, the Task Monitor goes immediately to a FAILED status.
- If no time window is specified in the Task Monitor and the Task Monitor conditions are not met, the Task Monitor task continues running.
- A user can manually force finish the Task Monitor task.

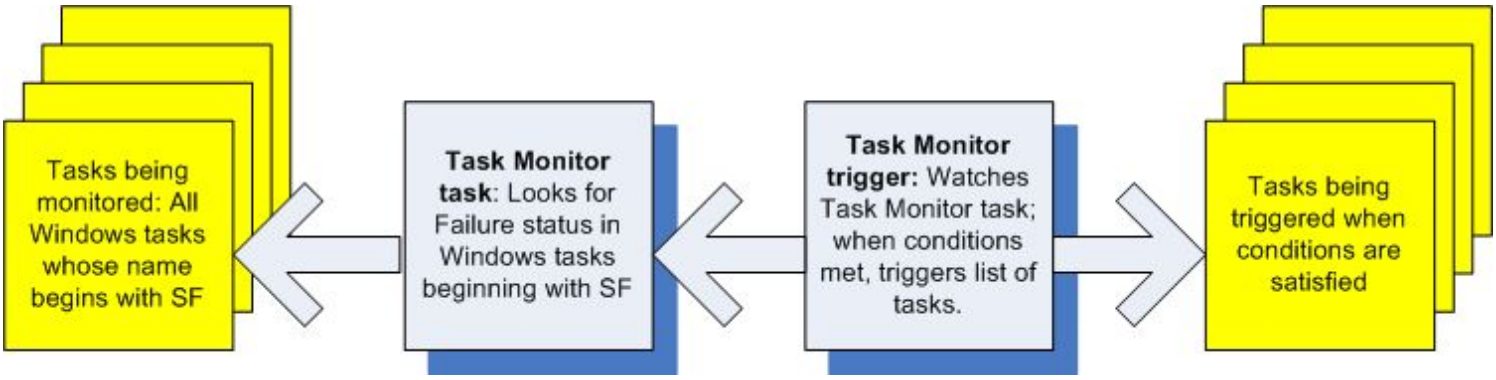
The following diagram illustrates how a Task Monitor might go to SUCCESS and FAILED status within a workflow.



4.3.2 Launching a Task Monitor Task Using a Task Monitor Trigger

The Task Monitor task launches when the user enables the Task Monitor trigger. Each time the conditions in the Task Monitor task are satisfied, the tasks specified in the trigger are launched. This process continues until a user disables the associated Task Monitor trigger.

The following diagram shows an example of how you might set up a task monitoring scheme using the Task Monitor task and Task Monitor trigger.



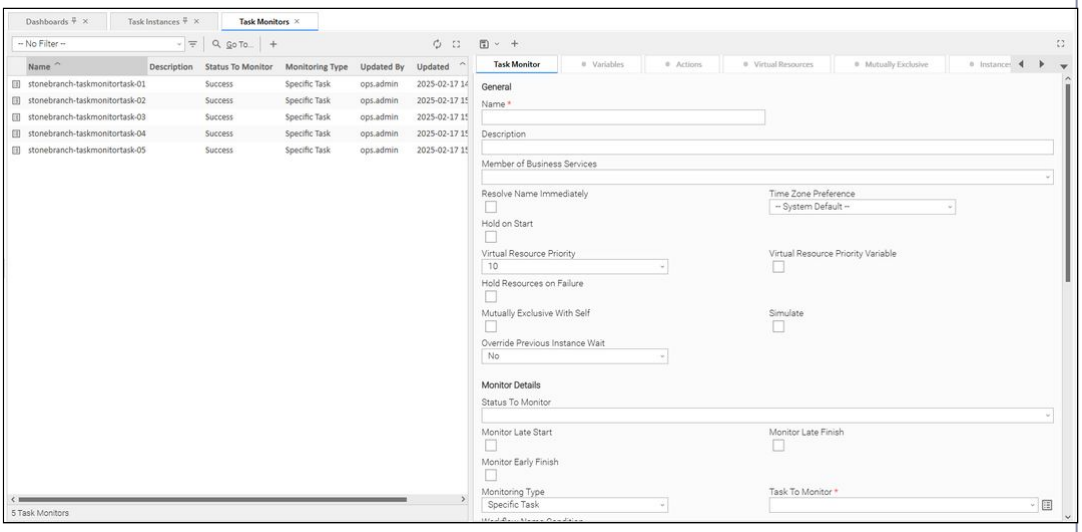
4.3.3 Launching a Task Monitor Task Manually or Via Other Trigger

If you manually launch a Task Monitor task or launch it using a trigger other than a Task Monitor trigger, such as a Time trigger, the task continues running until its specified conditions are met. When that occurs, the Task Monitor goes to SUCCESS. No other processing occurs unless you have configured notifications with the task or set up some other task(s) to launch based on the status of this task.

The Task Monitor runs until one of the conditions described below occurs:

- When the time window specified in the Task Monitor passes and the conditions in the Task Monitor are not met, the Task Monitor goes to a status of FAILED. If the time window is entirely in the past and the Controller does not locate the required event in the Activity table when the Task Monitor launches, the Task Monitor goes immediately to a FAILED status.
- If no time window is specified in the Task Monitor and the Task Monitor conditions are not met, the Task Monitor task continues running.

4.4 Creating a Task Monitor Task

Step 1	From the Automation Center navigation pane, select **Task Monitor Tasks**. The Task Monitor Tasks list displays a list of all currently defined Task Monitor tasks. To the right of the list, Task Monitor Task Details for a new Task Monitor task displays. 
Step 2	Enter/select Details for a new Task Monitor task, using the field descriptions below as a guide. • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the + button above the list to display a pop-up version of the Details.
Step 3	Click the save button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

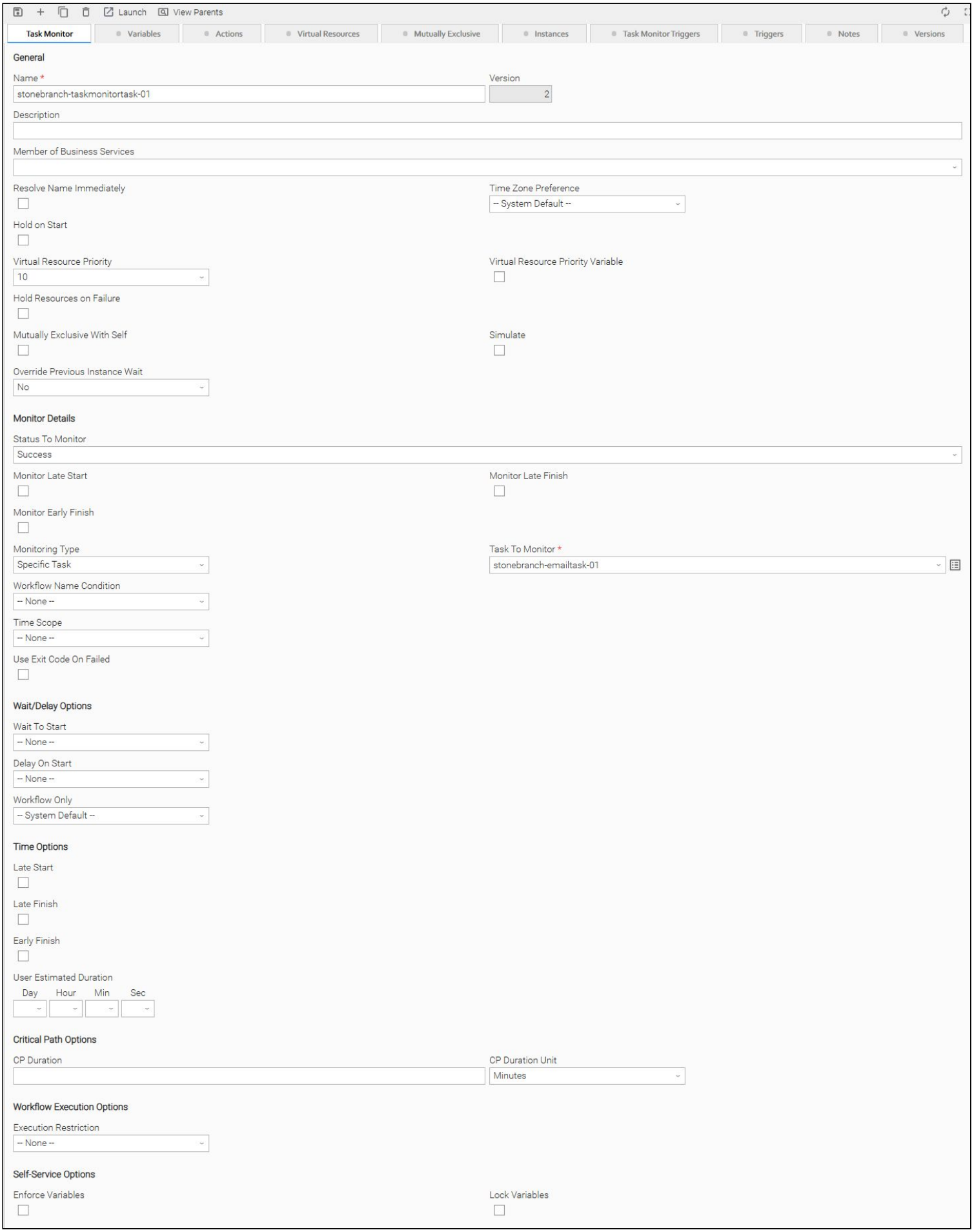
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

4.4.1 Task Monitor Task Details

The following Task Monitor Task Details is for an existing Task Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Task Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Task Monitor Task Details.


Launch
View Parents
Task Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Task Monitor Triggers
Triggers
Notes
Versions
General
Name *
stonebranch-taskmonitortask-01
Version
2
Description
Member of Business Services
Resolve Name Immediately
Time Zone Preference
-- System Default --
Hold on Start
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Override Previous Instance Wait
No
Monitor Details
Status To Monitor
Success
Monitor Late Start
Monitor Late Finish
Monitor Early Finish
Monitoring Type
Specific Task
Task To Monitor *
stonebranch-emailtask-01
Workflow Name Condition
-- None --
Time Scope
-- None --
Use Exit Code On Failed
Wait/Delay Options
Wait To Start
-- None --
Delay On Start
-- None --
Workflow Only
-- System Default --
Time Options
Late Start
Late Finish
Early Finish
User Estimated Duration
Day
Hour
Min
Sec
Critical Path Options
CP Duration
CP Duration Unit
Minutes
Workflow Execution Options
Execution Restriction
-- None --
Self-Service Options
Enforce Variables
Lock Variables

4.4.2 Task Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Task Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.

Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Override Previous Instance Wait	Specifies whether or not to override the parent workflow's **Previous Instance Wait** configuration. This option only applies for an instance running within a workflow. Options: • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Monitor Details	This section contains assorted detailed information about the task.
Status To Monitor	Status being monitored for. When the task being monitored goes to a status specified in this field, the associated trigger is satisfied and the tasks specified in the trigger launch. You can specify as many statuses as needed (see Task Statuses).
Monitor Late Start	Specifies to monitor for an instance or instances that started late. When specifying a Time Scope, the instance Created Time must fall within the time window.
Monitor Late Finish	Specifies to monitor for an instance or instances that finished late. When specifying a Time Scope, the instance Created Time must fall within the time window.
Monitor Early Finish	Specifies to monitor for an instance or instances that finished early. When specifying a Time Scope, the instance Created Time must fall within the time window.
Monitoring Type	Specifies which task or tasks are being monitored. Options: • Specific Task - One task is being monitored. Use the Task to Monitor field to specify the task name. • General Tasks - Allows you to specify selection parameters that determine which task or tasks to be monitored. Use the Task Name Condition and Task Type to Monitor fields to create your selection parameters.
Task to Monitor	If Monitoring Type = Specific Task; specifies the task to monitor. Enter a task name or select a task from the drop-down list. To display details about a task on the list, select it and then click the Task To Monitor icon.

Task Name Condition	If Monitoring Type = General Task(s); specifies a type of condition for the name of tasks being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks meeting the specified condition value will be monitored for. Options: • - - None - - • Equals • Starts With • Contains • Ends With • Wildcard
Task Type to Monitor	If Monitoring Type = General Tasks; allows you to define specific task types to monitor for. For example, to monitor all SQL tasks, you would select Monitoring Type = General Tasks, then select Task Type to Monitor = SQL Tasks.
Name Starts With	Required if Task Name Condition = Starts With; Character string at the start of the name of a task or tasks being monitored for.
Name Contains	Required if Task Name Condition = Contains; Character string in the name of a task or tasks being monitored for.
Name Ends With	Required if Task Name Condition = Ends With; Character string at the end of the name of a task or tasks being monitored for.
Name Equals	Required if Task Name Condition = Equals; Character string equaling the name of a task or tasks being monitored for.
Name Wildcard	Required if Task Name Condition = Wildcard; Character string equaling the name of a wildcard in a task or tasks being monitored for.
Resolve Task Name Condition	If Monitoring Type = Generals Task(s) and Task Name Condition = Starts With, Contains, Ends With, or Equals; Specification (true or false) for whether or not to resolve at run time any variables in the task name of the task(s) being monitored. Default is false.
Workflow Name Condition	Type of condition for the name of a workflow or workflows containing the task being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks in workflows meeting the specified condition value will be monitored for. Options: • - - None - - • Equals • Starts With • Contains • Ends With • Wildcard
Workflow Name Equals	Optional if Workflow Name Condition = Equals; Exact name of a workflow or workflows containing the task being monitored for. If the field is blank, the Task Monitor will consider a Task Instance for a match only if the Task Instance is not contained within a workflow.
Workflow Name Starts With	Required if Workflow Name Condition = Starts With; Character string at the start of the name of a workflow or workflows containing the task being monitored for.
Workflow Name Contains	Required if Workflow Name Condition = Contains; Character string in the name of a workflow or workflows containing the task being monitored for.
Workflow Name Ends With	Required if Workflow Name Condition = Ends With; Character string at the end of the name of a workflow or workflows containing the task being monitored for.
Workflow Name Wildcard	Required if Workflow Name Condition = Ends With; Character string of a wildcard in the name of a workflow or workflows containing the task being monitored for.

Time Scope	Used for Task Monitor tasks not associated with a trigger. The Time Scope fields are used to create a window during which the Task Monitor conditions must be met in order for the Task Monitor to be satisfied. Options: • -- None -- • Relative • Relative / Last Run The Time Scope window is always relative to the time that the Task Monitor launched. For example, if you put -01:00 in the From time field and 02:00 in the To time field, the window's begin time is one hour before the Task Monitor is launched and its end time is two hours after it is launched. Use Relative / Last Run if you want to match the most recent prior instance. **Note** For additional details, see Understanding Relative Time Scope, below.
Expiration Action	If Time Scope = Relative or Relative / Last Run and the Task Monitor cannot find any matches during the specified criteria and time interval; State to transition to if Relative Time Scope conditions are not met within the specified window. Options: • Failed • Finished • Failed If Potential Match Found Else Finished • Finished If Potential Match Found Else Failed
Time Scope From	Format is (+/-)hh:mm If Time Scope = Relative or Relative / Last Run; used for Task Monitor tasks not associated with a trigger. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00. Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met. If the conditions are not met within the specified window, the Task Monitor task instance will transition to Failed (default) or Finished status determined by the Expiration Action. • Required if Time Scope = Relative. • Optional if Time Scope = Relative / Last Run; if a value is not specified, the Task Monitor has no limit on how far back it can look for a match.
Time Scope To	Format is (+/-)hh:mm If Time Scope = Relative or Relative / Last Run; used for Task Monitor tasks not associated with a trigger. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00. Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met. If the conditions are not met within the specified window, the Task Monitor task instance will transition to Failed (default) or Finished status determined by the Expiration Action.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.

Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.

Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.

Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce **Launch with Variables...** when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using **Launch with Variables...** from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. **Note** You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

<table>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</td></tr>
<tr><td>Variables</td><td>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</td></tr>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Task Monitor Triggers</td><td>Lists all Task Monitor triggers that reference this task in the Task Monitor field of the trigger Details; that is, a list of all Task Monitor triggers that execute this task. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

4.5 Viewing a Task Monitor Task Instance

When a Task Monitor task is launched, the Controller creates a task instance record of that task.

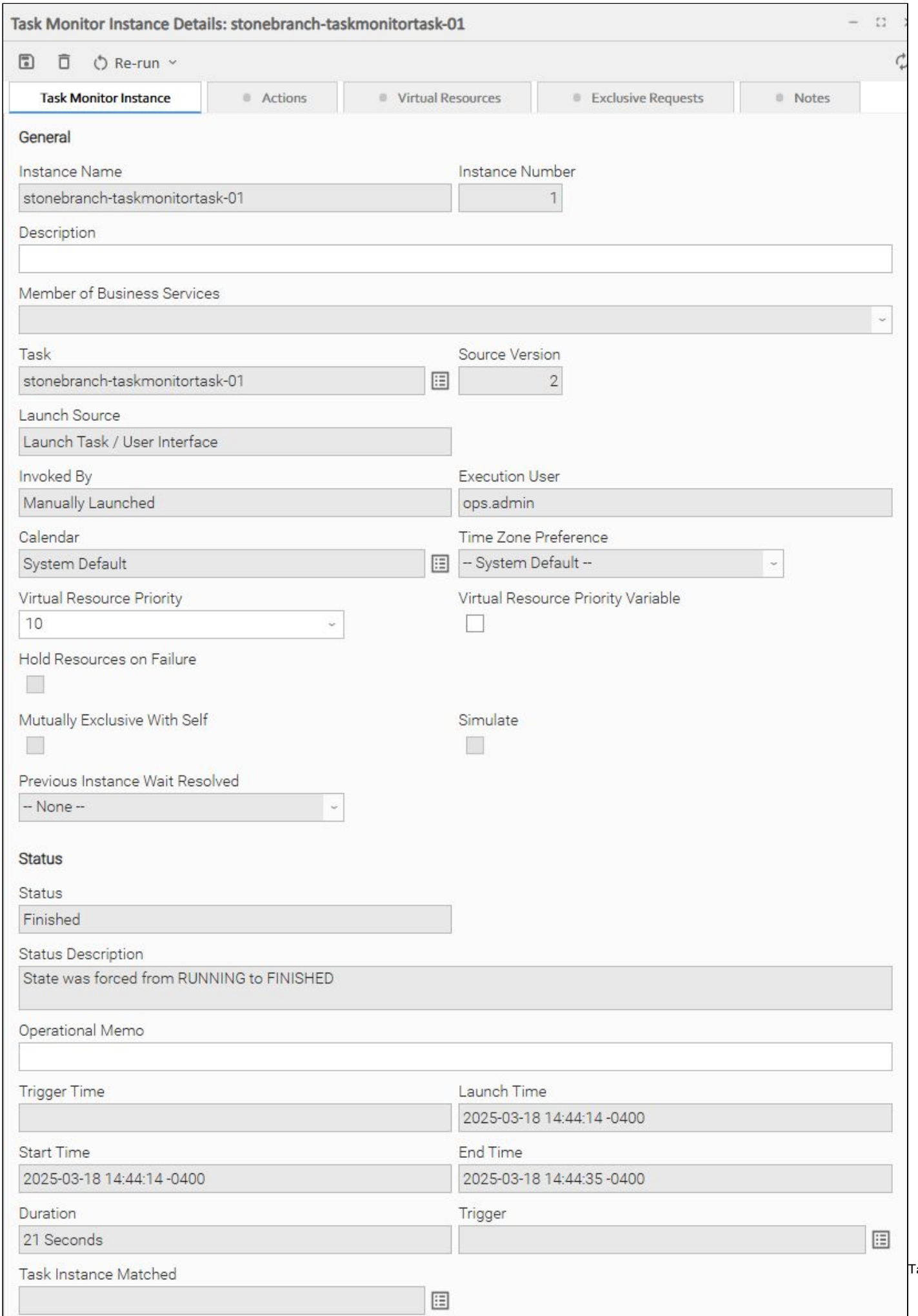
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Task Monitor Task Details for that task
- Activity Monitor
- Task Instances list

4.5.1 Task Monitor Task Instance Details

The following Task Monitor Task Instance Details contains information on the execution of the task shown in the Task Monitor Task Details.


Task Monitor Instance Details: stonebranch-taskmonitortask-01
Re-run
Task Monitor Instance
Actions
Virtual Resources
Exclusive Requests
Notes
General
Instance Name
stonebranch-taskmonitortask-01
Instance Number
1
Description
Member of Business Services
Task
stonebranch-taskmonitortask-01
Source Version
2
Launch Source
Launch Task / User Interface
Invoked By
Manually Launched
Execution User
ops.admin
Calendar
System Default
Time Zone Preference
-- System Default --
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Previous Instance Wait Resolved
-- None --
Status
Status
Finished
Status Description
State was forced from RUNNING to FINISHED
Operational Memo
Trigger Time
Launch Time
2025-03-18 14:44:14 -0400
Start Time
2025-03-18 14:44:14 -0400
End Time
2025-03-18 14:44:35 -0400
Duration
21 Seconds
Trigger
Task Instance Matched

4.5.2 Task Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Task Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

Launch Source	System-supplied; Source from which this task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance. • If the instance was directly launched by a **Trigger Now** command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the **Launch Task** command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a **Recurring Task Instance;** the UUID of the **Recurring Task Instance**.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait. Options: • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.

Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Trigger	Trigger, if any, on whose behalf the Task Monitor task is monitoring other tasks.
Task Instance Matched	Last task that matched the specifications of the task(s) being monitored.
Monitor Details	This section contains assorted detailed information about the task instance.
Status To Monitor	Status being monitored for. When the task being monitored goes to a status specified in this field, the associated trigger is satisfied and the tasks specified in the trigger launch. You can specify as many statuses as needed (see Task Statuses).
Monitor Late Start	Specifies to monitor for an instance or instances that started late. When specifying a Time Scope, the instance Created Time must fall within the time window.
Monitor Late Finish	Specifies to monitor for an instance or instances that finished late. When specifying a Time Scope, the instance Created Time must fall within the time window.
Monitor Early Finish	Specifies to monitor for an instance or instances that finished early. When specifying a Time Scope, the instance Created Time must fall within the time window.
Monitoring Type	Specifies which task or tasks are being monitored. Options: • Specific Task - One task is being monitored. Use the Task to Monitor field to specify the task name. • General Tasks - Allows you to specify selection parameters that determine which task or tasks to be monitored. Use the Task Name Condition and Task Type to Monitor fields to create your selection parameters.
Task to Monitor	If Monitoring Type = Specific Task; specifies the task to monitor. Enter a task name or select a task from the drop-down list. To display details about a task on the list, select it and then click the Task To Monitor icon.

Task Name Condition	If Monitoring Type = General Task(s); specifies a type of condition for the name of tasks being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks meeting the specified condition value will be monitored for. Options: • - - None - - • Equals • Starts With • Contains • Ends With • Wildcard
Task Type to Monitor	If Monitoring Type = General Tasks; allows you to define specific task types to monitor for. For example, to monitor all SQL tasks, you would select Monitoring Type = General Tasks, then select Task Type to Monitor = SQL Tasks.
Name Starts With	Required if Task Name Condition = Starts With; Character string at the start of the name of a task or tasks being monitored for.
Name Contains	Required if Task Name Condition = Contains; Character string in the name of a task or tasks being monitored for.
Name Ends With	Required if Task Name Condition = Ends With; Character string at the end of the name of a task or tasks being monitored for.
Name Equals	Required if Task Name Condition = Equals; Character string equaling the name of a task or tasks being monitored for.
Name Wildcard	Required if Task Name Condition = Wildcard; Character string equaling the name of a wildcard in a task or tasks being monitored for.
Resolve Task Name Condition	If Monitoring Type = Generals Task(s) and Task Name Condition = Starts With, Contains, Ends With, or Equals; Specification (true or false) for whether or not to resolve at run time any variables in the task name of the task(s) being monitored. Default is false.
Workflow Name Condition	Type of condition for the name of a workflow or workflows containing the task being monitored for. If you select a condition type, a corresponding field displays that allows you to enter a value for that condition. Only tasks in workflows meeting the specified condition value will be monitored for. Options: • - - None - - • Equals • Starts With • Contains • Ends With • Wildcard
Workflow Name Equals	Optional if Workflow Name Condition = Equals; Exact name of a workflow or workflows containing the task being monitored for. If the field is blank, the Task Monitor will consider a Task Instance for a match only if the Task Instance is not contained within a workflow.
Workflow Name Starts With	Required if Workflow Name Condition = Starts With; Character string at the start of the name of a workflow or workflows containing the task being monitored for.
Workflow Name Contains	Required if Workflow Name Condition = Contains; Character string in the name of a workflow or workflows containing the task being monitored for.
Workflow Name Ends With	Required if Workflow Name Condition = Ends With; Character string at the end of the name of a workflow or workflows containing the task being monitored for.
Workflow Name Wildcard	Required if Workflow Name Condition = Ends With; Character string of a wildcard in the name of a workflow or workflows containing the task being monitored for.

Time Scope	Used for Task Monitor tasks not associated with a trigger. The Time Scope fields are used to create a window during which the Task Monitor conditions must be met in order for the Task Monitor to be satisfied. Options: • -- None -- • Relative • Relative / Last Run The Time Scope window is always relative to the time that the Task Monitor launched. For example, if you put -01:00 in the From time field and 02:00 in the To time field, the window's begin time is one hour before the Task Monitor is launched and its end time is two hours after it is launched. Use Relative / Last Run if you want to match the most recent prior instance. **Note** For additional details, see Understanding Relative Time Scope, below.
Expiration Action	If Time Scope = Relative or Relative / Last Run and the Task Monitor cannot find any matches during the specified criteria and time interval; State to transition to if Relative Time Scope conditions are not met within the specified window. Options: • Failed • Finished • Failed If Potential Match Found Else Finished • Finished If Potential Match Found Else Failed
Time Scope From	Format is (+/-)hh:mm If Time Scope = Relative or Relative / Last Run; used for Task Monitor tasks not associated with a trigger. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00. Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met. If the conditions are not met within the specified window, the Task Monitor task instance will transition to Failed (default) or Finished status determined by the Expiration Action. • Required if Time Scope = Relative. • Optional if Time Scope = Relative / Last Run; if a value is not specified, the Task Monitor has no limit on how far back it can look for a match.
Time Scope To	Format is (+/-)hh:mm If Time Scope = Relative or Relative / Last Run; used for Task Monitor tasks not associated with a trigger. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00. Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Task Monitor task launched, during which the conditions of the Task Monitor must be met. If the conditions are not met within the specified window, the Task Monitor task instance will transition to Failed (default) or Finished status determined by the Expiration Action.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.

Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds

Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.

Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)

Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.

CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.

After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Operational Memo History	History of all Operational Memos for the task.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.

<table>
<tr><td>Re-run</td><td>See Re-running a Task Instance.

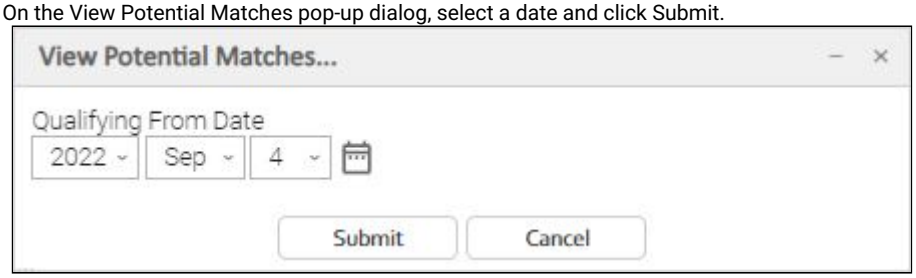
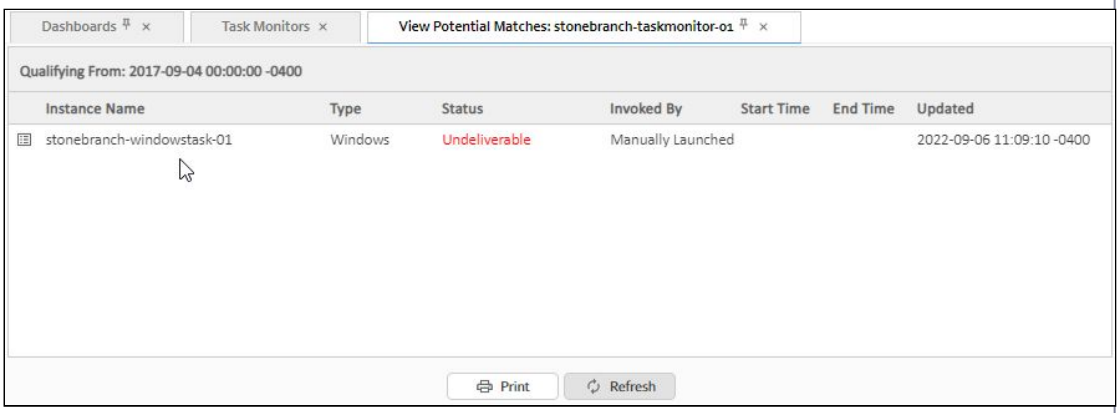
Note
If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options:
• Re-run
• Re-run (Suppress Intermediate Failures)

The Re-run button does not display if the task instance does not qualify for Re-run.
If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.</td></tr>
<tr><td>View Parent</td><td>Displays the task instance Details for the parent Workflow of this task instance.</td></tr>
<tr><td>Delete</td><td>Deletes the current record.</td></tr>
<tr><td>View Potential Matches</td><td>For Task Monitor task instances in Running status; Allows you to view a list of running task instances that have the potential to match the specifications for tasks being monitored by the running Task Monitor instance (see Viewing Potential Matches for a Running Task Monitor Task Instance, below).</td></tr>
<tr><td>Refresh</td><td>Refreshes any dynamic data displayed in the Details.</td></tr>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task instance.</td></tr>
<tr><td>Delete</td><td>Deletes the current record.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</td></tr>
<tr><td>Actions</td><td>Actions that the Controller took automatically based on events that occurred during the execution of this task.
Events are:
• Task instance status
• Exit codes
• Late start
• Late finish
• Early finish
Actions are:
<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
</table>

Virtual Resources	Lists all Virtual Resources to which this task is assigned. If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.
Exclusive Requests	Lists all records in the Exclusive Requests table (`ops_exclusive_order`) for this task instance.
Notes	Lists all notes associated with this record.

4.6 Viewing Potential Matches for a Running Task Monitor Task Instance

To view a list of running task instances that have the potential to match the specifications for tasks being monitored by the running Task Monitor task instance:

Step 1	Either: • From the Activity Monitor or Task Instances list, right-click the the running Task Monitor task instance and select View Potential Matches from the Action Menu. • Open the running Task Monitor task instance and click the View Potential Matches button or right-click in the task instance Details and select View Potential Matches from the Action Menu. • If the running Task Monitor task instance is part of a Workflow, right-click the task instance in the Workflow Monitor and select View Potential Matches from the menu.
Step 2	On the View Potential Matches pop-up dialog, select a date and click Submit. 
Step 3	A list of all potential matches displays in a new tab. 
Step 4	Click **Print** to print a hard copy of the list or **Refresh** to refresh the task instances on the list.

4.7 Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

4.8 Understanding Relative Time Scope

For any *relative* Time Scope conditions *within the past*, a Task Monitor will analyze only the current content of the database; specifically, by using the Status (ops_exec."status_code") and the State Changed Time (ops_exec."state_changed_time") to determine potential matches from the time window in the past.

Consider a Task Monitor instance monitoring for a Failed status within a time window in the past. If a potential task instance has a current status of Failed, the current State Changed Time will indicate when that task instance transitioned to the Failed status. When the Task Monitor instance runs, any task instance with a matching Status, and a State Changed Time within the time window in the past, can be considered for a match.

Note

The Task Monitor instance will consider only the *current* content (that is, *current* Status and *current* State Changed Time) of the All Task Instances (ops_exec) table when searching for qualifying task instances that *match within a time window in the past*.

Revisiting the example above, if you had a task instance with a status of Failed within the time window in the past, but prior to the Task Monitor instance running, the task instance was Finished, it would no longer be considered for a match.

Be aware that when specified, the Time Scope is *relative* to the time that the Task Monitor instance runs.

For example, consider the following Task Monitor instance:

Field	Value
Start Time	2017-11-02 15:05:00 -0400
From	-6:00
To	-2:00
Status To Monitor	Success
Task To Monitor	Sleep 0

For the *relative* Time Scope specified above, with a time window in the past, this would translate into the following query, paying particular attention to how the relative times are computed.

```
SELECT * FROM ops_exec WHERE "state_changed_time" >= '2017-11-02 09:05:00 -0400' AND "state_changed_time" <= '2017-11-02 13:05:00 -0400' AND "status_code" = '200' AND "task_id" = '410d6c0bc0a801c901838d8ac43b3279'
```

5 Agent File Monitor Task

5.1 Overview

The Agent File Monitor task allows you to monitor a specific remote machine for the creation, deletion, change, existence, or non-existence of one or more files at a specific location. In order to run an Agent File Monitor task, you need Universal Agent for Windows, Linux/Unix, or z/OS running on the machine where you are monitoring for the file.

5.2 Processing Flow for Agent File Monitors

Agent File Monitor tasks are meant to be launched either by using a Agent File Monitor trigger or by being included within a Workflow. However, there are no technical restrictions on how an Agent File Monitor task can be launched. The processing may differ depending on which of the following methods was used to launch it:

- Launched by a Workflow
- Launched by an Agent File Monitor trigger
- Launched manually or by another trigger type

The processing on an Agent File Monitor task for each launching method is described below.

Note

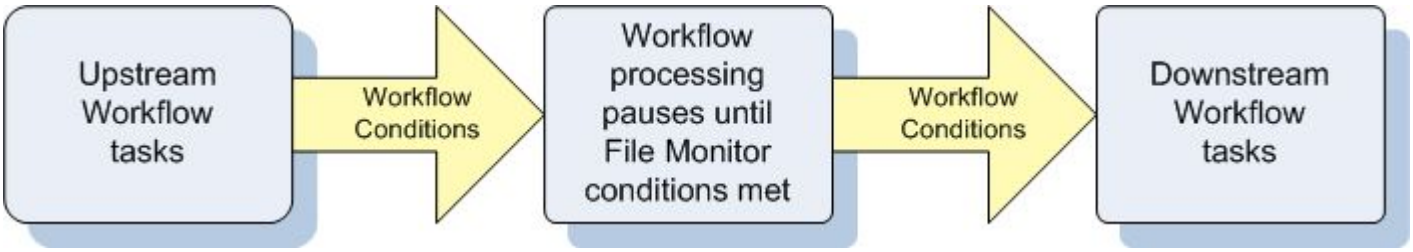
Any changes made to an Agent File Monitor task are not recognized by its respective Triggers until those Triggers are disabled and re-enabled.

5.2.1 Launching an Agent File Monitor Task Within a Workflow

The Agent File Monitor task can be launched within a Workflow.

In this scenario, the task launches when the upstream workflow conditions are satisfied. Workflow processing then pauses until the conditions in the Agent File Monitor task are satisfied. If the Agent File Monitor is watching for the creation, change, or deletion of a file, the task goes to SUCCESS when the event occurs. If the Agent File Monitor is watching for the existence or non-existence of a file, the task immediately goes to SUCCESS or FAILURE. Subsequent processing depends on the conditions built into the Workflow.

The following diagram illustrates the processing for this scenario.



5.2.2 Launching an Agent File Monitor Task Using an Agent File Monitor Trigger

A common use for the Agent File Monitor task is to launch it using an Agent File Monitor trigger, which specifies one or more tasks that are launched when a condition(s) is satisfied.

In this scenario, the Agent File Monitor task launches when its associated Agent File Monitor trigger is enabled.

Note

You should use an Agent File Monitor trigger to launch only Agent File Monitor tasks that specify a single Agent, not an Agent Cluster. An Agent File Monitor trigger can launch only a single task, not multiple tasks, which would be the case if an Agent Cluster was specified.

This method is best geared toward watching for the creation, deletion, or change in files. When the conditions in the Agent File Monitor task are satisfied, the Agent File Monitor task goes to SUCCESS and the tasks listed in the associated trigger are launched. The Agent File Monitor task continues running until its conditions are satisfied or until the user disables the trigger.

If you use this method to check for the existence or non-existence of a file, as soon as the task is launched it goes to SUCCESS or FINISHED status. If it goes to SUCCESS, the tasks specified in the trigger are launched. A FINISHED status indicates that it found a file that should not be there or did not find a file that should be there. Both of these cases constitute a "failure" of the conditions and therefore the tasks in the trigger are not launched.

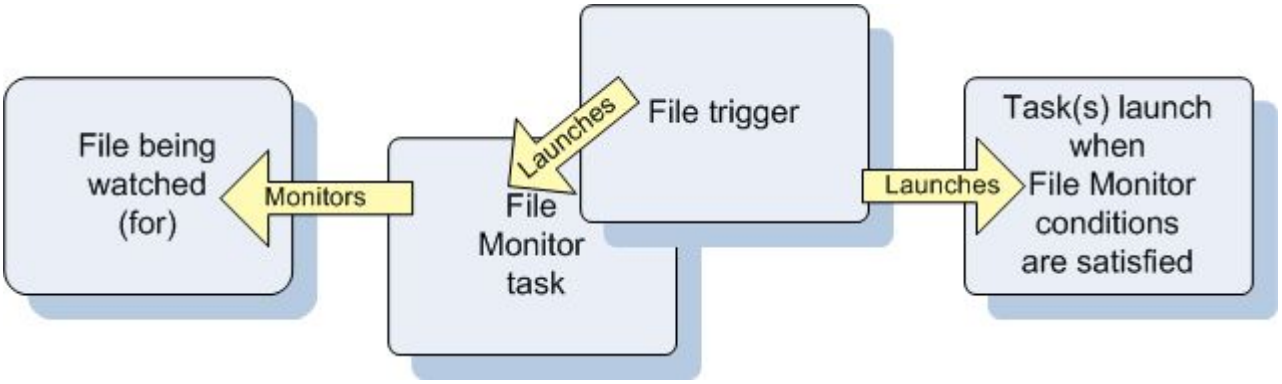
When the Agent File Monitor task goes to FINISHED or SUCCESS, the associated Agent File (Monitor) trigger is automatically disabled.

Note

Using an Agent File Monitor trigger to trigger an Agent File Monitor task that is monitoring for the creation of one or more files (Monitor Type = Exists) will disable the trigger. You should instead specify (Monitor Type = Create) and check Trigger on Existence.

When you launch an Agent File Monitor task from an Agent File Monitor trigger, you cannot manually cancel or force finish the task. You can only stop the task by disabling the trigger. If you manually disable the trigger while the task is still running, the task goes to FINISHED status.

The diagram below illustrates the processing flow for this scenario.



5.2.3 Launching an Agent File Monitor Task Manually or Via Other Trigger

If you manually launch an Agent File Monitor task or launch it using a non-Agent File Monitor trigger, such as a Time trigger, the task continues running until its specified conditions are met, at which time the task goes to SUCCESS. No other processing occurs unless you have configured notifications with the task or set up some other task(s) to launch based on the status of this task.

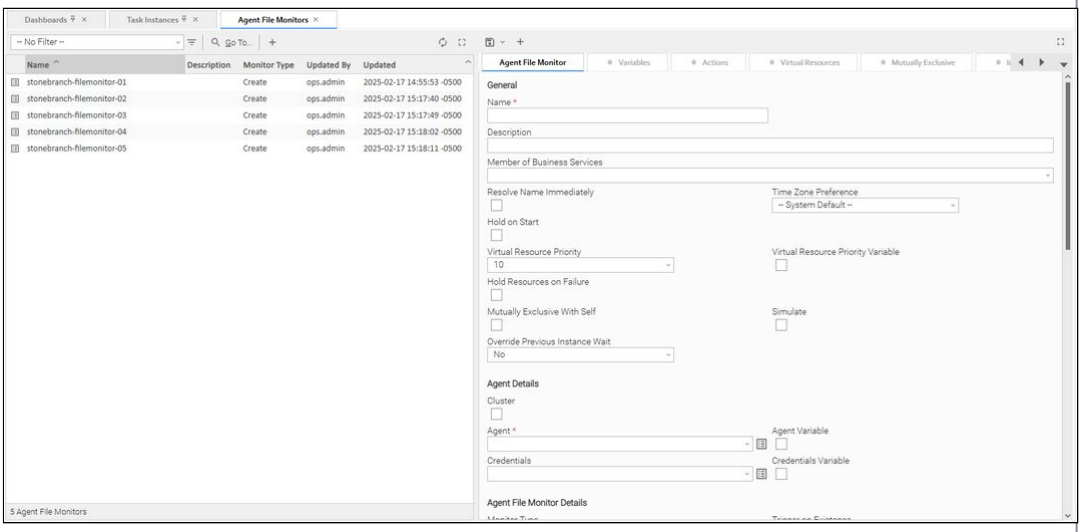
If the conditions are not met, the task runs perpetually or until a user issues a Cancel or Force Finish command against it.

5.3 Built-In Variables

The following built-in variables can be used in an Agent File Monitor task to pass data where appropriate:

- Task Instance variables
- Agent-Based Task Instance variables
- Agent File Monitor Task variables

5.4 Creating an Agent File Monitor Task

Step 1	From the Automation Center navigation pane, select **Agent File Monitor Tasks**. The Agent File Monitor Tasks list displays a list of all currently defined Agent File Monitor tasks. To the right of list, Agent File Monitor Task Details for a new Agent File Monitor task displays. 
Step 2	Enter/select Details for a new Agent File Monitor task, using the field descriptions below as a guide. • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the + button above the list to display a pop-up version of the Details.
Step 3	Click the save button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

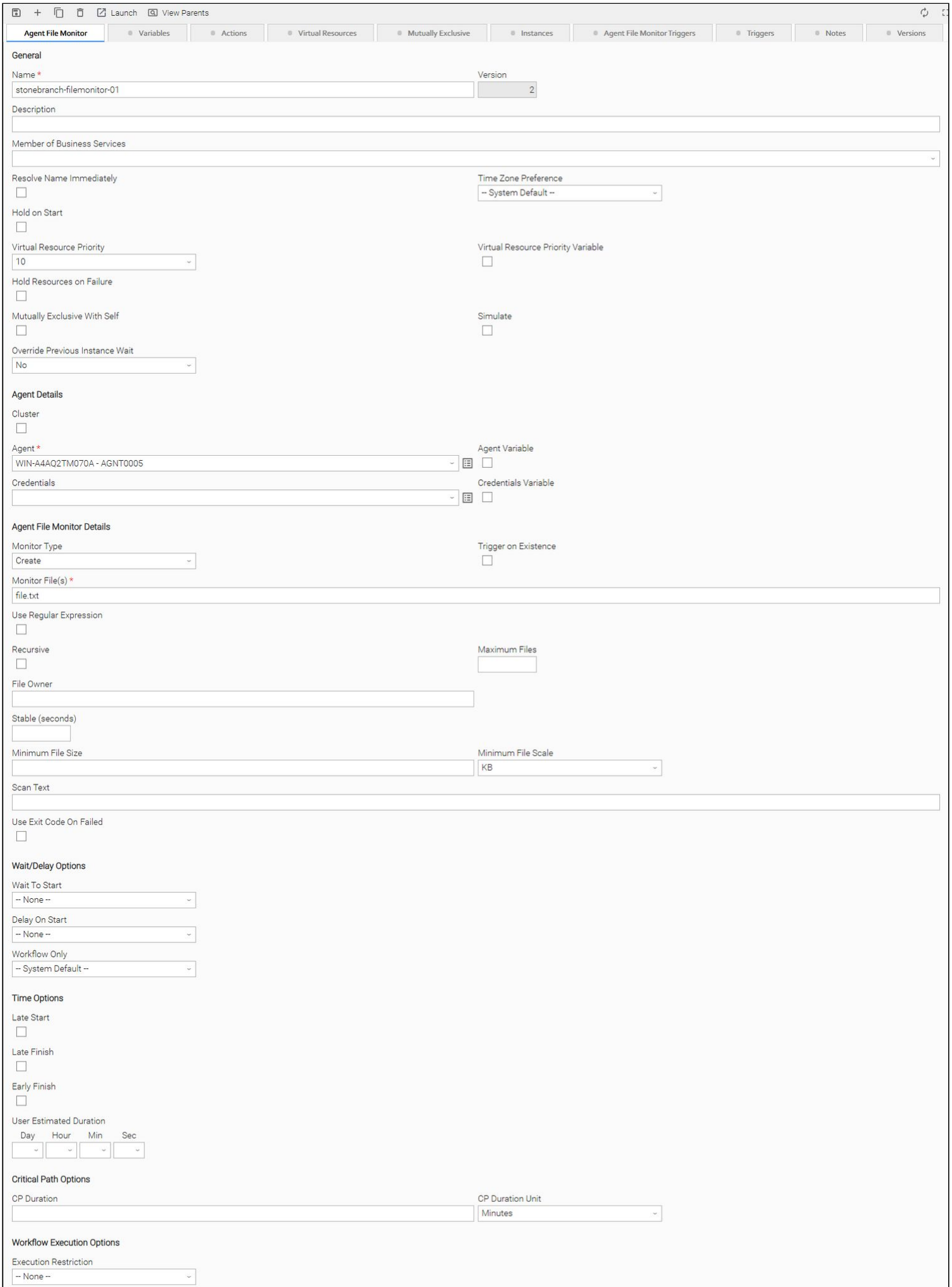
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

5.4.1 Agent File Monitor Task Details

The following Agent File Monitor Task Details is for an existing Agent File Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Agent File Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Agent File Monitor Task Details.


Launch
View Parents
Agent File Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Agent File Monitor Triggers
Triggers
Notes
Versions
General
Name *
stonebranch-filemonitor-01
Version
2
Description
Member of Business Services
Resolve Name Immediately
Time Zone Preference
-- System Default --
Hold on Start
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Override Previous Instance Wait
No
Agent Details
Cluster
Agent *
WIN-A4AQ2TM070A - AGNT0005
Agent Variable
Credentials
Credentials Variable
Agent File Monitor Details
Monitor Type
Create
Trigger on Existence
Monitor File(s) *
file.txt
Use Regular Expression
Recursive
Maximum Files
File Owner
Stable (seconds)
Minimum File Size
Minimum File Scale
KB
Scan Text
Use Exit Code On Failed
Wait/Delay Options
Wait To Start
-- None --
Delay On Start
-- None --
Workflow Only
-- System Default --
Time Options
Late Start
Late Finish
Early Finish
User Estimated Duration
Day
Hour
Min
Sec
Critical Path Options
CP Duration
CP Duration Unit
Minutes
Workflow Execution Options
Execution Restriction
-- None --

5.4.2 Agent File Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Agent File Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.

Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Override Previous Instance Wait	Specifies whether or not to override the parent workflow's **Previous Instance Wait** configuration. This option only applies for an instance running within a workflow. Options: • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.
Cluster Broadcast Variable	Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Agent File Monitor Details	This section contains assorted detailed information about the task.
Monitor Type	Type of file event being monitored for. Options: • Create - Wait for the creation of one or more files. • Delete - Wait for the deletion of one or more files. • Change - Monitor for a change in one or more files. • Exists - Check to see if one or more files already exist. • Missing - Check to see if one or more files do not exist. **Note** For UNIX and Windows, Agent File Monitor polls the directory listing every 5 seconds to compare the listings and decide whether there were any file system changes that match the monitor criteria.
Trigger on Existence	If Monitor Type = Create; Task is triggered if the file being monitored for creation already exists. **Note** This field is valid only for Linux/Unix and Windows Agents.
Trigger on Create	If Monitor Type = Change; Task is triggered if the file being monitored is being created. **Note** This field is valid only for z/OS Agents.

Monitor File(s)	Location and name of a specific file or file pattern (for example, ACT001*) being monitored. Variables supported. Wildcards supported. **Note** z/OS files must be valid names based on the Data Set Naming Rules. No extra quoting is necessary. **Note** Agent File Monitors with Monitor Type = Exists or Missing do not work with GDG datasets. Whether the generation is coded explicitly (for example: DATA.SET.NAME.G0001V00) or relatively (for example: DATA.SET.NAME(0)), the Agent File Monitor will always end with 'Dataset Not Found'.
Use Regular Expression	Enables the use of a regular expression in the Monitor File(s) field.
Recursive	If enabled, the monitor searches the specified directory and all subdirectories.
Maximum Files	If Monitor Type = Create, Delete, or Change; For searches that use wildcards, limits the number of files to be searched.
File Owner	If Monitor Type = Create, Delete, Change, or Exists; User name / group name of the owner of the file on the operating system; that is, the user name / group name returned by the operating system in the file ownership information. LDAP groups are supported. Specifying a file owner limits the search to files with that owner.
Stable (seconds)	If Monitor Type = Change or Create; Period of time, in seconds, that a file's timestamp and size may not change to be considered as stable. Not applicable for z/OS.
By Percentage (+/-)	If Monitor Type = Change; Number that specifies the growth of a file as a percentage. A negative number specifies a reduction in size as a percentage. Not applicable for z/OS.
By Size (+/-)	If Monitor Type = Change; Used in conjunction with the By Scale field, specifies an actual change in file size. For example, to monitor for a change in file size of 10 MB, enter 10 in this field and select MB in the By Scale field. Enter a negative number to specify a reduction in size. Not applicable for z/OS.
By Scale	If Monitor Type = Change; Used in conjunction with the By Size field, specifies Bytes, KB (kilobytes), or MB (megabytes). Not applicable for z/OS.
To Size	If Monitor Type = Change; Used in conjunction with the To Scale field, specifies an actual file size that you want to monitor for. For example, to monitor for a file size of 5KB, enter 5 in this field and select KB in the To scale field. Not applicable for z/OS.
To Scale	If Monitor Type = Change; Used in conjunction with the To Size field, specifies an actual file size that you want to monitor for. Not applicable for z/OS.
Minimum File Size	If Monitor Type = Create; Minimum file size required for the file being created. Not applicable for z/OS.
Minimum File Scale	If Monitor Type = Create; Scale for the Minimum File Size. Not applicable for z/OS. Options: • Bytes • KB • MB

Scan Text	If Monitor Type = Change or Exists, or if Monitor Type = Create and a value for Stable (seconds) is specified; Specifying a string means that only files containing the string constitute a match. The string will be processed as a regular expression. Not applicable for z/OS. Maximum is 256 bytes.
Scan Forward	If Monitor Type = Change; Specifies that once the File Monitor has been satisfied, it should continue from where it left off. • If it is scanning within a file, it should resume from the point in the file that it last scanned. • If it is monitoring for files, it should resume monitoring for the next file. • If you are scanning a file that is being overwritten each time and you want to start from the beginning each time, you should disable Scan Forward. Not applicable for z/OS.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.

Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related statistics for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.

Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.

Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce **Launch with Variables...** when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using **Launch with Variables...** from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. **Note** You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

<table>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</td></tr>
<tr><td>Variables</td><td>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</td></tr>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Agent File Monitor Triggers</td><td>Lists all Agent File Monitor triggers that reference this task in the Agent File Monitor field of the trigger Details; that is, a list of all Agent File Monitor triggers that execute this task. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

5.5 Viewing an Agent File Monitor Task Instance

When an Agent File Monitor task is launched, the Controller creates a task instance record of that task.

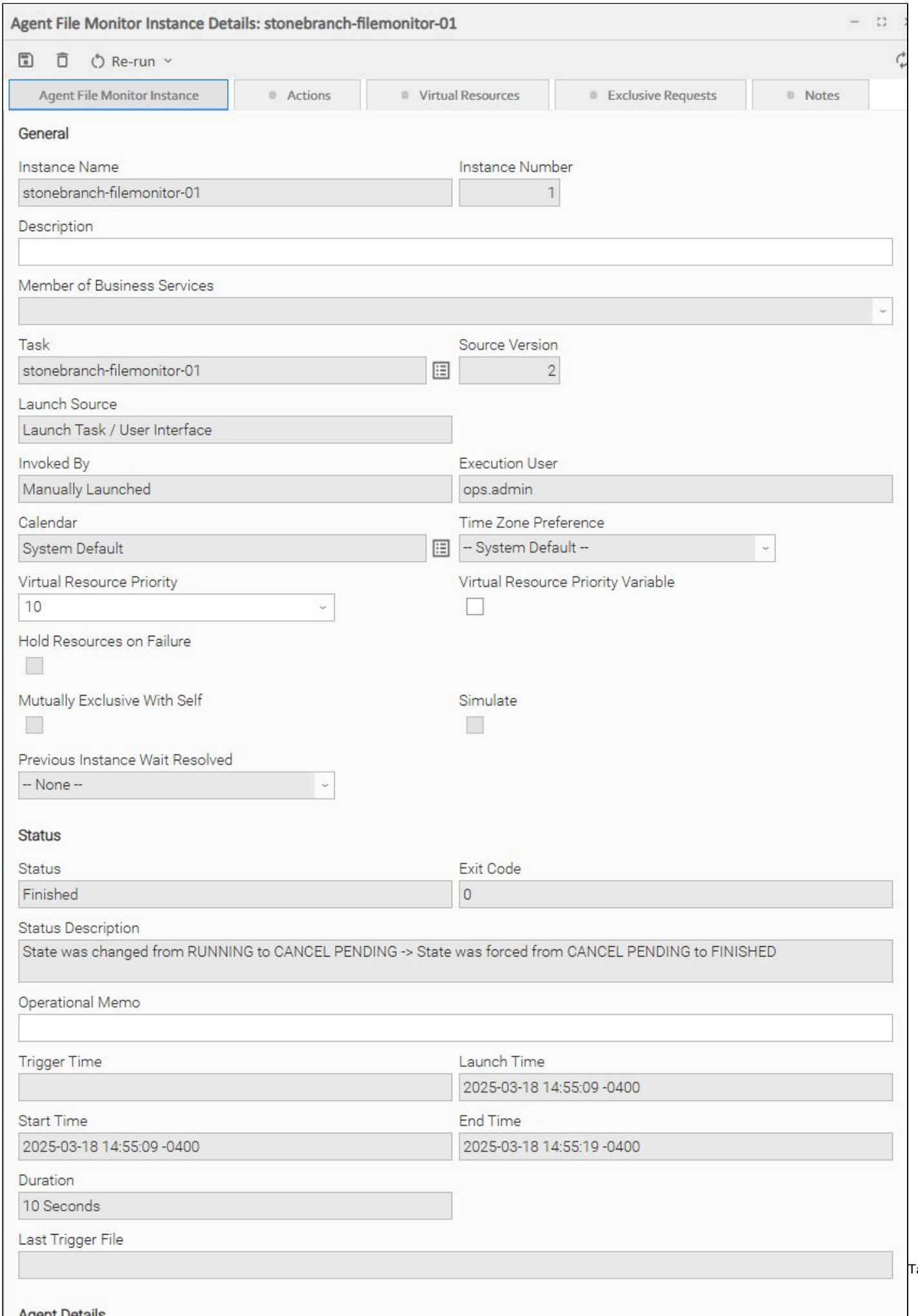
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Agent File Monitor Task Details for that task
- Activity Monitor
- Task Instances list

5.5.1 Agent File Monitor Task Instance Details

The following Agent File Monitor Task Instance Details contains information on the execution of the task shown in the Agent File Monitor Task Details.


Agent File Monitor Instance Details: stonebranch-filemonitor-01
Re-run
Agent File Monitor Instance
Actions
Virtual Resources
Exclusive Requests
Notes
General
Instance Name
stonebranch-filemonitor-01
Instance Number
1
Description
Member of Business Services
Task
stonebranch-filemonitor-01
Source Version
2
Launch Source
Launch Task / User Interface
Invoked By
Manually Launched
Execution User
ops.admin
Calendar
System Default
Time Zone Preference
-- System Default --
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Previous Instance Wait Resolved
-- None --
Status
Status
Finished
Exit Code
0
Status Description
State was changed from RUNNING to CANCEL PENDING -> State was forced from CANCEL PENDING to FINISHED
Operational Memo
Trigger Time
Launch Time
2025-03-18 14:55:09 -0400
Start Time
2025-03-18 14:55:09 -0400
End Time
2025-03-18 14:55:19 -0400
Duration
10 Seconds
Last Trigger File
Agent Details

5.5.2 Agent File Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Agent File Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

Launch Source	System-supplied; Source from which this task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance. • If the instance was directly launched by a **Trigger Now** command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the **Launch Task** command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a **Recurring Task Instance;** the UUID of the **Recurring Task Instance**.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait. Options: • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.

Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Agent File Monitor Details	This section contains assorted detailed information about the task instance.
Monitor Type	Type of file event being monitored for. Options: • Create - Wait for the creation of one or more files. • Delete - Wait for the deletion of one or more files. • Change - Monitor for a change in one or more files. • Exists - Check to see if one or more files already exist. • Missing - Check to see if one or more files do not exist. **Note** For UNIX and Windows, Agent File Monitor polls the directory listing every 5 seconds to compare the listings and decide whether there were any file system changes that match the monitor criteria.

Trigger on Existence	If Monitor Type = Create; Task is triggered if the file being monitored for creation already exists. **Note** This field is valid only for Linux/Unix and Windows Agents.
Trigger on Create	If Monitor Type = Change; Task is triggered if the file being monitored is being created. **Note** This field is valid only for z/OS Agents.
Monitor File(s)	Location and name of a specific file or file pattern (for example, ACT001*) being monitored. Variables supported. Wildcards supported. **Note** z/OS files must be valid names based on the Data Set Naming Rules. No extra quoting is necessary. **Note** Agent File Monitors with Monitor Type = Exists or Missing do not work with GDG datasets. Whether the generation is coded explicitly (for example: DATA.SET.NAME.G0001V00) or relatively (for example: DATA.SET.NAME(0)), the Agent File Monitor will always end with 'Dataset Not Found'.
Use Regular Expression	Enables the use of a regular expression in the Monitor File(s) field.
Recursive	If enabled, the monitor searches the specified directory and all subdirectories.
Maximum Files	If Monitor Type = Create, Delete, or Change; For searches that use wildcards, limits the number of files to be searched.
File Owner	If Monitor Type = Create, Delete, Change, or Exists; User name / group name of the owner of the file on the operating system; that is, the user name / group name returned by the operating system in the file ownership information. LDAP groups are supported. Specifying a file owner limits the search to files with that owner.
Stable (seconds)	If Monitor Type = Change or Create; Period of time, in seconds, that a file's timestamp and size may not change to be considered as stable. Not applicable for z/OS.
By Percentage (+/-)	If Monitor Type = Change; Number that specifies the growth of a file as a percentage. A negative number specifies a reduction in size as a percentage. Not applicable for z/OS.
By Size (+/-)	If Monitor Type = Change; Used in conjunction with the By Scale field, specifies an actual change in file size. For example, to monitor for a change in file size of 10 MB, enter 10 in this field and select MB in the By Scale field. Enter a negative number to specify a reduction in size. Not applicable for z/OS.

By Scale	If Monitor Type = Change; Used in conjunction with the By Size field, specifies Bytes, KB (kilobytes), or MB (megabytes). Not applicable for z/OS.
To Size	If Monitor Type = Change; Used in conjunction with the To Scale field, specifies an actual file size that you want to monitor for. For example, to monitor for a file size of 5KB, enter 5 in this field and select KB in the To scale field. Not applicable for z/OS.
To Scale	If Monitor Type = Change; Used in conjunction with the To Size field, specifies an actual file size that you want to monitor for. Not applicable for z/OS.
Minimum File Size	If Monitor Type = Create; Minimum file size required for the file being created. Not applicable for z/OS.
Minimum File Scale	If Monitor Type = Create; Scale for the Minimum File Size. Not applicable for z/OS. Options: • Bytes • KB • MB
Scan Text	If Monitor Type = Change or Exists, or if Monitor Type = Create and a value for Stable (seconds) is specified; Specifying a string means that only files containing the string constitute a match. The string will be processed as a regular expression. Not applicable for z/OS. Maximum is 256 bytes.
Scan Forward	If Monitor Type = Change; Specifies that once the File Monitor has been satisfied, it should continue from where it left off. • If it is scanning within a file, it should resume from the point in the file that it last scanned. • If it is monitoring for files, it should resume monitoring for the next file. • If you are scanning a file that is being overwritten each time and you want to start from the beginning each time, you should disable Scan Forward. Not applicable for z/OS.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.

Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.

Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.

Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Operational Memo History	History of all Operational Memos for the task.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. **Note** If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.

<table>
<tr><td>Refresh</td><td>Refreshes any dynamic data displayed in the Details.</td></tr>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task instance.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</td></tr>
<tr><td>Actions</td><td>Actions that the Controller took automatically based on events that occurred during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Exclusive Requests</td><td>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
</table>

5.6 Monitoring Task Execution

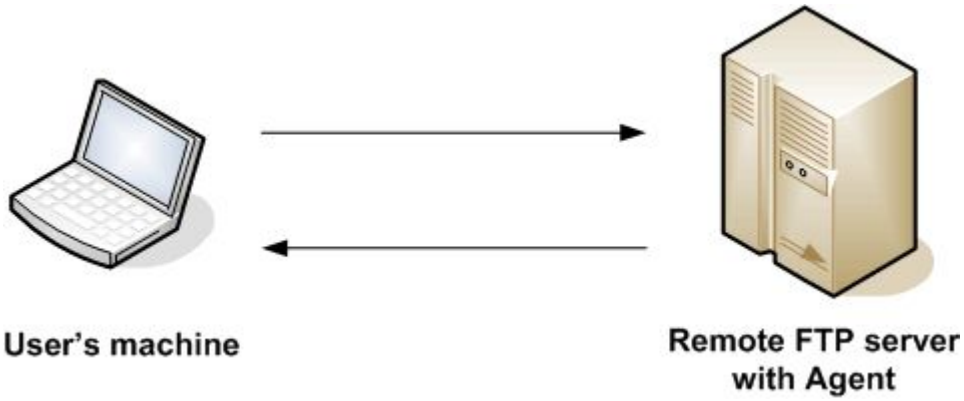
You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

6 Remote File Monitor Task

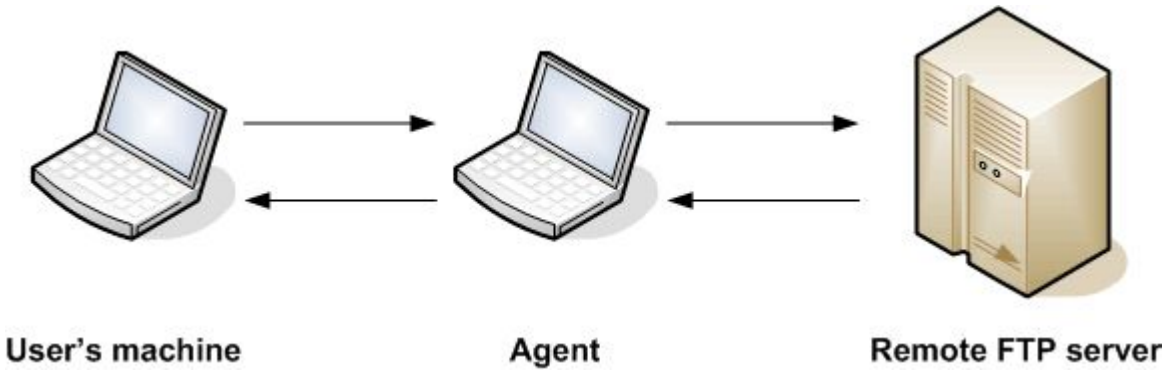
6.1 Overview

The Remote File Monitor task allows you to monitor for a file on a remote machine where an FTP server is running. The Remote File Monitor connects to the FTP server rather than the machine's file system to monitor for files. The Remote File Monitor can be used only within a workflow; you cannot run a Remote File Monitor task based on a trigger. To run a Remote File Monitor task, you need Universal Agent to communicate with the FTP server. The Agent can, but does not have to be, running on the same machine as the FTP server.

In the following example, the user wants to monitor for a file on a remote FTP Server that has an Agent running on it. In this case, the login credentials for the Agent machine and the FTP server machine are the same.



In the following example, the user wants to monitor for a file on a remote FTP Server that does not have an Agent running on it. In this case, the Remote File Monitor task definition provides an address and login credentials for the machine where the Agent is running as well as address and login credentials for the FTP server.

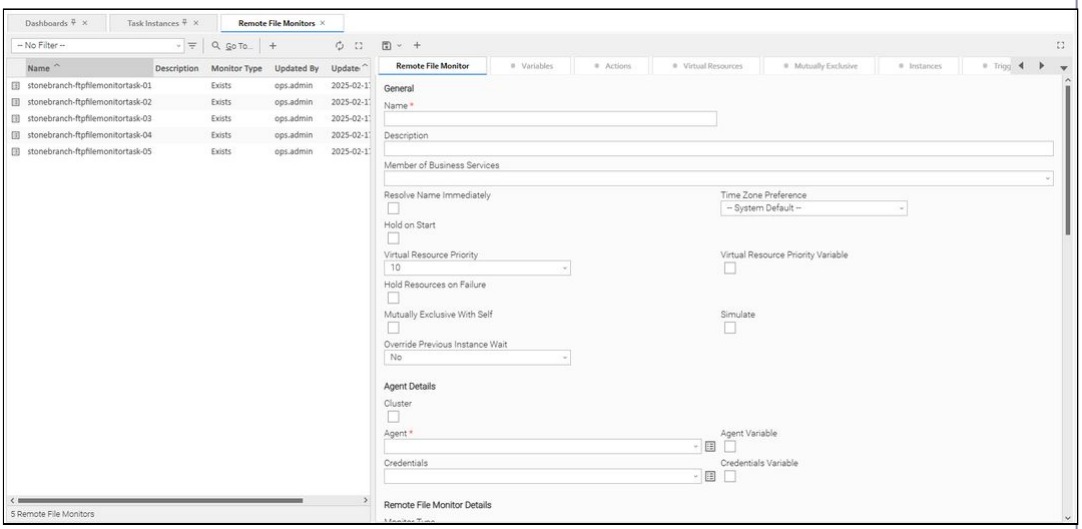


6.2 Built-In Variables

The following built-in variables can be used in a Remote File Monitor task to pass data where appropriate:

- Task Instance variables
- Agent-Based Task Instance variables
- Remote File Monitor Task variables

6.3 Creating a Remote File Monitor Task

Step 1	From the Automation Center navigation pane, select **Remote File Monitor Tasks**. The Remote File Monitor Tasks list displays a list of all currently defined Remote File Monitor tasks. To the right of the list, Remote File Monitor Task Details for a new Remote File Monitor task displays. 
Step 2	Enter/select Details for a new Remote File Monitor task, using the field descriptions below as a guide. • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the + button above the list to display a pop-up version of the Details.

Step 3	Click the  button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

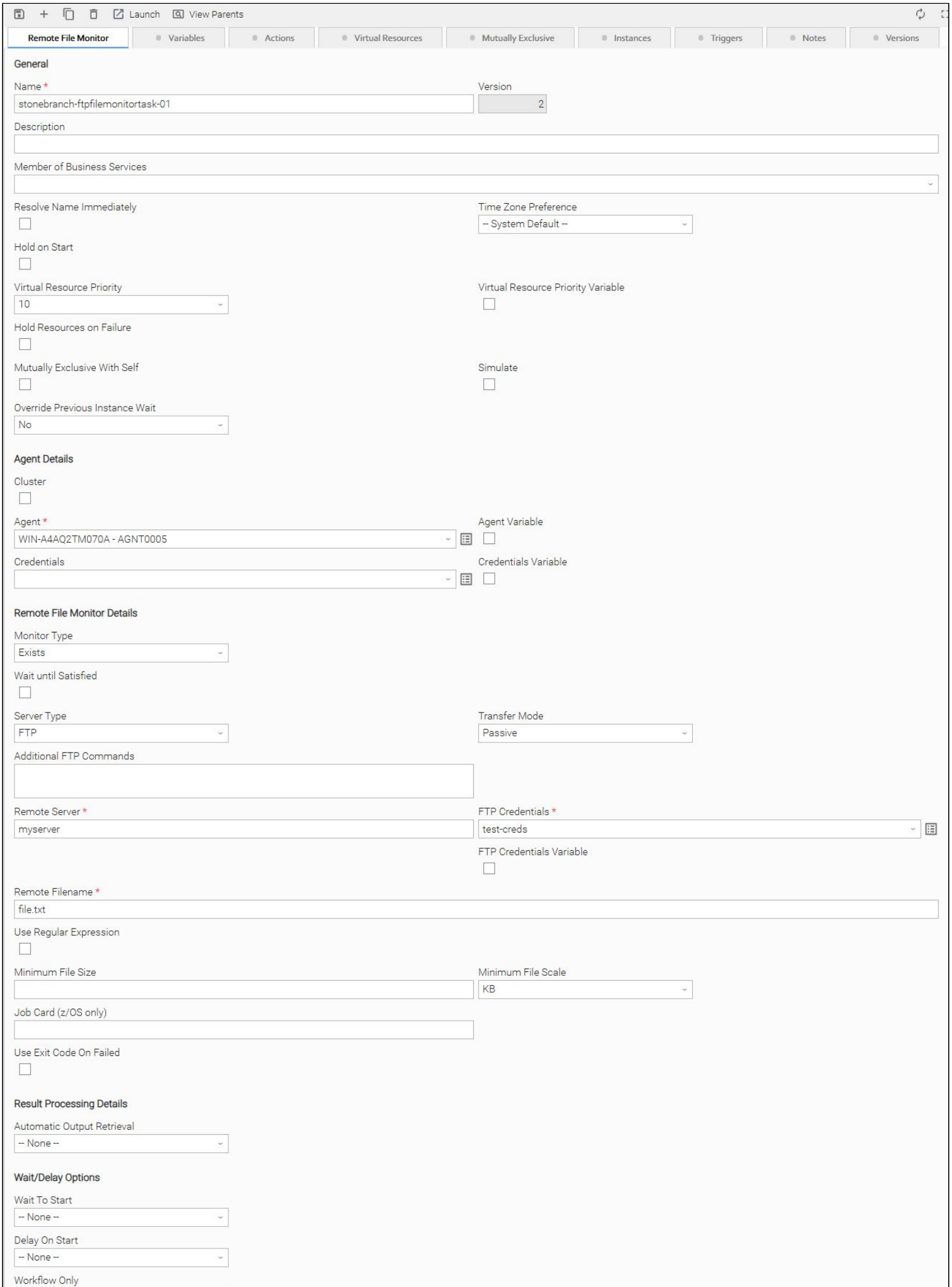
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

6.3.1 Remote File Monitor Task Details

The following Remote File Monitor Task Details is for an existing Remote File Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Remote File Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Remote File Monitor Task Details.


Launch
View Parents
Remote File Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Name *
stonebranch-ftpfilemonitortask-01
Version
2
Description
Member of Business Services
Resolve Name Immediately
Time Zone Preference
-- System Default --
Hold on Start
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Override Previous Instance Wait
No
Agent Details
Cluster
Agent *
WIN-A4AQ2TM070A - AGNT0005
Agent Variable
Credentials
Credentials Variable
Remote File Monitor Details
Monitor Type
Exists
Wait until Satisfied
Server Type
FTP
Transfer Mode
Passive
Additional FTP Commands
Remote Server *
myserver
FTP Credentials *
test-creds
FTP Credentials Variable
Remote Filename *
file.txt
Use Regular Expression
Minimum File Size
Minimum File Scale
KB
Job Card (z/OS only)
Use Exit Code On Failed
Result Processing Details
Automatic Output Retrieval
-- None --
Wait/Delay Options
Wait To Start
-- None --
Delay On Start
-- None --
Workflow Only

6.3.2 Remote File Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Remote File Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.

Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Override Previous Instance Wait	Specifies whether or not to override the parent workflow's **Previous Instance Wait** configuration. This option only applies for an instance running within a workflow. Options: • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.
Cluster Broadcast Variable	Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Remote File Monitor Details	This section contains assorted detailed information about the task.
Monitor Type	Type of file event being monitored for. Options: • Exists - Checks to see if the file exists. • Missing - Checks to see if the file does not exist.
Wait until Satisfied	If enabled, the task instance starts and continues to run until one of the following events occurs: • If Monitor Type = Exists and the specified file exists or appears, the task instance completes with a status of SUCCESS. • If Monitor Type = Missing and the specified file does not exist (or any part of the path is missing), or exists then disappears, the task instance completes with a status of SUCCESS. If not enabled, the task instance: 1. Starts. 2. Checks for the existence of the file. 3. Takes one of the following actions: • If Monitor Type = Exists and the file exists, the task instance completes with a status of SUCCESS. • If Monitor Type = Exists and the file does not exist (or any part of the path is missing), the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file exists, the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file does not exist (or any part of the path is missing), the task instance completes with a status of SUCCESS.
Poll Interval (Seconds)	If Wait until Satisfied is enabled: Frequency, in seconds, in which the Remote File Monitor will check to see if the file exists or is missing.
Maximum Polls	If Wait until Satisfied is enabled: Maximum number of times that the Remote File Monitor will check to see if the file exists or is missing.

Stable (Seconds)	If Wait until Satisfied is enabled: Period of time, in seconds, during which the file has not changed. For a Remote File Monitor task, a file's stability depends on its size. If the file size displayed in the FTP/SFTP output does not change during the specified number of seconds, the file is considered stable. In order for the task to reliably monitor the file's stability, the task must display a file's size in a well-known location. This means that the file list returned in the output must be in Unix long-listing format, as follows: The task will only find the size if it is in the 5th column (for example, `12345` in the example above). The default file list format varies across different FTP client/server implementations, but most support additional commands that can force the output to the required format. The Additional FTP Commands field is provided to insert those statements into the FTP script that the file monitor task executes.
Server Type	Type of FTP server. Options: • FTP • SFTP • FTPS • FTPES **Note** The Remote File Monitor Task Exclude Protocols Universal Controller system property permits the exclusion of one or more, but not all, protocols (server types) from being selected.)

Additional FTP Commands	If Server Type is FTP, FTPS, or FTPES: Set of extra commands to be sent to the FTP server, such as optional statements that control the FTP output format. The Agent depends on the file list being in Unix "long" format (that is, what you would see if you entered "ls -l" from the command shell) in order to correctly and reliably parse out file name and size (when a Stable period is specified). If the FTP Server is configured to return a different format, the Server may support commands that alter the format. For example, the following statements may be used for a Remote File Monitor task executing against an IBM iSeries (AS/400) FTP Server to ensure a correctly formatted file list: site listfmt 1 site namefmt 1 If the Remote File Monitor task is executing against a Microsoft FTP Server and that Server is configured to return a file list in DOS format, the following statement will toggle the format to a Unix-style listing. site dirstyle Not all FTP client/server implementations provide statements that can alter the format of the **ls** command, which the Remote File Monitor task issues to generate the file listing. However, those implementations may support the **dir** command, which can return the file list in the correct format. If the **dir** command is specified in the Additional FTP Commands field, the Remote File Monitor task will use the results from that command to obtain the file sizes. In such cases, the FTP script will contain the **dir** and **ls** commands, but since statements in the Additional FTP Commands field are inserted into the script prior the **ls** command, the results from the **dir** command are parsed first. If the **dir** command is necessary to obtain the correct file list format, simply specify that command along with the same value specified in the Remote Filename field. For example, if Remote Filename is `/uagtests/data/somefile*.txt`, enter the following in this field: dir /uagtests/data/somefile*.txt This statement also can be used with other commands to get the correct output. For example, if a Windows FTP Server is configured to return file lists in Windows format, use **site** and **dir** commands together in this field: site dirstyle dir /uagtests/data/somefile*.txt Invalid statements or valid statements that do not control the file list format are ignored.

Transfer Mode	Transfer mode. Options: • Active • Passive • Extended Passive
Verify Host Name	If Server Type = FTPS or FTPES; Indication of whether to verify the DNS name or IP address of the FTP server's certificate against the host system.
Authenticate Peer	If Server Type = FTPES; Indication of whether to use a CA certificate configured in the agent to authenticate the FTP server's certificate.
Remote Server	Name or IP address of the remote server. This machine may or may not be the same as the Universal Agent machine. You also can specify a non-standard FTP, SFTP, FTPS, or FTPES port: port number separated from the host name with a colon: "some.server.com:2222".
FTP Credentials	Login credentials that the Agent will use to access the FTP or SFTP server machine. If the Remote File Monitor server and Agent are running on the same machine, enter the same credentials as those you entered in the Credentials field.
FTP Credentials Variable	Indication of whether the FTP Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the FTP Credentials as a variable (checked). Use the format: The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the **FTP Credentials Variable** field to **Yes** and specify the FTP Credentials variable in the **FTP Credentials Unresolved** field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the **FTP Credentials Variable** field to **No** and specify the FTP Credentials reference in the **FTP Credentials** field.
Remote Filename	Path and file name on the remote server. **Note** If the task instance unexpectedly ends in Start Failure, review the Remote Filename for any leading or trailing whitespace (such as CRLF and CR), or any other unintended characters (such as extra slashes).
Use Regular Expression	Enables the use of a regular expression in the Remote Filename field.
Minimum File Size	If Monitor Type = Exists; Minimum file size required to check if the file exists.
Minimum File Scale	If Monitor Type = Exists; Scale for the Minimum File Size. Options: • Bytes • KB • MB

Job Card (z/OS only)	For z/OS, the job card information for the JCL statement. Example:
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0.
Result Processing Details	
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • Standard Output/Error Attach all standard output and standard error output.
Wait for Output	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.
Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.

Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.

Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.

Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce **Launch with Variables...** when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using **Launch with Variables...** from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. **Note** You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

<table>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</td></tr>
<tr><td>Variables</td><td>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</td></tr>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

6.4 Viewing a Remote File Monitor Task Instance

When a Remote File Monitor task is launched, the Controller creates a task instance record of that task.

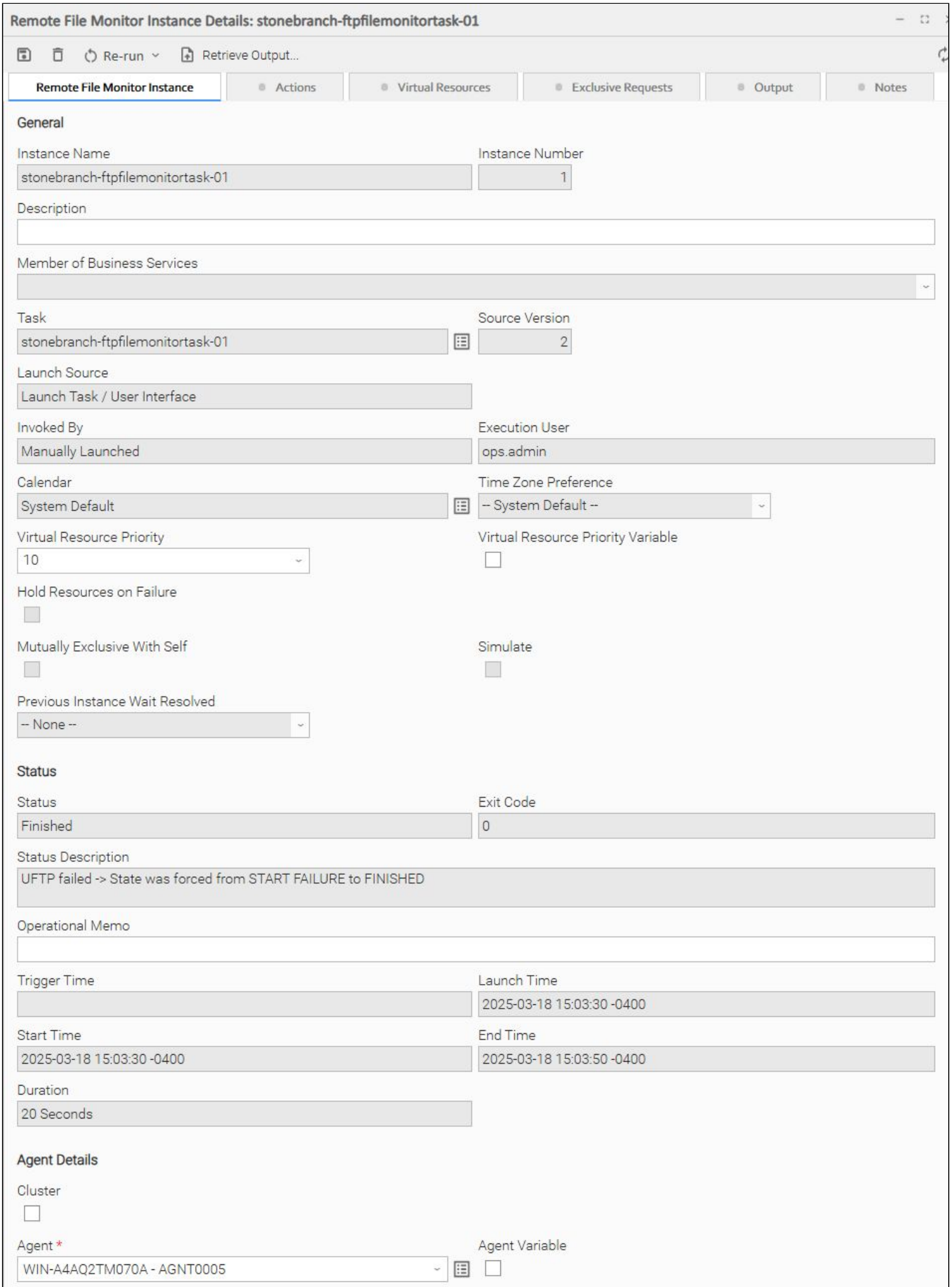
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Remote File Monitor Task Details for that task
- Activity Monitor
- Task Instances list

6.4.1 Remote File Monitor Task Instance Details

The following Remote File Monitor Task Instance Details contains information on the execution of the task shown in the Remote File Monitor Task Details.


Remote File Monitor Instance Details: stonebranch-ftpfilemonitortask-01
Re-run
Retrieve Output...
Remote File Monitor Instance
Actions
Virtual Resources
Exclusive Requests
Output
Notes
General
Instance Name
stonebranch-ftpfilemonitortask-01
Instance Number
1
Description
Member of Business Services
Task
stonebranch-ftpfilemonitortask-01
Source Version
2
Launch Source
Launch Task / User Interface
Invoked By
Manually Launched
Execution User
ops.admin
Calendar
System Default
Time Zone Preference
-- System Default --
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Previous Instance Wait Resolved
-- None --
Status
Status
Finished
Exit Code
0
Status Description
UFTP failed -> State was forced from START FAILURE to FINISHED
Operational Memo
Trigger Time
Launch Time
2025-03-18 15:03:30 -0400
Start Time
2025-03-18 15:03:30 -0400
End Time
2025-03-18 15:03:50 -0400
Duration
20 Seconds
Agent Details
Cluster
Agent *
WIN-A4AQ2TM070A - AGNT0005
Agent Variable

6.4.2 Remote File Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Remote File Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

Launch Source	System-supplied; Source from which this task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance. • If the instance was directly launched by a **Trigger Now** command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the **Launch Task** command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a **Recurring Task Instance;** the UUID of the **Recurring Task Instance**.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait. Options: • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.

Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Remote File Monitor Details	This section contains assorted detailed information about the task instance.
Monitor Type	Type of file event being monitored for. Options: • Exists - Checks to see if the file exists. • Missing - Checks to see if the file does not exist.

Wait until Satisfied	If enabled, the task instance starts and continues to run until one of the following events occurs: • If Monitor Type = Exists and the specified file exists or appears, the task instance completes with a status of SUCCESS. • If Monitor Type = Missing and the specified file does not exist (or any part of the path is missing), or exists then disappears, the task instance completes with a status of SUCCESS. If not enabled, the task instance: 1. Starts. 2. Checks for the existence of the file. 3. Takes one of the following actions: • If Monitor Type = Exists and the file exists, the task instance completes with a status of SUCCESS. • If Monitor Type = Exists and the file does not exist (or any part of the path is missing), the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file exists, the task instance completes with a status of FAILURE. • If Monitor Type = Missing and the file does not exist (or any part of the path is missing), the task instance completes with a status of SUCCESS.
Poll Interval (Seconds)	If Wait until Satisfied is enabled: Frequency, in seconds, in which the Remote File Monitor will check to see if the file exists or is missing.
Maximum Polls	If Wait until Satisfied is enabled: Maximum number of times that the Remote File Monitor will check to see if the file exists or is missing.
Stable (Seconds)	If Wait until Satisfied is enabled: Period of time, in seconds, during which the file has not changed. For a Remote File Monitor task, a file's stability depends on its size. If the file size displayed in the FTP/SFTP output does not change during the specified number of seconds, the file is considered stable. In order for the task to reliably monitor the file's stability, the task must display a file's size in a well-known location. This means that the file list returned in the output must be in Unix long-listing format, as follows: `-rwxr-xr-x 1 owner group 12345 Jan 1 2016 somefile.txt` The task will only find the size if it is in the 5th column (for example, `12345` in the example above). The default file list format varies across different FTP client/server implementations, but most support additional commands that can force the output to the required format. The Additional FTP Commands field is provided to insert those statements into the FTP script that the file monitor task executes.
Server Type	Type of FTP server. Options: • FTP • SFTP • FTPS • FTPES **Note** The Remote File Monitor Task Exclude Protocols Universal Controller system property permits the exclusion of one or more, but not all, protocols (server types) from being selected.)

Additional FTP Commands	If Server Type is FTP, FTPS, or FTPES: Set of extra commands to be sent to the FTP server, such as optional statements that control the FTP output format.
	The Agent depends on the file list being in Unix "long" format (that is, what you would see if you entered "ls -l" from the command shell) in order to correctly and reliably parse out file name and size (when a Stable period is specified). If the FTP Server is configured to return a different format, the Server may support commands that alter the format.
	For example, the following statements may be used for a Remote File Monitor task executing against an IBM iSeries (AS/400) FTP Server to ensure a correctly formatted file list:
	`site listfmt 1`
	`site namefmt 1`
	If the Remote File Monitor task is executing against a Microsoft FTP Server and that Server is configured to return a file list in DOS format, the following statement will toggle the format to a Unix-style listing.
	`site dirstyle`
	Not all FTP client/server implementations provide statements that can alter the format of the **ls** command, which the Remote File Monitor task issues to generate the file listing. However, those implementations may support the **dir** command, which can return the file list in the correct format. If the **dir** command is specified in the Additional FTP Commands field, the Remote File Monitor task will use the results from that command to obtain the file sizes. In such cases, the FTP script will contain the **dir** and **ls** commands, but since statements in the Additional FTP Commands field are inserted into the script prior the **ls** command, the results from the **dir** command are parsed first.
	If the **dir** command is necessary to obtain the correct file list format, simply specify that command along with the same value specified in the Remote Filename field. For example, if Remote Filename is `/uagtests/data/somefile*.txt`, enter the following in this field:
	`dir /uagtests/data/somefile*.txt`
	This statement also can be used with other commands to get the correct output. For example, if a Windows FTP Server is configured to return file lists in Windows format, use **site** and **dir** commands together in this field:
	`site dirstyle`
	`dir /uagtests/data/somefile*.txt`
	Invalid statements or valid statements that do not control the file list format are ignored.

Transfer Mode	Transfer mode. Options: • Active • Passive • Extended Passive
Verify Host Name	If Server Type = FTPS or FTPES; Indication of whether to verify the DNS name or IP address of the FTP server's certificate against the host system.
Transfer Mode	Transfer mode. Options: • Active • Passive • Extended Passive
Remote Server	Name or IP address of the remote server. This machine may or may not be the same as the Universal Agent machine. You also can specify a non-standard FTP, SFTP, FTPS, or FTPES port: port number separated from the host name with a colon: "some.server.com:2222".
FTP Credentials	Login credentials that the Agent will use to access the FTP or SFTP server machine. If the Remote File Monitor server and Agent are running on the same machine, enter the same credentials as those you entered in the Credentials field.
FTP Credentials Variable	Indication of whether the FTP Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the FTP Credentials as a variable (checked). Use the format: The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an FTP Credentials reference to using an FTP Credentials variable, you must change the **FTP Credentials Variable** field to **Yes** and specify the FTP Credentials variable in the **FTP Credentials Unresolved** field. Conversely, to change from using an FTP Credentials variable to using an FTP Credentials reference, you must change the **FTP Credentials Variable** field to **No** and specify the FTP Credentials reference in the **FTP Credentials** field.
Remote Filename	Path and file name on the remote server. **Note** If the task instance unexpectedly ends in Start Failure, review the Remote Filename for any leading or trailing whitespace (such as CRLF and CR), or any other unintended characters (such as extra slashes).
Use Regular Expression	Enables the use of a regular expression in the Remote Filename field.
Minimum File Size	If Monitor Type = Exists; Minimum file size required to check if the file exists.

Minimum File Scale	If Monitor Type = Exists; Scale for the Minimum File Size. Options: • Bytes • KB • MB
Job Card (z/OS only)	For z/OS, the job card information for the JCL statement. Example:
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0.
Result Processing Details	
Automatic Output Retrieval	Specifies whether you want the Controller to automatically retrieve any output from the job and attach it to the task instance record. • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • Standard Output/Error Attach all standard output and standard error output.
Wait for Output	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error, and Failure Only is not enabled (checked); Specification that the task should wait for the requested output before completing.
Failure Only	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error, and Wait For Output is not enabled (checked); Indication for whether output should be retrieved on task failure only.
Start Line	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Instructs the Controller to retrieve data beginning at the line indicated. • If a **Start Line** value is not specified, the default is 1. • If the **Start Line** value is **-1**, data will be retrieved starting at the end of the file.
Number of Lines	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Allows you to limit the retrieved data to the number of lines specified. If a Number of Lines value is not specified, the default is the value of the Retrieve Output Default Number Of Lines Universal Controller system property.

Scan Text	If Automatic Output Retrieval = Standard Output, Standard Error, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR. The Controller will include the **Number of Lines** above and below the first line matched. if the Regex pattern is not found, the following message is returned: OPSWISE WARNING - Scan text string not found.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds

Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.

Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.

Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.

Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Operational Memo History	History of all Operational Memos for the task.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. **Note** If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Retrieve Output	See Retrieving Output.
Delete	Deletes the current record.

<table>
<tr><td>Refresh</td><td>Refreshes any dynamic data displayed in the Details.</td></tr>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task instance.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</td></tr>
<tr><td>Actions</td><td>Actions that the Controller took automatically based on events that occurred during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.
If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Exclusive Requests</td><td>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</td></tr>
<tr><td>Output</td><td>Displays output generated from the process, if any, based on specifications provided by the user in the Automatic Output Retrieval fields in the task Details.
If automatic output retrieval was not available or was not selected, output can be obtained by clicking the Retrieve Output button.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
</table>

6.5 Running a Remote File Monitor Task

You can run a Remote File Monitor task:

- Manually, by clicking the Launch or Launch with Variables button in the Remote File Monitor Tasks list or Remote File Monitor Task Details Action menu.

- As part of a Workflow.
- Specify triggers that run the task automatically based on times or events.

6.6 Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

6.7 Built-In Variables

The built-in variables outlined below can be used in a Remote File Monitor task to pass data where appropriate:

- Task and Task Instance Variables
- Remote File Monitor Variables.

7 System Monitor Task

7.1 Overview

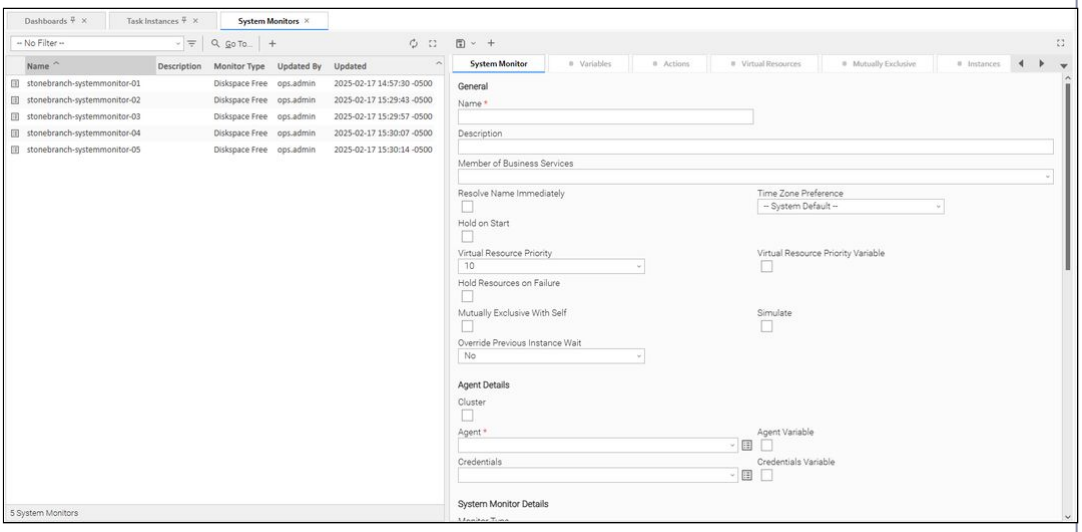
The System Monitor task allows you to monitor a specific remote machine and check for free disk space. You might use this task to check for sufficient disk space before running a task on it that requires a specific amount. In order for this task to execute, the remote machine must have Universal Agent running on it.

7.2 Built-In Variables

The following built-in variables can be used in a System Monitor task to pass data where appropriate:

- Task Instance variables
- Agent-Based Task Instance variables
- System Monitor Task variables

7.3 Creating a System Monitor Task

Step 1	From the Automation Center navigation pane, select **System Monitor Tasks**. The System Monitor Tasks list displays a list of all currently defined System Monitor tasks. Below the list, System Monitor Task Details for a new System Monitor task displays. 
Step 2	Enter/select Details for a new System Monitor task, using the field descriptions below as a guide. • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the + button above the list to display a pop-up version of the Details.
Step 3	Click the save button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

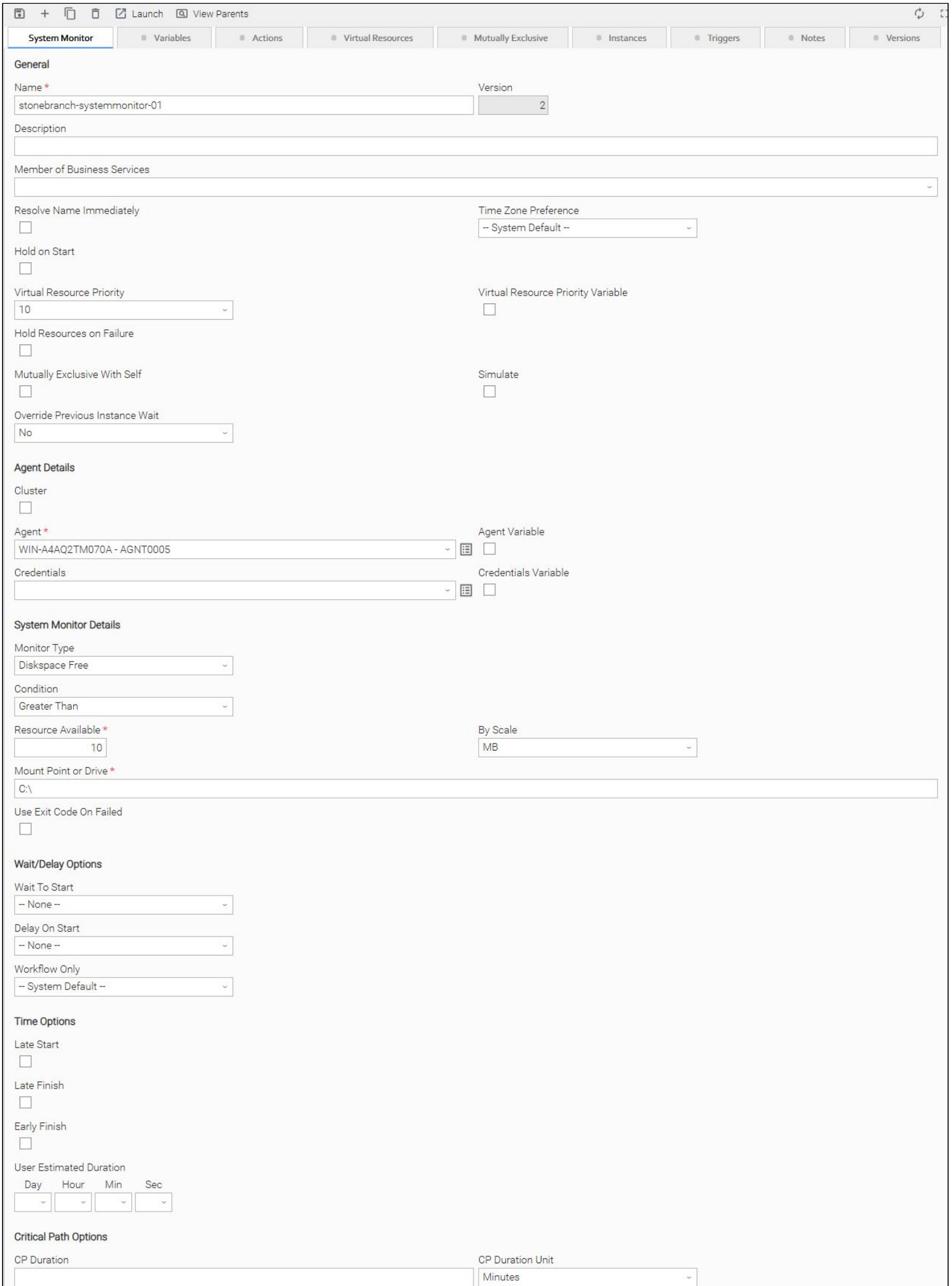
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

7.3.1 System Monitor Task Details

The following System Monitor Task Details is for an existing System Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the System Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the System Monitor Task Details.


Launch
View Parents
System Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Name *
stonebranch-systemmonitor-01
Version
2
Description
Member of Business Services
Resolve Name Immediately
Time Zone Preference
-- System Default --
Hold on Start
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Override Previous Instance Wait
No
Agent Details
Cluster
Agent *
WIN-A4AQ2TM070A - AGNT0005
Agent Variable
Credentials
Credentials Variable
System Monitor Details
Monitor Type
Diskspace Free
Condition
Greater Than
Resource Available *
10
By Scale
MB
Mount Point or Drive *
C:\
Use Exit Code On Failed
Wait/Delay Options
Wait To Start
-- None --
Delay On Start
-- None --
Workflow Only
-- System Default --
Time Options
Late Start
Late Finish
Early Finish
User Estimated Duration
Day
Hour
Min
Sec
Critical Path Options
CP Duration
CP Duration Unit
Minutes

7.3.2 System Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the System Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.

Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Override Previous Instance Wait	Specifies whether or not to override the parent workflow's **Previous Instance Wait** configuration. This option only applies for an instance running within a workflow. Options: • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.

Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Broadcast	Displays only if Cluster is selected; Indication that selecting a Cluster Broadcast is required. Selecting Broadcast hides the Agent and Agent Cluster fields; you cannot select values for them.
Cluster Broadcast	Group of Agents, all of which will run this task (compare with Agent Cluster). If Broadcast is selected for a task, you must select a Cluster Broadcast instead of a specific Agent and/or agent cluster. Each instance of the task running on its own Agent becomes a separate task instance record in the database and displays separately on the Activity Monitor.
Cluster Broadcast Variable	Indication of whether the Cluster Broadcast field is a reference field for selecting a specific Cluster Broadcast (unchecked) or a text field for specifying the Cluster Broadcast as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Cluster Broadcast reference to using a Cluster Broadcast variable, you must change the **Cluster Broadcast Variable** field to **Yes** and specify the Cluster Broadcast variable in the **Cluster Broadcast Unresolved** field. Conversely, to change from using a Cluster Broadcast variable to using a Cluster Broadcast reference, you must change the **Cluster Broadcast Variable** field to **No** and specify the Cluster Broadcast reference in the **Cluster Broadcast** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
System Monitor Details	This section contains assorted detailed information about the task.
Monitor Type	Type of system status to monitor for. Options: • Diskspace Free **Note** For UNIX and Windows, System File Monitor polls the system every 120 seconds to see if there was a change in system status.
Condition	Specifies whether you want to check for free disk space greater than or less than the amount specified in the Resource Available field.
Resource Available	Used in conjunction with the By Scale field. Enter a number indicating the amount of the resource you are checking for. For example, to check to see if the machine has at least 1GB of free diskspace, select Greater Than in the Condition field, enter 1 in the Resource Available field, and select GB in the By Scale field.
By Scale	Scale of the number you entered in the Resource Available field. Options: KB (kilobyte), MB (megabyte), GB (gigabyte).
Mount Point or Drive	Use this field to limit the check to a specific mount point or drive, such as drive C: for Windows.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds

Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.

Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.

Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.

Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce **Launch with Variables...** when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using **Launch with Variables...** from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. **Note** You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

<table>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</td></tr>
<tr><td>Variables</td><td>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</td></tr>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

7.4 Viewing a System Monitor Task Instance

When a System Monitor task is launched, the Controller creates a task instance record of that task.

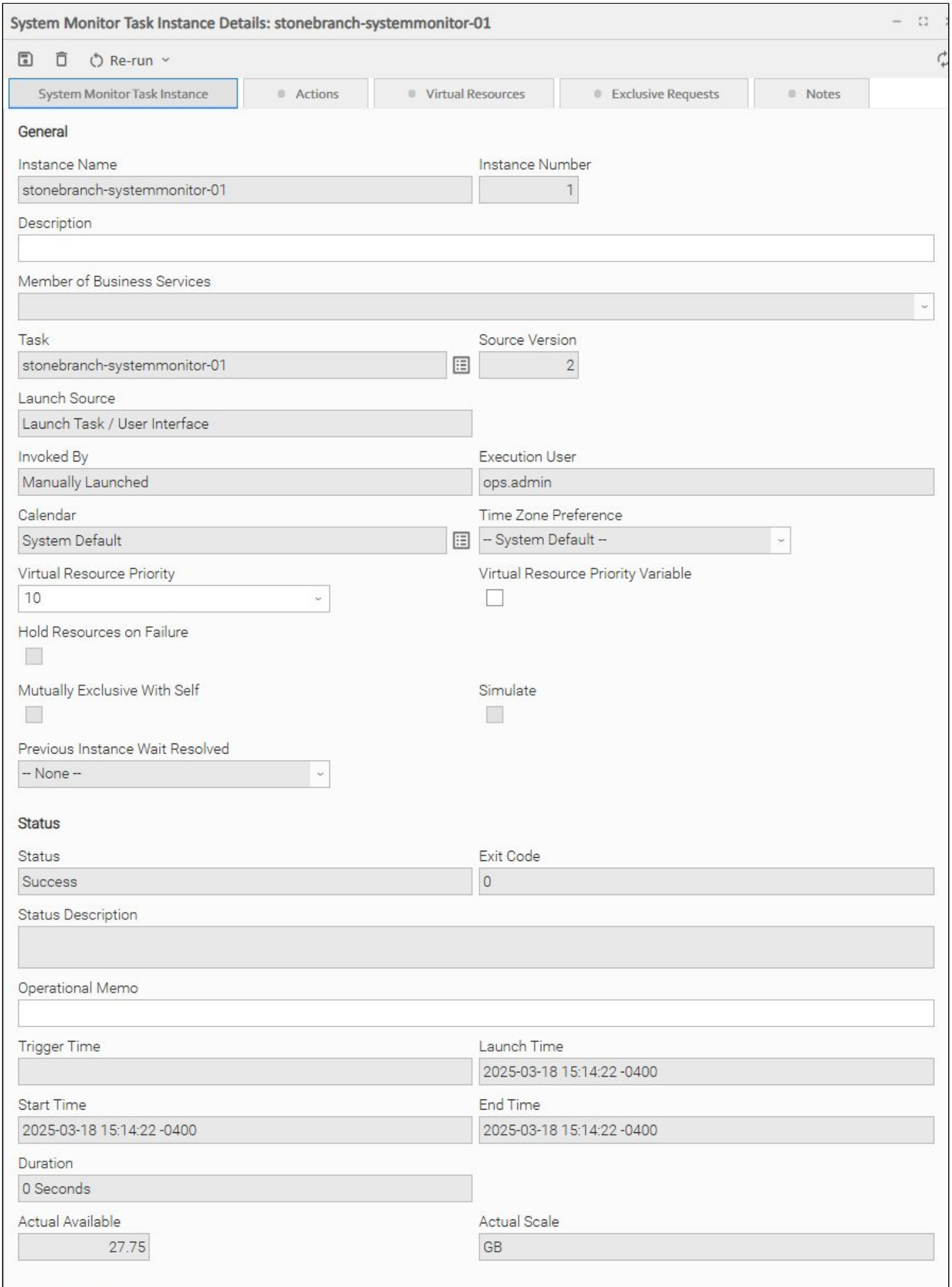
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the System Monitor Task Details for that task
- Activity Monitor
- Task Instances list

7.4.1 System Monitor Task Instance Details

The following System Monitor Task Instance Details contains information on the execution of the task shown in the System Monitor Task Details.


System Monitor Task Instance Details: stonebranch-systemmonitor-01
Re-run
System Monitor Task Instance
Actions
Virtual Resources
Exclusive Requests
Notes
General
Instance Name
stonebranch-systemmonitor-01
Instance Number
1
Description
Member of Business Services
Task
stonebranch-systemmonitor-01
Source Version
2
Launch Source
Launch Task / User Interface
Invoked By
Manually Launched
Execution User
ops.admin
Calendar
System Default
Time Zone Preference
-- System Default --
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Previous Instance Wait Resolved
-- None --
Status
Status
Success
Exit Code
0
Status Description
Operational Memo
Trigger Time
Launch Time
2025-03-18 15:14:22 -0400
Start Time
2025-03-18 15:14:22 -0400
End Time
2025-03-18 15:14:22 -0400
Duration
0 Seconds
Actual Available
27.75
Actual Scale
GB

7.4.2 System Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in System Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

Launch Source	System-supplied; Source from which this task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance. • If the instance was directly launched by a **Trigger Now** command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the **Launch Task** command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a **Recurring Task Instance;** the UUID of the **Recurring Task Instance**.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait. Options: • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.

Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Actual Available	Amount of free disk space on the specified system.
By Scale	Scale of the number show in the Actual Available field. Options: • KB (kilobyte) • MB (megabyte) • GB (gigabyte)
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting an Agent Cluster is required and selecting Broadcast, which lets you select a Cluster Broadcast, is optional. If Cluster is selected, selecting an Agent is not required unless Agent Variable is selected.
Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify an Agent, you must specify an Agent Cluster or Cluster Broadcast.

Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster	If Cluster is selected and Broadcast is not selected; Group of Agents, one of which the Controller will choose to run this task (compare with Cluster Broadcast). You can specify an agent cluster in addition to or in place of a specific Agent. If you specify an Agent and an agent cluster, the Controller first tries to run the task on the specific agent. If the Agent is not available, the Controller reverts to the agent cluster. See Agent Clusters for more information.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Agent Cluster reference to using an Agent Cluster variable, you must change the **Agent Cluster Variable** field to **Yes** and specify the Agent Cluster variable in the **Agent Cluster Unresolved** field. Conversely, to change from using an Agent Cluster variable to using an Agent Cluster reference, you must change the **Agent Cluster Variable** field to **No** and specify the Agent Cluster reference in the **Agent Cluster** field.
Credentials	Credentials under which an Agent runs this task. These Credentials override any Credentials provided in the Agent Details for any Agent running this task. If the user does not have a login shell, add a - character in front of the runtime credentials name. The Controller will provide a shell for that user and strip the - character from the name. Required if the Agent Credentials Required Universal Controller system property is true. When required, if the Credential is specified as a variable, and the variable resolves to blank, a Start Failure will occur.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
System Monitor Details	This section contains assorted detailed information about the task instance.
Monitor Type	Type of system status to monitor for. Options: • Diskspace Free **Note** For UNIX and Windows, System File Monitor polls the system every 120 seconds to see if there was a change in system status.
Condition	Specifies whether you want to check for free disk space greater than or less than the amount specified in the Resource Available field.
Resource Available	Used in conjunction with the By Scale field. Enter a number indicating the amount of the resource you are checking for. For example, to check to see if the machine has at least 1GB of free diskspace, select Greater Than in the Condition field, enter 1 in the Resource Available field, and select GB in the By Scale field.
By Scale	Scale of the number you entered in the Resource Available field. Options: KB (kilobyte), MB (megabyte), GB (gigabyte).
Mount Point or Drive	Use this field to limit the check to a specific mount point or drive, such as drive C: for Windows.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds

Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.

Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.

Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.

Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Operational Memo History	History of all Operational Memos for the task.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. **Note** If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.

<table>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task instance.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</td></tr>
<tr><td>Actions</td><td>Actions that the Controller took automatically based on events that occurred during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Exclusive Requests</td><td>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
</table>

7.5 Running a System Monitor Task

You can run a System Monitor task:

- Manually, by clicking the Launch or Launch with Variables button in the System Monitor Tasks list or System Monitor Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

7.6 Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

8 Variable Monitor Task

8.1 Overview

The Variable Monitor task allows you to monitor the value of a Global Variable.

8.2 Variable Values to Monitor

The Variable Monitor task lets you monitor for:

- Current value of a Global Variable.
- Change in the value of a Global Variable.
- Both current value and change in the value of a Global Variable.

8.2.1 Monitoring for the Current Value of a Variable

- If the Variable To Monitor exists and its current value matches the Variable Monitor conditions, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will transition to a **Failed** status.
- If the Variable To Monitor does not exist (or the Execution User does not have Read permission for the Global Variable) and the Value Condition field is **undefined**, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will transition to a **Failed** status.

8.2.2 Monitoring for a Change in the Value of a Variable

- The Variable Monitor task instance will not check the current value of the Variable To Monitor, but it will monitor for changes to the Variable To Monitor value. If a change to the Variable To Monitor value matches the Variable Monitor conditions, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will to continue to monitor for changes to the Variable To Monitor value.
- The Variable Monitor task instance will monitor indefinitely for the Variable Monitor conditions to be met unless you specify a value in the Time Limit field. The Variable Monitor task instance will transition to a **Failed** status if the Variable Monitor conditions are not met within the specified Time Limit.

Note

- A Variable Monitor task instance will not detect changes to a Global Variable Value if the Execution User does not have Read permission for the Global Variable.
- Setting the Global Variable Value to the same value from the Universal Controller user interface, CLI, or web service is not considered a change.
- Only changes to the Global Variable Name (case-insensitive) and Global Variable Value will be considered a change in value to the Global Variable. That is, changes to the Description and/or Member of Business Services fields alone will not be considered a change in value to the Global Variable.

8.2.3 Monitoring for Current Value of a Variable and a Change in the Value of a Variable

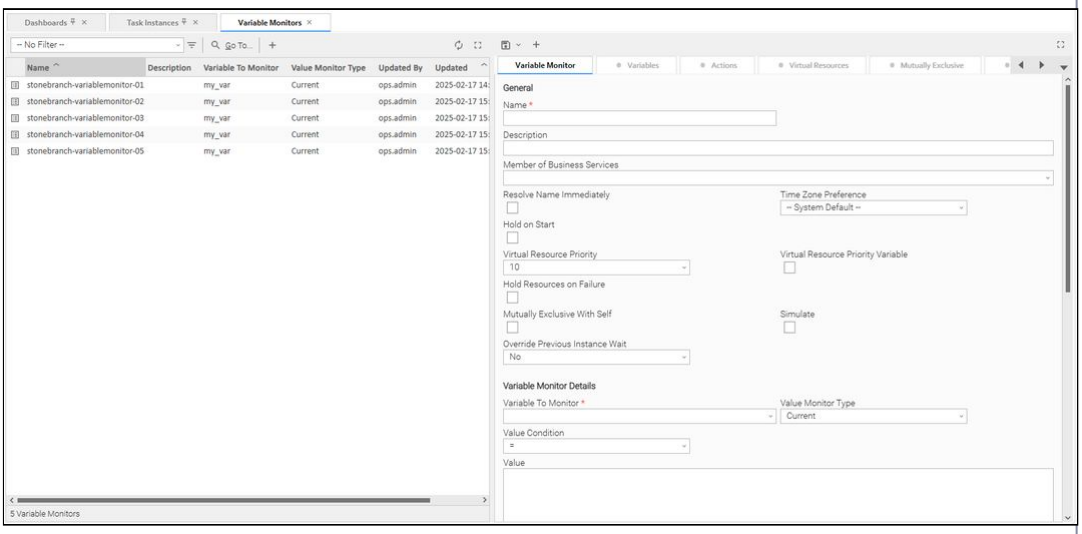
- If the Variable To Monitor exists and its current value matches the Variable Monitor conditions, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will continue to monitor as though Variable To Monitor is **Change**.
- If the Variable To Monitor does not exist (or the Execution User does not have Read permission for the Global Variable) and the Value Condition is **undefined**, the Variable Monitor task instance will transition to a **Success** status; otherwise, it will continue to monitor as though Value Monitor Type is **Change**.

8.3 Built-In Variables

When the Variable Monitor conditions are met, the following built-in variables will be set for the Variable Monitor task instance:

- Variable Monitor Task Instance/Trigger Variables
- Task Instance Variables

8.4 Creating a Variable Monitor Task

Step 1	From the Automation Center navigation pane, select **Variable Monitor Tasks**. The Variable Monitor Tasks list displays a list of all currently defined Variable Monitor tasks. To the right of the list, Variable Monitor Task Details for a new Variable Monitor task displays. 
Step 2	Enter/select Details for a new Variable Monitor task, using the field descriptions below as a guide. • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the + button above the list to display a pop-up version of the Details.
Step 3	Click the save button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

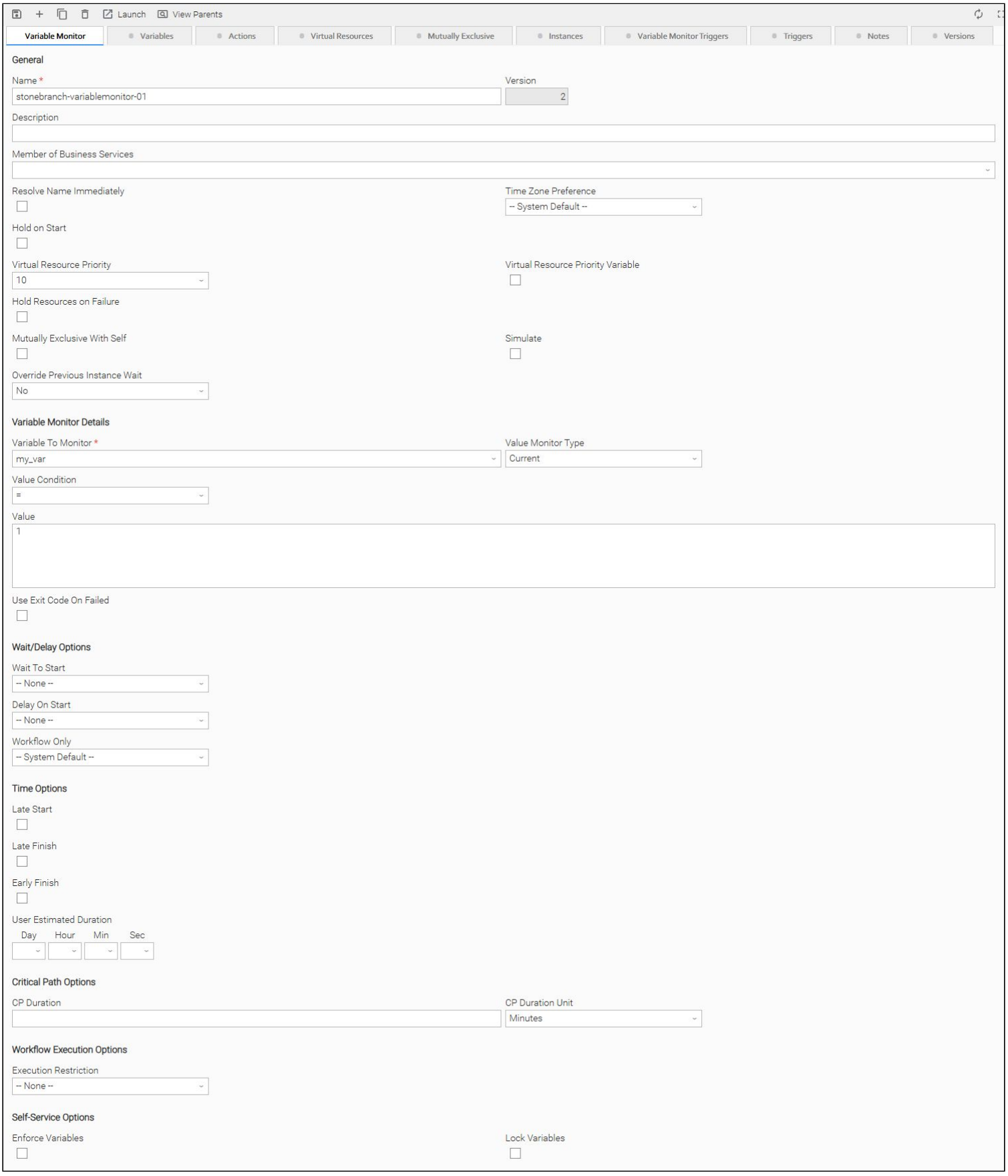
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

8.4.1 Variable Monitor Task Details

The following Variable Monitor Task Details is for an existing Variable Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Variable Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Variable Monitor Task Details.


Launch
View Parents
Variable Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Variable Monitor Triggers
Triggers
Notes
Versions
General
Name *
stonebranch-variablemonitor-01
Version
2
Description
Member of Business Services
Resolve Name Immediately
Time Zone Preference
-- System Default --
Hold on Start
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Override Previous Instance Wait
No
Variable Monitor Details
Variable To Monitor *
my_var
Value Monitor Type
Current
Value Condition
=
Value
1
Use Exit Code On Failed
Wait/Delay Options
Wait To Start
-- None --
Delay On Start
-- None --
Workflow Only
-- System Default --
Time Options
Late Start
Late Finish
Early Finish
User Estimated Duration
Day
Hour
Min
Sec
Critical Path Options
CP Duration
CP Duration Unit
Minutes
Workflow Execution Options
Execution Restriction
-- None --
Self-Service Options
Enforce Variables
Lock Variables

8.4.2 Variable Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Variable Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.

Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Override Previous Instance Wait	Specifies whether or not to override the parent workflow's **Previous Instance Wait** configuration. This option only applies for an instance running within a workflow. Options: • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Variable Monitor Details	This section contains assorted detailed information about the task.
Variable to Monitor	Name of the variable to monitor. Variables are supported.
Value Monitor Type	Type of monitoring to be done on the Variable value. Options: • Current (monitor the current value) • Change (monitor for a change in value) • Current/Change (monitor for both the current value and a change in value) **Note** If the Variable Monitor task was created from a Variable Monitor trigger, Value Monitor Type is set to Change by default and is marked as read-only, since Change is the only valid value when sued for a trigger.
Value Condition	Condition for the value of the variable being monitored. Options: • – None – • = • != • >= • < • <= • regex • undefined

Value	If Value Condition = =, !=, >, >=, <, <=, or regex; Value (up to a maximum 4000 characters) of the variable being monitored.
Time Limit	If Value Monitor Type = Change or Current/Change; Used for Variable Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Variable Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Variable Monitor task instance. **Note** If the Variable Monitor task was created from a Variable Monitor trigger, Time Limit is not allowed, since Variable Monitor Type is Change and cannot be updated.
Time Limit Unit	If Value Monitor Type = Change or Current/Change; Unit of time to use for Time Limit. Options: • Minutes • Hours (default) • Days
Expiration Action	State to transition to if monitor conditions are not met within the specified window, Options: • Failed • Finished
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.

Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related specifications for the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.

Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.

Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce **Launch with Variables...** when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using **Launch with Variables...** from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. **Note** You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

<table>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</td></tr>
<tr><td>Variables</td><td>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</td></tr>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Variable Monitor Triggers</td><td>Lists all Variable Monitor triggers that reference this task in the Variable Monitor field of the trigger Details; that is; a list of all Variable Monitor triggers that execute this task. Also allows you to add new triggers. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

8.5 Viewing a Variable Monitor Task Instance

When a Variable Monitor task is launched, the Controller creates a task instance record of that task.

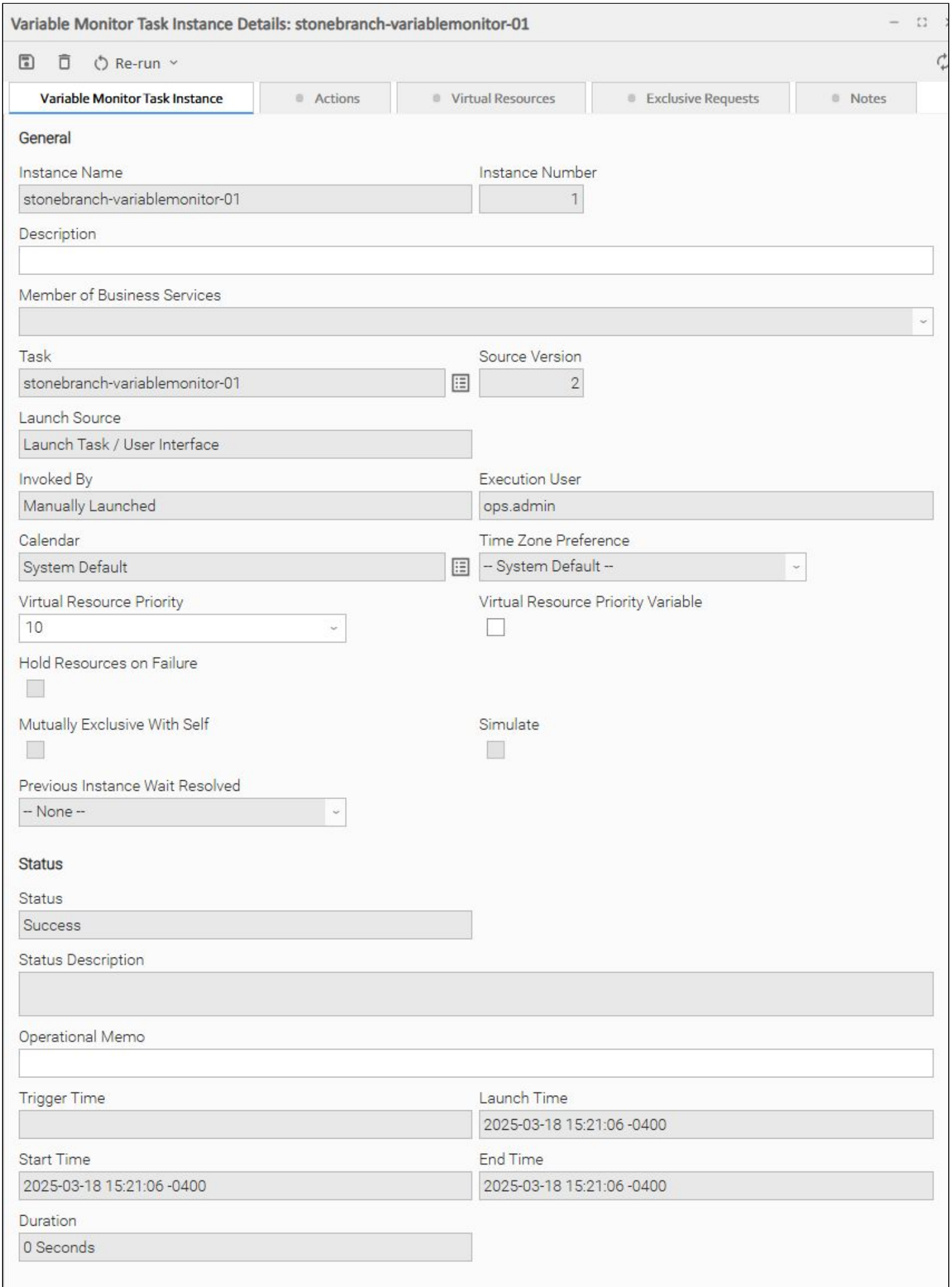
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Variable Monitor Task Details for that task
- Activity Monitor
- Task Instances list

8.5.1 Variable Monitor Task Instance Details

The following Variable Monitor Task Instance Details contains information on the execution of the task shown in the Variable Monitor Task Details.


Variable Monitor Task Instance Details: stonebranch-variablemonitor-01
Re-run
Variable Monitor Task Instance
Actions
Virtual Resources
Exclusive Requests
Notes
General
Instance Name
stonebranch-variablemonitor-01
Instance Number
1
Description
Member of Business Services
Task
stonebranch-variablemonitor-01
Source Version
2
Launch Source
Launch Task / User Interface
Invoked By
Manually Launched
Execution User
ops.admin
Calendar
System Default
Time Zone Preference
-- System Default --
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Previous Instance Wait Resolved
-- None --
Status
Status
Success
Status Description
Operational Memo
Trigger Time
Launch Time
2025-03-18 15:21:06 -0400
Start Time
2025-03-18 15:21:06 -0400
End Time
2025-03-18 15:21:06 -0400
Duration
0 Seconds

8.5.2 Variable Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Variable Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

Launch Source	System-supplied; Source from which this task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance. • If the instance was directly launched by a **Trigger Now** command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the **Launch Task** command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a **Recurring Task Instance;** the UUID of the **Recurring Task Instance**.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait. Options: • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.

Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Variable Monitor Details	This section contains assorted detailed information about the task instance.
Variable to Monitor	Name of the variable to monitor. Variables are supported.
Value Monitor Type	Type of monitoring to be done on the Variable value. Options: • Current (monitor the current value) • Change (monitor for a change in value) • Current/Change (monitor for both the current value and a change in value) **Note** If the Variable Monitor task was created from a Variable Monitor trigger, Value Monitor Type is set to Change by default and is marked as read-only, since Change is the only valid value when sued for a trigger.
Value Condition	Condition for the value of the variable being monitored. Options: • – None – • = • != • >= • < • <= • regex • undefined

Value	If Value Condition = =, !=, >, >=, <, <=, or regex; Value (up to a maximum 4000 characters) of the variable being monitored.
Time Limit	If Value Monitor Type = Change or Current/Change; Used for Variable Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Variable Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Variable Monitor task instance. **Note** If the Variable Monitor task was created from a Variable Monitor trigger, Time Limit is not allowed, since Variable Monitor Type is Change and cannot be updated.
Time Limit Unit	If Value Monitor Type = Change or Current/Change; Unit of time to use for Time Limit. Options: • Minutes • Hours (default) • Days
Expiration Action	State to transition to if monitor conditions are not met within the specified window, Options: • Failed • Finished
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.

Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.

Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.

Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Operational Memo History	History of all Operational Memos for the task.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. **Note** If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.

<table>
<tr><td>Refresh</td><td>Refreshes any dynamic data displayed in the Details.</td></tr>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task instance.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</td></tr>
<tr><td>Actions</td><td>Actions that the Controller took automatically based on events that occurred during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.
If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Exclusive Requests</td><td>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
</table>

8.6 Running a Variable Monitor Task

You can run a Variable Monitor task:

- Manually, by clicking the Launch or Launch with Variables button in the Variable Monitor Tasks list or Variable Monitor Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

8.7 Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

9 Email Monitor Task

9.1 Overview

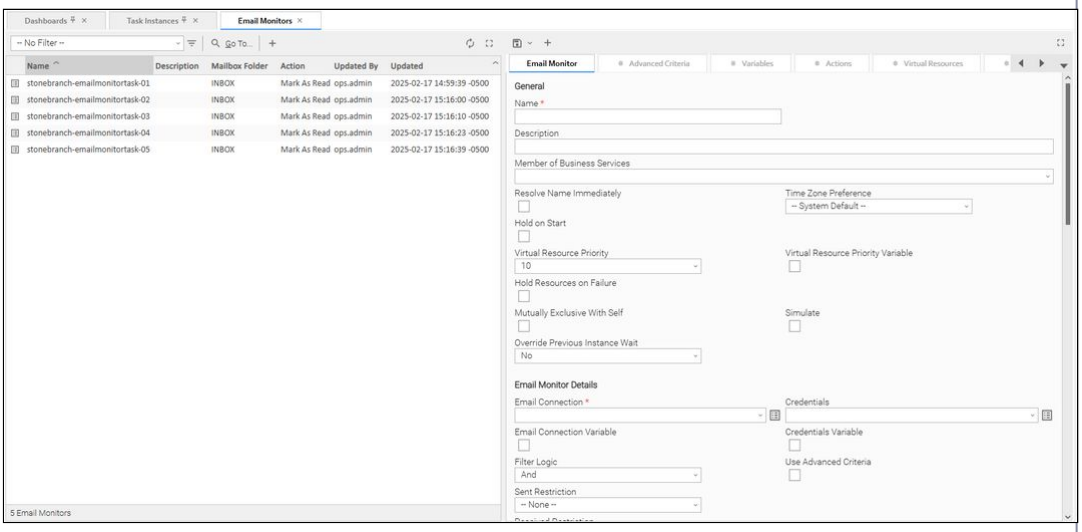
The Email Monitor task allows you to monitor a Mailbox Folder for emails matching specific criteria, and to take action on any matching emails.

9.2 Built-In Variables

The following built-in variables can be used in an Email Monitor task to pass data where appropriate:

- Task Instance variables
- Email Monitor Task variables

9.3 Creating an Email Monitor Task

Step 1	From the Automation Center navigation pane, select **Email Monitors**. The Email Monitor Tasks list displays a list of all currently defined Email Monitor tasks. To the right of the list, Email Monitor Task Details for a new Email Monitor task displays. 
Step 2	Enter/select Details for a new Email Monitor task, using the field descriptions below as a guide. • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the + button above the list to display a pop-up version of the Details.
Step 3	Click the save button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

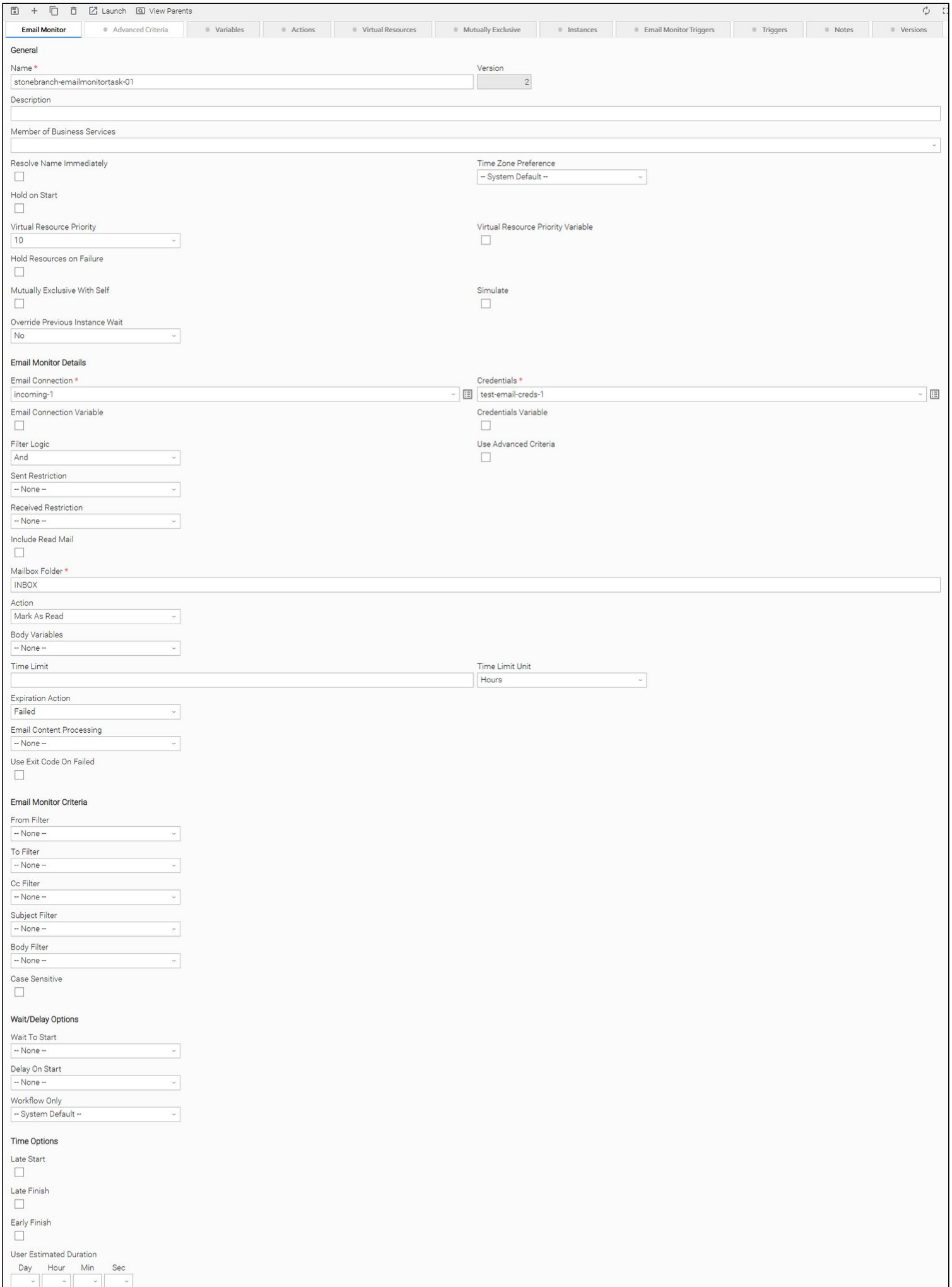
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

9.3.1 Email Monitor Task Details

The following Email Monitor Task Details is for an existing Email Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Email Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Email Monitor Task Details.


Launch
View Parents
Email Monitor
Advanced Criteria
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Email Monitor Triggers
Triggers
Notes
Versions
General
Name *
stonebranch-emailmonitortask-01
Version
2
Description
Member of Business Services
Resolve Name Immediately
Time Zone Preference
-- System Default --
Hold on Start
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Override Previous Instance Wait
No
Email Monitor Details
Email Connection *
incoming-1
Credentials *
test-email-creds-1
Email Connection Variable
Credentials Variable
Filter Logic
And
Use Advanced Criteria
Sent Restriction
-- None --
Received Restriction
-- None --
Include Read Mail
Mailbox Folder *
INBOX
Action
Mark As Read
Body Variables
-- None --
Time Limit
Time Limit Unit
Hours
Expiration Action
Failed
Email Content Processing
-- None --
Use Exit Code On Failed
Email Monitor Criteria
From Filter
-- None --
To Filter
-- None --
Cc Filter
-- None --
Subject Filter
-- None --
Body Filter
-- None --
Case Sensitive
Wait/Delay Options
Wait To Start
-- None --
Delay On Start
-- None --
Workflow Only
-- System Default --
Time Options
Late Start
Late Finish
Early Finish
User Estimated Duration
Day
Hour
Min
Sec

9.3.2 Email Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Email Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.

Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Override Previous Instance Wait	Specifies whether or not to override the parent workflow's **Previous Instance Wait** configuration. This option only applies for an instance running within a workflow. Options: • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Email Monitor Details	This section contains assorted detailed information about the task.
Email Connection	Required; Name of an incoming Email Connection (Type = Incoming). An Email Connection specifies information about an outgoing or incoming email server. Enter the name of an existing incoming Email Connection, select an existing incoming Email Connection from the drop-down list, or clear the Email Connection field and click the Details icon to create a new Email Connection (Incoming will be pre-selected in the Type field). The Credentials and Credentials Variable fields will not be shown if Authentication is OAuth 2.0 for the selected Email Connection. The Credentials and Credentials Variable fields will be shown if Email Connection Variable is checked, however, Credentials will not be required in this case. The Email Monitor instance will transition to Start Failure status if Authentication is Password for the resolved Email Connection and Credentials is not specified.

Email Connection Variable	Indication of whether the Email Connection field is a reference field for selecting a specific Email Connection (unchecked) or a text field for specifying the Email Connection as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Email Connection reference to using an Email Connection variable, you must change the **Email Connection Variable** field to **Yes** and specify the Email Connection variable in the **Email Connection Unresolved** field. Conversely, to change from using an Email Connection variable to using an Email Connection reference, you must change the **Email Connection Variable** field to **No** and specify the Email Connection reference in the **Email Connection** field.
Credentials	Credentials to be used to connect to the Email server.
Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Filter Logic	Logic to apply when combining filters. If Use Advanced Criteria is enabled, it is the logic to apply when combining Advanced Criteria records. Options: • And (default) • Or
Use Advanced Criteria	If enabled, use advanced criteria specified under the Advanced Criteria tab for the Email Monitor filter criteria.
Sent Restriction	Type of Sent restriction to apply. Options: • - - None - - (default) • On • Before • After • Span
Sent On	If Sent Restriction = On; Sent On restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow

Sent On Date	If Sent On = Date; Specific date for the Sent On restriction value.
Sent Before	If Sent Restriction = Before; Sent Before restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Launch Time • Relative
Sent Before Date	If Sent Before = Date; Specific date for the Sent Before restriction value.
Sent Before Offset	If Sent Before = Relative; Offset, relative to the last launch time, for the Sent Before restriction value. Format: [+/-]hh:mm
Sent After	If Sent Restriction = After; Sent After restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Launch Time • Relative
Sent After Date	If Sent After = Date; Specific date for the Sent After restriction value.
Sent After Offset	If Sent After = Relative; Offset, relative to the last launch time, for the Sent After restriction value.
Received Restriction	Type of Received restriction to apply. Options: • - - None - - (default) • On • Before • After • Span
Received On	If Received Restriction = On; Received On restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow
Received On Date	If Received On = Date; Specific date for the Received On restriction value.
Received Before	If Received Restriction = Before; Received Before restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Relative
Received Before Date	If Received Before = Date; Specific date for the Received Before restriction value.
Received Before Offset	If Received Before = Relative; Offset, relative to the last launch time, for the Received Before restriction value. Format: [+/-]hh:mm

Received After	If Received Restriction = After; Received After restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Relative
Received After Date	If Received After = Date; Specific date for the Received After restriction value.
Received After Offset	If Received After = Relative; Offset, relative to the last launch time, for the Received After restriction value.
Include Read Mail	If enabled, specifies that mail marked as read should be included by the filter.
Mailbox Folder	Mailbox folder to monitor on the server specified in the selected Email Connection.
Action	Action to take on mail that matches the filter. Options: • Mark As Read (default) • Delete • Delete/Mark As Read • Move • Move/Mark As Read
Move To Trash	If Action = Delete or Delete/Mark As Read; If enabled, mail matching the filter will be moved to the trash folder specified in the Email Connection.
Mailbox Folder Destination	If Action = Move or Move/Mark As Read; Mailbox folder to move matched mail into.
Body Variables	Specifies whether to parse the Email body for name/value pairs to create variables from. Options: • - - None - - No processing of the Email body will occur. • Within Body Entire body of the Email will be scanned for a "=" (equal sign) and any lines containing a "=" will be variablized as long as the text to the left of the "=" conforms to the naming standards for variables. • Within Default Markers Marker begin and end values are defined by the Email Body Default Begin Marker and Email Body Default End Marker Universal Controller system properties. • Within Custom Markers Marker begin and end values are defined in the Begin Marker and #End Marker fields. If markers are used, all lines of the Email body between the begin and end markers will be variablized in accordance to java properties. Any lines of the Email body outside the markers will be ignored w/r variablization.
Begin Marker	If Body Variables is Within Customer Markers; Begin marker for the Body Variables.
End Marker	If Body Variables is Within Customer Markers; End marker for the Body Variables.
Time Limit	Used for Email Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Email Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Email Monitor task instance.
Time Limit Unit	Unit of time to use for Time Limit. Options: • Minutes • Hours (default) • Days

Expiration Action	State to transition to if monitor conditions are not met within the specified window, Options: • Failed • Finished
Email Content Processing	Method for determining the success or failure of this task based on Email content. Options: • - - None - - • Success Body Contains • Failure Body Contains • Success Body Does Not Contain • Failure Body Does Not Contain • Success Subject Contains • Failure Subject Contains • Success Subject Does Not Contain • Failure Subject Does Not Contain Default is - - None - -.
Content Value	Required if Email Content Processing is not - - None - -; Content Value to be matched in the email.
Case Sensitive Content	If Email Content Processing is not - - None - -; Indication of whether or not matching will be performed in a case sensitive manner.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.
Email Monitor Criteria	This section contains criteria for selecting emails to monitor.
From Filter	Type of From filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Regex
From	If From Filter = any value other than - - None - -; From filter condition value.
To Filter	Type of To filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
To	If To Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; To filter condition value.

Cc Filter	Type of Cc filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
Cc	If Cc Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; Cc filter condition value.
Subject Filter	Type of Subject filter condition to apply. Options: • - - None - - (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Subject	If Subject Filter = anything other than - - None - -, Is Blank, or Is Not Blank; Subject filter condition value.
Body Filter	Type of Body filter condition to apply. Options: • - - None - - (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Body	If Body Filter = anything other than - - None - -, Is Blank, or Is Not Blank; Body filter condition value. **Note** If an email being monitored does not contain the body in plain text, but only in HTML format, a plain text body will be generated from the HTML body content.
Case Sensitive	If enabled, text-based filters should be treated as case-sensitive.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.

Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.

Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related statistics for task instances of the task.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.

Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.

Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.

Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

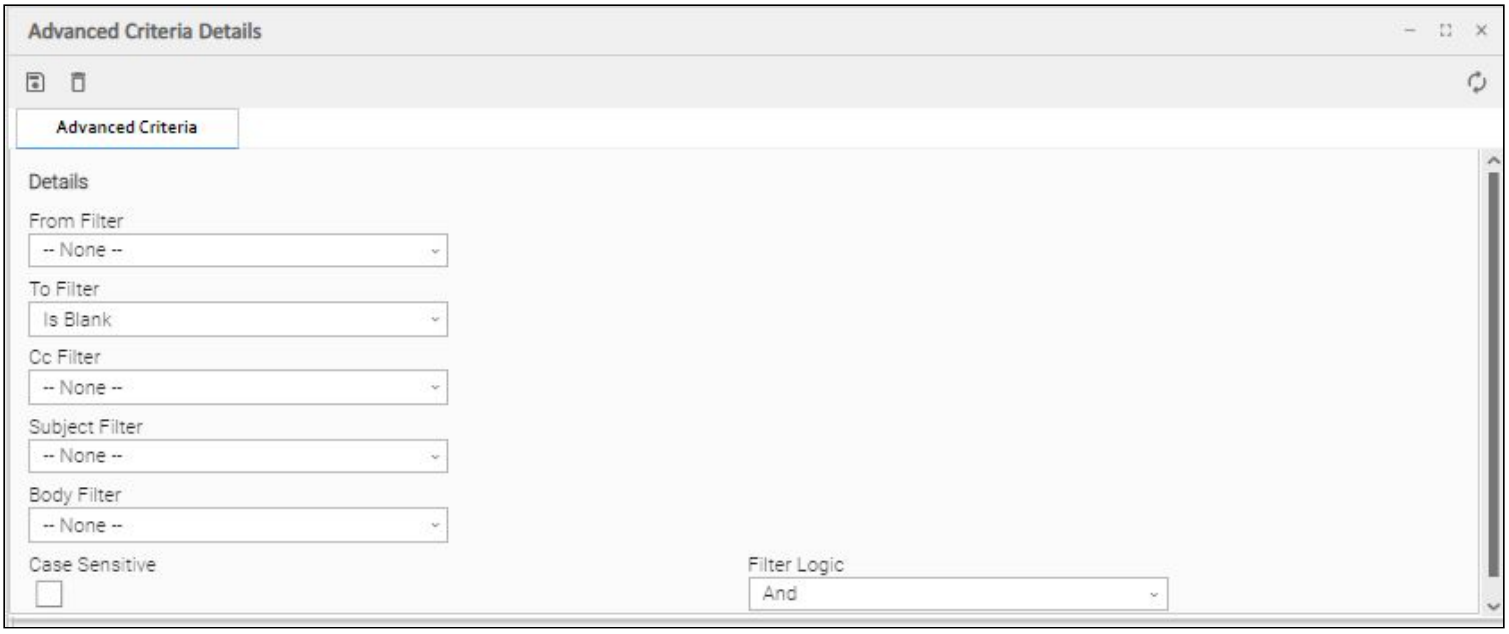
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce **Launch with Variables...** when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using **Launch with Variables...** from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.

Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.
Delete	Deletes the current record. **Note** You cannot delete a task if it is either: • Specified in an enabled Trigger. • The only task specified in a disabled Trigger.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task.

<table>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</td></tr>
<tr><td>Advanced Criteria</td><td>If the Use Advanced Criteria field is enabled; advanced search criteria to use for Email Monitor filter criteria.</td></tr>
<tr><td>Variables</td><td>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</td></tr>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Email Monitor Triggers</td><td>Lists all Email Monitor triggers that reference this task in the Email Monitor field of the trigger Details; that is, a list of all Email Monitor triggers that execute this task. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Triggers</td><td>List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
<tr><td>Versions</td><td>Stores copies of all previous versions of the current record. See Record Versioning.</td></tr>
</table>

9.3.3 Advanced Criteria



9.3.4 Advanced Criteria Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Advanced Criteria Details of an Email Monitor Task.

Field Name	Description
From Filter	Type of From filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Regex
Reply-To Filter	Type of Reply-To filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex

Field Name	Description
To Filter	Type of To filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
Cc Filter	Type of Cc filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
Subject Filter	Type of Subject filter condition to apply. Options: • - - None - - (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Body Filter	Type of Body filter condition to apply. Options: • - - None - - (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Case Sensitive	If enabled, text-based filters should be treated as case-sensitive.
Filter Logic	Logic to apply when combining filters.

9.4 Viewing an Email Monitor Task Instance

When an Email Monitor task is launched, the Controller creates a task instance record of that task.

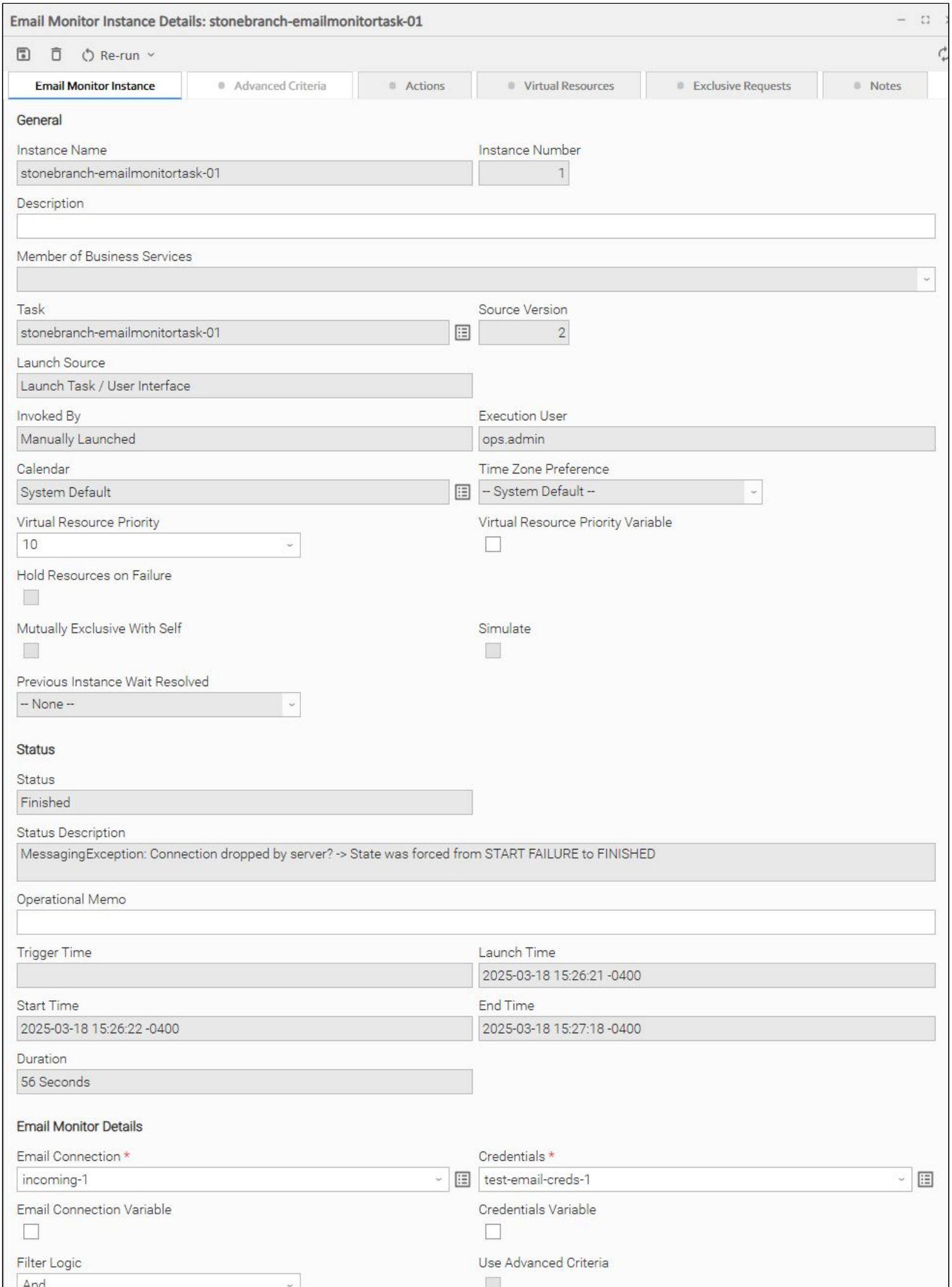
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Email Monitor Task Details for that task
- Activity Monitor
- Task Instances list

9.4.1 Email Monitor Task Instance Details

The following Email Monitor Task Instance Details contains information on the execution of the task shown in the Email Monitor Task Details.


Email Monitor Instance Details: stonebranch-emailmonitortask-01
Re-run
Email Monitor Instance
Advanced Criteria
Actions
Virtual Resources
Exclusive Requests
Notes
General
Instance Name
stonebranch-emailmonitortask-01
Instance Number
1
Description
Member of Business Services
Task
stonebranch-emailmonitortask-01
Source Version
2
Launch Source
Launch Task / User Interface
Invoked By
Manually Launched
Execution User
ops.admin
Calendar
System Default
Time Zone Preference
-- System Default --
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Previous Instance Wait Resolved
-- None --
Status
Status
Finished
Status Description
MessagingException: Connection dropped by server? -> State was forced from START FAILURE to FINISHED
Operational Memo
Trigger Time
Launch Time
2025-03-18 15:26:21 -0400
Start Time
2025-03-18 15:26:22 -0400
End Time
2025-03-18 15:27:18 -0400
Duration
56 Seconds
Email Monitor Details
Email Connection *
incoming-1
Credentials *
test-email-creds-1
Email Connection Variable
Credentials Variable
Filter Logic
And
Use Advanced Criteria

9.4.2 Email Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Email Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

Launch Source	System-supplied; Source from which this task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance. • If the instance was directly launched by a **Trigger Now** command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the **Launch Task** command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a **Recurring Task Instance;** the UUID of the **Recurring Task Instance**.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.

Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait. Options: • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.

Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.
Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Email Monitor Details	This section contains assorted detailed information about the task.
Email Connection	Required; Name of an incoming Email Connection (Type = Incoming). An Email Connection specifies information about an outgoing or incoming email server. Enter the name of an existing incoming Email Connection, select an existing incoming Email Connection from the drop-down list, or clear the Email Connection field and click the Details icon to create a new Email Connection (Incoming will be pre-selected in the Type field).
Email Connection Variable	Indication of whether the Email Connection field is a reference field for selecting a specific Email Connection (unchecked) or a text field for specifying the Email Connection as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using an Email Connection reference to using an Email Connection variable, you must change the **Email Connection Variable** field to **Yes** and specify the Email Connection variable in the **Email Connection Unresolved** field. Conversely, to change from using an Email Connection variable to using an Email Connection reference, you must change the **Email Connection Variable** field to **No** and specify the Email Connection reference in the **Email Connection** field.
Credentials	Credentials to be used to connect to the Email server.

Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. **Note** When updating multiple Tasks, to change from using a Credentials reference to using a Credentials variable, you must change the **Credentials Variable** field to **Yes** and specify the Credentials variable in the **Credentials Unresolved** field. Conversely, to change from using a Credentials variable to using a Credentials reference, you must change the **Credentials Variable** field to **No** and specify the Credentials reference in the **Credentials** field.
Filter Logic	Logic to apply when combining filters. If Use Advanced Criteria is enabled, it is the logic to apply when combining Advanced Criteria records. Options: • And (default) • Or
Use Advanced Criteria	If enabled, use advanced criteria specified under the Advanced Criteria tab for the Email Monitor filter criteria.
Sent Restriction	Type of Sent restriction to apply. Options: • - - None - - (default) • On • Before • After • Span
Sent On	If Sent Restriction = On; Sent On restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow
Sent On Date	If Sent On = Date; Specific date for the Sent On restriction value.
Sent Before	If Sent Restriction = Before; Sent Before restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Launch Time • Relative
Sent Before Date	If Sent Before = Date; Specific date for the Sent Before restriction value.
Sent Before Offset	If Sent Before = Relative; Offset, relative to the last launch time, for the Sent Before restriction value. Format: [+/-]hh:mm

Sent After	If Sent Restriction = After; Sent After restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Launch Time • Relative
Sent After Date	If Sent After = Date; Specific date for the Sent After restriction value.
Sent After Offset	If Sent After = Relative; Offset, relative to the last launch time, for the Sent After restriction value.
Received Restriction	Type of Received restriction to apply. Options: • - - None - - (default) • On • Before • After • Span
Received On	If Received Restriction = On; Received On restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow
Received On Date	If Received On = Date; Specific date for the Received On restriction value.
Received Before	If Received Restriction = Before; Received Before restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Relative
Received Before Date	If Received Before = Date; Specific date for the Received Before restriction value.
Received Before Offset	If Received Before = Relative; Offset, relative to the last launch time, for the Received Before restriction value. Format: [+/-]hh:mm
Received After	If Received Restriction = After; Received After restriction value. Options: • Date (default) • Today • Yesterday • Tomorrow • Relative
Received After Date	If Received After = Date; Specific date for the Received After restriction value.
Received After Offset	If Received After = Relative; Offset, relative to the last launch time, for the Received After restriction value.
Include Read Mail	If enabled, specifies that mail marked as read should be included by the filter.
Mailbox Folder	Mailbox folder to monitor on the server specified in the selected Email Connection.

Action	Action to take on mail that matches the filter. Options: • Mark As Read (default) • Delete • Delete/Mark As Read • Move • Move/Mark As Read
Move To Trash	If Action = Delete or Delete/Mark As Read; If enabled, mail matching the filter will be moved to the trash folder specified in the Email Connection.
Mailbox Folder Destination	If Action = Move or Move/Mark As Read; Mailbox folder to move matched mail into.
Body Variables	Specifies whether to parse the Email body for name/value pairs to create variables from. Options: • - - None - - No processing of the Email body will occur. • Within Body Entire body of the Email will be scanned for a "=" (equal sign) and any lines containing a "=" will be variablized as long as the text to the left of the "=" conforms to the naming standards for variables. • Within Default Markers Marker begin and end values are defined by the Email Body Default Begin Marker and Email Body Default End Marker Universal Controller system properties. • Within Custom Markers Marker begin and end values are defined in the Begin Marker and #End Marker fields. If markers are used, all lines of the Email body between the begin and end markers will be variablized in accordance to java properties. Any lines of the Email body outside the markers will be ignored w/r variablization.
Begin Marker	If Body Variables is Within Customer Markers; Begin marker for the Body Variables.
End Marker	If Body Variables is Within Customer Markers; End marker for the Body Variables.
Time Limit	Used for Email Monitor tasks not associated with a trigger; Amount of time (in units specified by Time Limit Unit) to monitor for the Email Monitor conditions to be met. The Time Limit duration is always relative to the start time of the Email Monitor task instance.
Time Limit Unit	Unit of time to use for Time Limit. Options: • Minutes • Hours (default) • Days
Expiration Action	State to transition to if monitor conditions are not met within the specified window, Options: • Failed • Finished
Email Content Processing	Method for determining the success or failure of this task based on Email content. Options: • - - None - - • Success Body Contains • Failure Body Contains • Success Body Does Not Contain • Failure Body Does Not Contain • Success Subject Contains • Failure Subject Contains • Success Subject Does Not Contain • Failure Subject Does Not Contain Default is - - None - -.

Content Value	Required if Email Content Processing is not - - None - -; Content Value to be matched in the email.
Case Sensitive Content	If Email Content Processing is not - - None - -; Indication of whether or not matching will be performed in a case sensitive manner.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.
Email Monitor Criteria	This section contains criteria for selecting emails to monitor.
From Filter	Type of From filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Regex
From	If From Filter = any value other than - - None - -; From filter condition value.
To Filter	Type of To filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
To	If To Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; To filter condition value.
Cc Filter	Type of Cc filter condition to apply. Options: • - - None - - (default) • Equals • Contains • Does Not Equal • Does Not Contain • Is Blank • Is Not Blank • Regex
Cc	If Cc Filter = Equals, Contains, Does Not Equal, Does Not Contain, or Regex; Cc filter condition value.

Subject Filter	Type of Subject filter condition to apply. Options: • - - None - - (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Subject	If Subject Filter = anything other than - - None - -, Is Blank, or Is Not Blank; Subject filter condition value.
Body Filter	Type of Body filter condition to apply. Options: • - - None - - (default) • Equals • Starts With • Contains • Ends With • Does Not Equal • Does Not Start With • Does Not Contain • Does Not End With • Is Blank • Is Not Blank • Regex
Body	If Body Filter = anything other than - - None - -, Is Blank, or Is Not Blank; Body filter condition value. **Note** If an email being monitored does not contain the body in plain text, but only in HTML format, a plain text body will be generated from the HTML body content.
Case Sensitive	If enabled, text-based filters should be treated as case-sensitive.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None –.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.

Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.

Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.

Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.

CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.
User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.

Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Operational Memo History	History of all Operational Memos for the task.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. **Note** If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.
View Parent	Displays the task instance Details for the parent Workflow of this task instance.
Delete	Deletes the current record.

<table>
<tr><td>Refresh</td><td>Refreshes any dynamic data displayed in the Details.</td></tr>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task instance.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</td></tr>
<tr><td>Advanced Criteria</td><td>If the Use Advanced Criteria field is enabled; advanced search criteria to use for Email Monitor filter criteria.</td></tr>
<tr><td>Actions</td><td>Actions that the Controller took automatically based on events that occurred during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.
If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Exclusive Requests</td><td>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
</table>

9.5 Running an Email Monitor Task

You can run an Email Monitor task:

- Manually, by clicking the Launch or Launch with Variables button in the Email Monitor Tasks list or Email Monitor Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

9.6 Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

10 Universal Monitor Task

10.1 Overview

The Universal Monitor task allows you to monitor published Universal Events.

To define a Universal Monitor, you must specify either a:

- Global Universal Event Template.
- Local Universal Template Event Template.

For monitoring Universal Events, the Execution User must have read permission for the published Universal Event.

When monitoring Pre-Defined Global Universal Events, the Execution User must also have read permission for the underlying record the Universal Event is associated with.

For continuous monitoring of published Universal Events, assign the Universal Monitor to a Universal Monitor Trigger, with the trigger firing each time the Universal Event match criteria has been met,

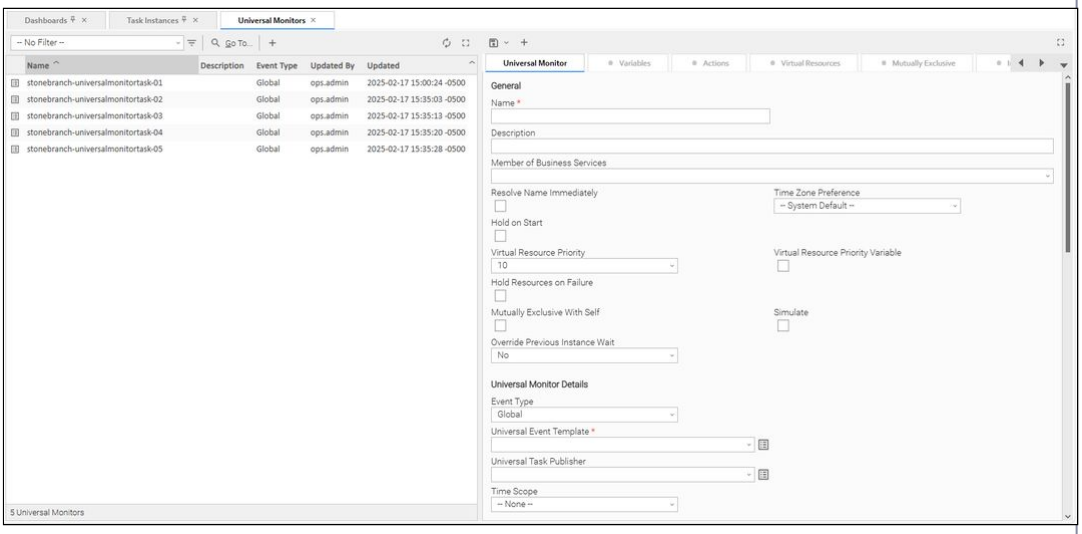
For non-continuous monitoring of published Universal Events, with Universal Monitor completing only when the Universal Event match criteria has been met, add Universal Monitor to a workflow or launch it directly (stand-alone).

10.2 Built-In Variables

The following built-in variables can be used in a Universal Monitor task to pass data where appropriate:

- Task Instance Variables
- Universal Event Variables

10.3 Creating a Universal Monitor Task

Step 1	From the Automation Center navigation pane, select **Universal Monitors**. The Universal Monitor Tasks list displays a list of all currently defined Universal Monitor tasks. To the right of the list, Universal Monitor Task Details for a new Universal Monitor task displays. 
Step 2	Enter/select Details for a new Universal Monitor task, using the field descriptions below as a guide. • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the  button above the list to display a pop-up version of the Details.
Step 3	Click the  button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

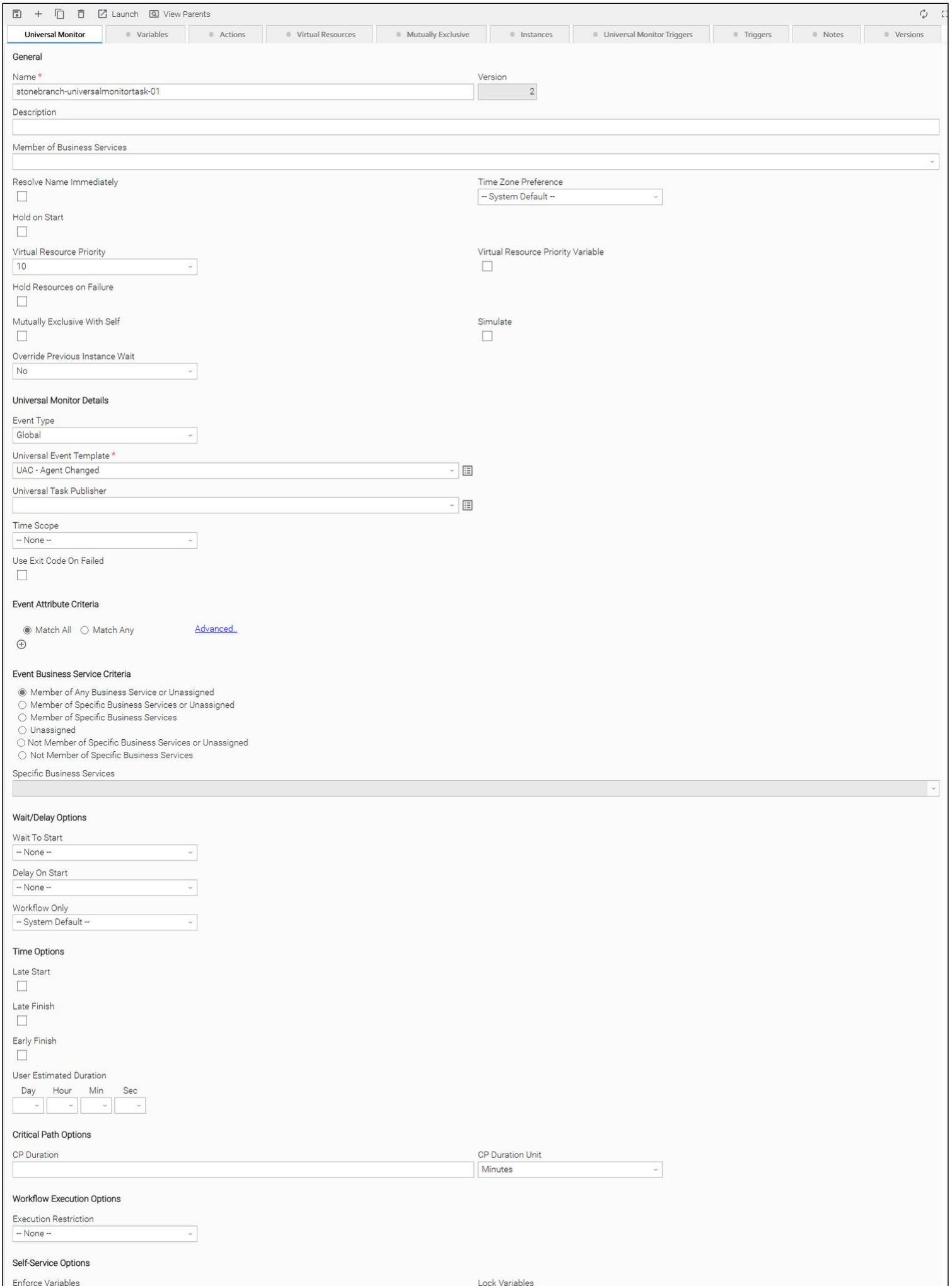
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

10.3.1 Universal Monitor Task Details

The following Universal Monitor Task Details is for an existing Universal Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the Universal Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the Universal Monitor Task Details.


Launch
View Parents
Universal Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Universal Monitor Triggers
Triggers
Notes
Versions
General
Name *
stonebranch-universalmonitortask-01
Version
2
Description
Member of Business Services
Resolve Name Immediately
Time Zone Preference
-- System Default --
Hold on Start
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Override Previous Instance Wait
No
Universal Monitor Details
Event Type
Global
Universal Event Template *
UAC - Agent Changed
Universal Task Publisher
Time Scope
-- None --
Use Exit Code On Failed
Event Attribute Criteria
Match All
Match Any
Advanced..
Event Business Service Criteria
Member of Any Business Service or Unassigned
Member of Specific Business Services or Unassigned
Member of Specific Business Services
Unassigned
Not Member of Specific Business Services or Unassigned
Not Member of Specific Business Services
Specific Business Services
Wait/Delay Options
Wait To Start
-- None --
Delay On Start
-- None --
Workflow Only
-- System Default --
Time Options
Late Start
Late Finish
Early Finish
User Estimated Duration
Day
Hour
Min
Sec
Critical Path Options
CP Duration
CP Duration Unit
Minutes
Workflow Execution Options
Execution Restriction
-- None --
Self-Service Options
Enforce Variables
Lock Variables

10.3.2 Universal Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Universal Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.

Override Previous Instance Wait	Specifies whether or not to override the parent workflow's **Previous Instance Wait** configuration. This option only applies for an instance running within a workflow. Options: • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Universal Monitor Details	This section contains assorted detailed information about the task.
Event Type	Type of Universal Event to monitor: • Global • Local
Universal Event Template	If Event Type is Global; Name of the Universal Event Template on which this Universal Monitor task is based.
Universal Template	If Event Type is Local; Name of the Universal Template on which this Universal Monitor task is based.
Event Template	If Event Type is Local; Name of the Event Template within the specified Universal Template on which this Universal Monitor task is based.
Universal Task Publisher	Optional; Universal Extension-based Universal Task that will be: • Launched when the Universal Monitor task starts. • Force Finished/Cancelled when the Universal Monitor task ends. The Running Universal Task Publisher can only publish Universal Events to this Universal Monitor, and this Universal Monitor can only match on Universal Events published by the Running Universal Task Publisher. The Publisher is expected to publish the events that this Universal Monitor is expecting to come in. • If the Universal Monitor is specified by a Universal Monitor Trigger (or the Universal Monitor Trigger component of a Composite Trigger), the Publisher will run indefinitely until the Trigger is disabled. At that time, a Cancel and Force Finish will be issued to the Universal Monitor, and the Universal Monitor will propagate these commands to the associated Universal Task Publisher instance that is running. • If the Universal Monitor is run stand-alone or within a workflow, the Publisher will not run continuously, as the Universal Monitor will complete when the event coming in is matched or the Time Scope (if specified) is reached. A Universal Monitor Task Instance that specifies a Publisher will show the associated Universal Task Instance representing the Publisher.

Universal Task Publisher Variables	List of task variables to override.
	• Name
	Name of the variable to override.
	• Value
	Value of the variable to override.
	• Resolution
	Type of resolution for the override:
	  • Disabled
	  Variable is passed to the launched Universal Task Publisher unresolved and will remain unresolved in the Universal Monitor Task Instance Details.
	  • Enabled
	  Variable is resolved when the Universal Monitor Task Instance is started (running); therefore, it is passed to the launched Universal Task Publisher resolved and will remain resolved in the Universal Monitor Task Instance Details. If an Enabled variable cannot be resolved when the Universal Monitor Task Instance is being started, the Universal Monitor Task Instance will transition to a Start Failure with the following Status Description: Universal Task Publisher Variable "*variable-name*" with Resolution "*variable-resolution*" is unresolved.
	
	The following order of precedence will apply if a variable is present in multiple scopes:
	1. Universal Monitor - Universal Task Publisher Variables
	2. Universal Monitor Trigger
	3. Universal Monitor – Universal Task Publisher

Time Scope	Allows monitoring of Universal Events that were published prior to the Universal Monitor task running, or limits how long the Universal Monitor task continues to monitor before becoming Failed, Options: • -- None -- • Relative
Expiration Action	If Time Scope is Relative; State to transition to if Relative Time Scope conditions are not met within the specific window. Options: • Failed • Finished
From	Format is (+/-)hh:mm If Time Scope = Relative; Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Universal Monitor task launched, during which the conditions of the Universal Monitor must be met. If the conditions are not met within the specified window, the Universal Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.
To	Format is (+/-)hh:mm If Time Scope = Relative; Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Universal Monitor task launched, during which the conditions of the Universal Monitor must be met. If the conditions are not met within the specified window, the Universal Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.

Universal Monitor Criteria	This section contains criteria for selecting Universal Events to monitor.
• Match All • Match Any	Criteria for matching attributes of the selected Universal Event Template. • Match All • Match Any If no match criteria is specified, the Universal Monitor will match any published Universal Event of the selected Universal Event Template.
Event Business Service Criteria	This section contains criteria for selecting Universal Events to monitor by their business service membership.
• Member of Any Business Service or Unassigned • Member of Specific Business Services or Unassigned • Member of Specific Business Services • Unassigned • Not Member of Specific Business Services or Unassigned • Not Member of Specific Business Services	Criteria for matching on Universal Events by their business service membership. • Member of Any Business Service or Unassigned • Member of Specific Business Services or Unassigned You must specify one or more business services from the Specific Business Services drop-down. • Member of Specific Business Services You must specify one or more business services from the Specific Business Services drop-down. • Unassigned • Not Member of Specific Business Services or Unassigned You must specify one or more business services from the Specific Business Services drop-down. • Not Member of Specific Business Services You must specify one or more business services from the Specific Business Services drop-down.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related statistics for task instances of the task.

Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.

Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.

Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.

Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Self-Service Options	This section contains Self-Service specifications for the task.
Enforce Variables	Specifies whether or not to enforce **Launch with Variables...** when launching a task using the User Interface.
Lock Variables	Specifies whether or not to prevent editing variables when using **Launch with Variables...** from the User Interface.
Statistics	This section contains time-related statistics for task instances of the task.
First Execution	System-supplied; End Time of the first instance of this task to complete.
Last Execution	System-supplied; End Time of the last instance of this task to complete.
Last Instance Duration	System-supplied; Amount of time the task took to run the last time it ran.
Lowest Instance Time	System-supplied; Lowest amount of time this task has taken to run.
Average Instance Time	System-supplied; Average amount of time this task takes to run.
Highest Instance Time	System-supplied; Highest amount of time this task has taken to run.
Number of Instances	System-supplied; Number of instances in the database for this task.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Buttons	This section identifies the buttons displayed above and below the Task Details that let you perform various actions.
Save	Saves a new task record in the Controller database.
Save & New	Saves a new record in the Controller database and redisplays empty Details so that you can create another new record.
Save & View	Saves a new record in the Controller database and continues to display that record.
New	Displays empty (except for default values) Details for creating a new task.
Update	Saves updates to the record.
Launch	Manually launches the task.
View Parents	Displays a list of any parent Workflow tasks for this task.
Copy	Creates a copy of this task, which you are prompted to rename.

<table>
<tr><td>Delete</td><td>Deletes the current record.

Note
You cannot delete a task if it is either:
• Specified in an enabled Trigger.
• The only task specified in a disabled Trigger.</td></tr>
<tr><td>Refresh</td><td>Refreshes any dynamic data displayed in the Details.</td></tr>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.</td></tr>
<tr><td>Variables</td><td>Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.</td></tr>
<tr><td>Actions</td><td>Allows you to specify actions that the Controller will take automatically based on events that occur during the execution of this task.

Events are:
• Task instance status
• Exit codes
• Late start
• Late finish
• Early finish

Actions are:

<table>
<tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr>
<tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr>
<tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr>
<tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr>
<tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr>
</table>
</td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Mutually Exclusive</td><td>Lists all tasks that have been set to be mutually exclusive of this task.</td></tr>
<tr><td>Instances</td><td>Lists all instances of the task.</td></tr>
<tr><td>Universal Monitor Triggers</td><td>Lists all Universal Monitor triggers that reference this task in the Universal Monitor field of the trigger Details; that is, a list of all Email Monitor triggers that execute this task. For instructions on creating triggers, see Triggers.</td></tr>
</table>

Triggers	List of all triggers that reference this task in the Task(s) field of the trigger Details; that is, a list of all triggers that have been defined to launch this task. Also allows you to add new triggers. If you add a new trigger from this location, the Controller automatically constructs a default trigger name as follows: <current task name>#TRIGGER#. You can change the default name if desired. For instructions on creating triggers, see Triggers.
Notes	Lists all notes associated with this record.
Versions	Stores copies of all previous versions of the current record. See Record Versioning.

10.4 Viewing a Universal Monitor Task Instance

When a Universal Monitor task is launched, the Controller creates a task instance record of that task.

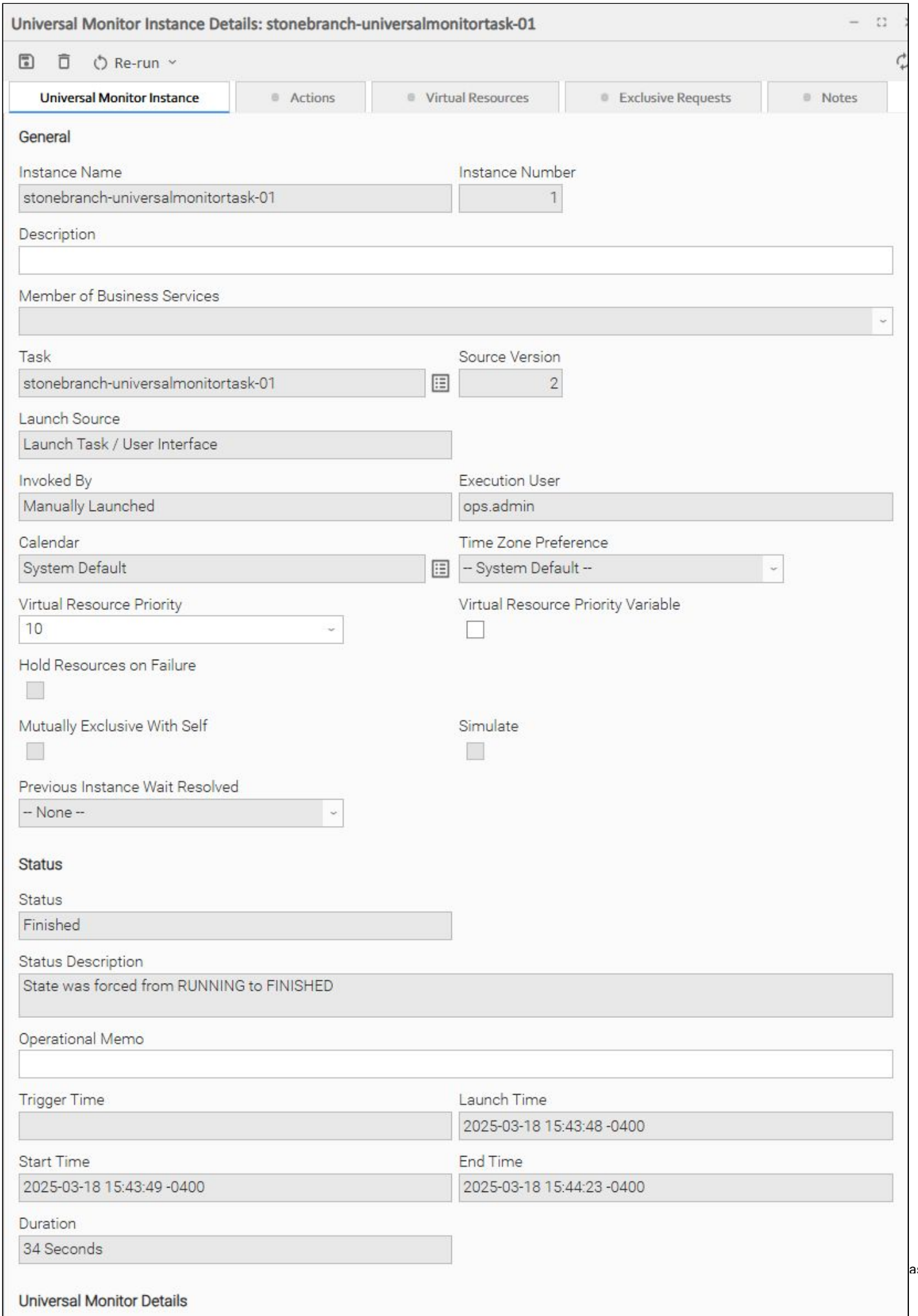
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the Universal Monitor Task Details for that task
- Activity Monitor
- Task Instances list

10.4.1 Universal Monitor Task Instance Details

The following Universal Monitor Task Instance Details contains information on the execution of the task shown in the Universal Monitor Task Details.


Universal Monitor Instance Details: stonebranch-universalmonitortask-01
Re-run
Universal Monitor Instance
Actions
Virtual Resources
Exclusive Requests
Notes
General
Instance Name
stonebranch-universalmonitortask-01
Instance Number
1
Description
Member of Business Services
Task
stonebranch-universalmonitortask-01
Source Version
2
Launch Source
Launch Task / User Interface
Invoked By
Manually Launched
Execution User
ops.admin
Calendar
System Default
Time Zone Preference
-- System Default --
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Previous Instance Wait Resolved
-- None --
Status
Status
Finished
Status Description
State was forced from RUNNING to FINISHED
Operational Memo
Trigger Time
Launch Time
2025-03-18 15:43:48 -0400
Start Time
2025-03-18 15:43:49 -0400
End Time
2025-03-18 15:44:23 -0400
Duration
34 Seconds
Universal Monitor Details

10.4.2 Universal Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Universal Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

Launch Source	System-supplied; Source from which this task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance. • If the instance was directly launched by a **Trigger Now** command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the **Launch Task** command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a **Recurring Task Instance;** the UUID of the **Recurring Task Instance**.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait. Options: • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.

Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Universal Monitor Details	This section contains assorted detailed information about the task.
Event Type	Type of Universal Event to monitor: • Global • Local
Universal Event Template	If Event Type is Global; Name of the Universal Event Template on which this Universal Monitor task is based.
Universal Template	If Event Type is Local; Name of the Universal Template on which this Universal Monitor task is based.
Event Template	If Event Type is Local; Name of the Event Template within the specified Universal Template on which this Universal Monitor task is based.
Universal Task Publisher	Optional; Universal Extension-based Universal Task that will be: • Launched when the Universal Monitor task starts. • Force Finished/Cancelled when the Universal Monitor task ends. The Running Universal Task Publisher can only publish Universal Events to this Universal Monitor, and this Universal Monitor can only match on Universal Events published by the Running Universal Task Publisher. The Publisher is expected to publish the events that this Universal Monitor is expecting to come in. • If the Universal Monitor is specified by a Universal Monitor Trigger (or the Universal Monitor Trigger component of a Composite Trigger), the Publisher will run indefinitely until the Trigger is disabled. At that time, a Cancel and Force Finish will be issued to the Universal Monitor, and the Universal Monitor will propagate these commands to the associated Universal Task Publisher instance that is running. • If the Universal Monitor is run stand-alone or within a workflow, the Publisher will not run continuously, as the Universal Monitor will complete when the event coming in is matched or the Time Scope (if specified) is reached. A Universal Monitor Task Instance that specifies a Publisher will show the associated Universal Task Instance representing the Publisher.

Universal Task Publisher Variables	List of task variables to override.
	• Name
	Name of the variable to override.
	• Value
	Value of the variable to override.
	• Resolution
	Type of resolution for the override:
	  • Disabled
	Variable is passed to the launched Universal Task Publisher unresolved and will remain unresolved in the Universal Monitor Task Instance Details.
	  • Enabled
	Variable is resolved when the Universal Monitor Task Instance is started (running); therefore, it is passed to the launched Universal Task Publisher resolved and will remain resolved in the Universal Monitor Task Instance Details. If an Enabled variable cannot be resolved when the Universal Monitor Task Instance is being started, the Universal Monitor Task Instance will transition to a Start Failure with the following Status Description: Universal Task Publisher Variable "*variable-name*" with Resolution "*variable-resolution*" is unresolved.
	
	The following order of precedence will apply if a variable is present in multiple scopes:
	1. Universal Monitor - Universal Task Publisher Variables
	2. Universal Monitor Trigger
	3. Universal Monitor – Universal Task Publisher

Time Scope	Allows monitoring of Universal Events that were published prior to the Universal Monitor task running, or limits how long the Universal Monitor task continues to monitor before becoming Failed, Options: • -- None -- • Relative
Expiration Action	If Time Scope is Relative; State to transition to if Relative Time Scope conditions are not met within the specific window. Options: • Failed • Finished
From	Format is (+/-)hh:mm If Time Scope = Relative; Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the Universal Monitor task launched, during which the conditions of the Universal Monitor must be met. If the conditions are not met within the specified window, the Universal Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.
To	Format is (+/-)hh:mm If Time Scope = Relative; Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the Universal Monitor task launched, during which the conditions of the Universal Monitor must be met. If the conditions are not met within the specified window, the Universal Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.

Universal Monitor Criteria	This section contains criteria for selecting Universal Events to monitor.
• Match All • Match Any	Criteria for matching attributes of the selected Universal Event Template. • Match All • Match Any If no match criteria is specified, the Universal Monitor will match any published Universal Event of the selected Universal Event Template.
Event Business Service Criteria	This section contains criteria for selecting Universal Events to monitor by their business service membership.
• Member of Any Business Service or Unassigned • Member of Specific Business Services or Unassigned • Member of Specific Business Services • Unassigned • Not Member of Specific Business Services or Unassigned • Not Member of Specific Business Services	Criteria for matching on Universal Events by their business service membership. • Member of Any Business Service or Unassigned • Member of Specific Business Services or Unassigned You must specify one or more business services from the Specific Business Services drop-down. • Member of Specific Business Services You must specify one or more business services from the Specific Business Services drop-down. • Unassigned • Not Member of Specific Business Services or Unassigned You must specify one or more business services from the Specific Business Services drop-down. • Not Member of Specific Business Services You must specify one or more business services from the Specific Business Services drop-down.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.

Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration

Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.

CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.

User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Operational Memo History	History of all Operational Memos for the task.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. **Note** If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.

<table>
<tr><td>View Parent</td><td>Displays the task instance Details for the parent Workflow of this task instance.</td></tr>
<tr><td>Delete</td><td>Deletes the current record.</td></tr>
<tr><td>Refresh</td><td>Refreshes any dynamic data displayed in the Details.</td></tr>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task instance.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</td></tr>
<tr><td>Actions</td><td>Actions that the Controller took automatically based on events that occurred during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Exclusive Requests</td><td>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
</table>

10.5 Running a Universal Monitor Task

You can run a Universal Monitor task:

- Manually, by clicking the Launch or Launch with Variables button in the Universal Monitor Tasks list or Universal Monitor Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

10.6 Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.

11 z/OS Monitor Task

11.1 Overview

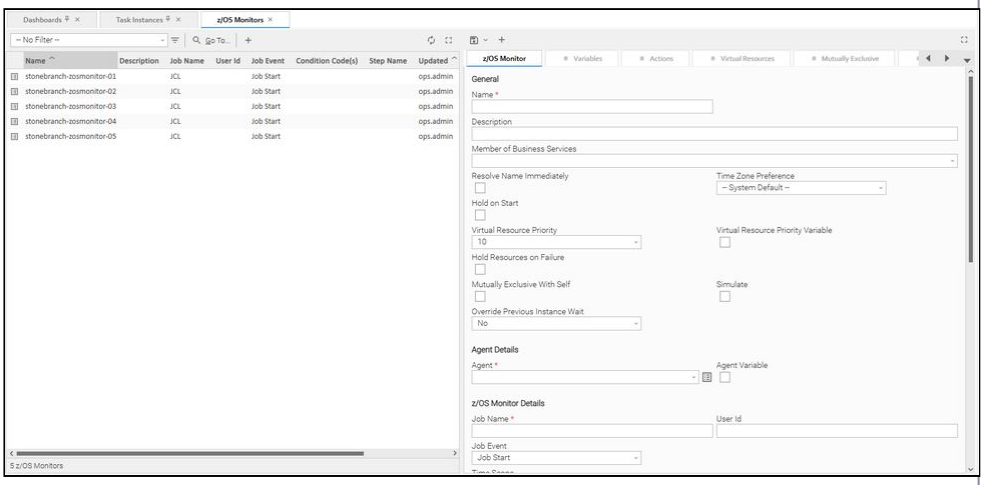
The z/OS Monitor Task allows you to monitor external z/OS Jobs that are not controlled by UAG for z/OS.

11.2 Built-In Variables

The following built-in variables can be used in an z/OS Monitor Task to pass data where appropriate:

- Agent-Based Task Instance variables
- Task Instance variables
- z/OS Monitor Task variables

11.3 Creating a z/OS Monitor Task

Step 1	From the Automation Center navigation pane, select **z/OS Monitors**. The z/OS Monitor Tasks list displays a list of all currently defined z/OS Monitor tasks. To the right of the list, z/OS Monitor Task Details for a new z/OS Monitor task displays. 
Step851px 2	Enter/select Details for a new z/OS Monitor task, using the field descriptions below as a guide. • Required fields display an asterisk (*) after the field name. • Default values for fields, if available, display automatically. To display more of the Details fields on the screen, you can either: • Use the scroll bar. • Temporarily hide the list above the Details. • Click the + button above the list to display a pop-up version of the Details.
Step 3	Click the save button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

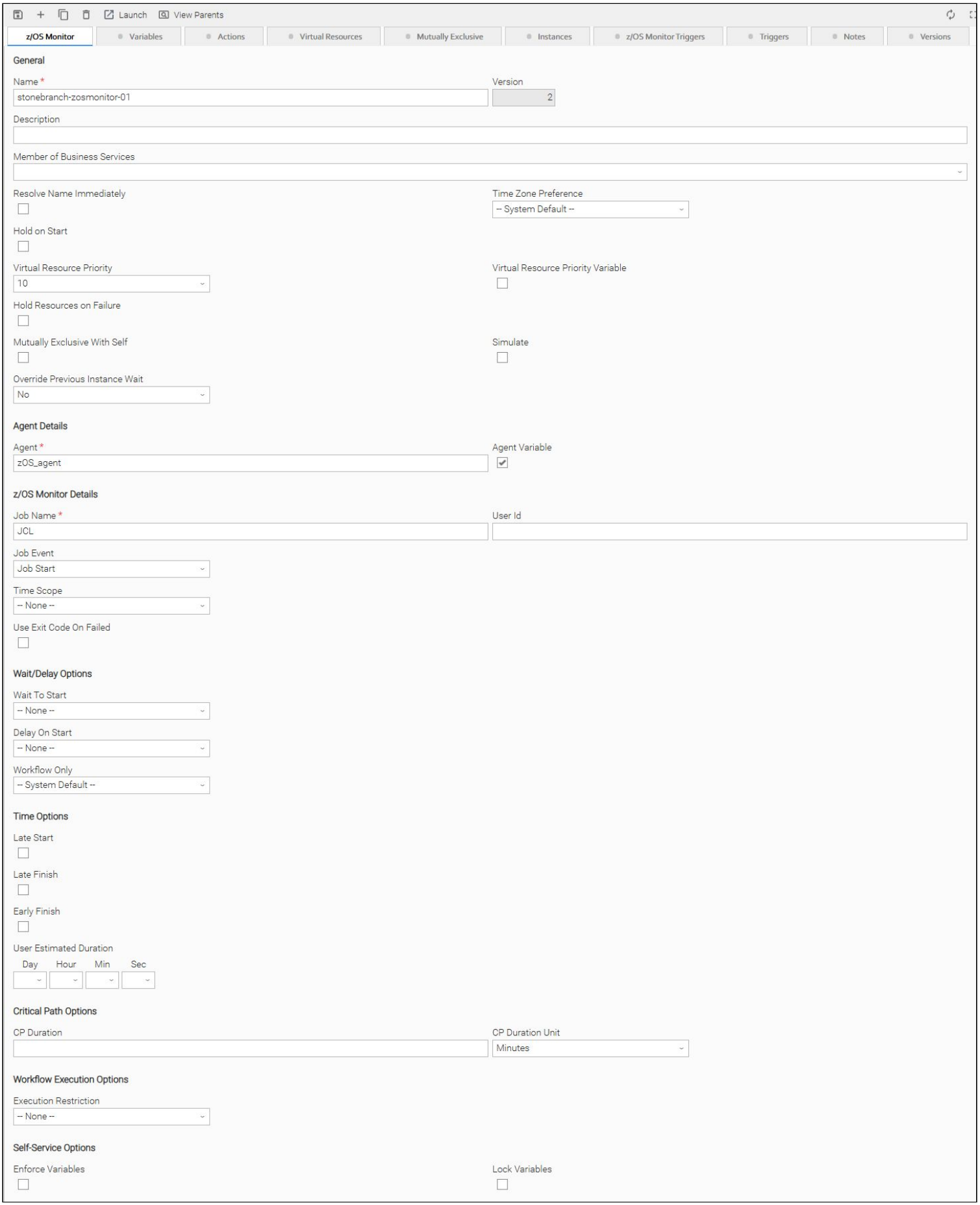
To open an existing record on the list, either:

- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

11.3.1 z/OS Monitor Task Details

The following z/OS Monitor Task Details is for an existing z/OS Monitor task.

Depending on the values that you enter / select for these fields, and whether or not the z/OS Monitor task has ever been launched, more (or less) fields may display. See the field descriptions, below, for a description of all fields that may display in the z/OS Monitor Task Details.


Launch
View Parents
z/OS Monitor
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
z/OS Monitor Triggers
Triggers
Notes
Versions
General
Name *
stonebranch-zosmonitor-01
Version
2
Description
Member of Business Services
Resolve Name Immediately
Time Zone Preference
-- System Default --
Hold on Start
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Override Previous Instance Wait
No
Agent Details
Agent *
zOS_agent
Agent Variable
z/OS Monitor Details
Job Name *
JCL
User Id
Job Event
Job Start
Time Scope
-- None --
Use Exit Code On Failed
Wait/Delay Options
Wait To Start
-- None --
Delay On Start
-- None --
Workflow Only
-- System Default --
Time Options
Late Start
Late Finish
Early Finish
User Estimated Duration
Day
Hour
Min
Sec
Critical Path Options
CP Duration
CP Duration Unit
Minutes
Workflow Execution Options
Execution Restriction
-- None --
Self-Service Options
Enforce Variables
Lock Variables

11.3.2 z/OS Monitor Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the z/OS Monitor Task Details.

Field Name	Description
General	This section contains general information about the task.
Name	User-defined name of this task (Maximum = 255 alphanumeric characters); variables supported. It is the responsibility of the user to develop a workable naming scheme for tasks.
Version	System-supplied; version number of the current record, which is incremented by the Controller every time a user updates a record. Click the Versions tab to view previous versions. For details, see Record Versioning.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Resolve Name Immediately	If enabled, the Instance Name of the task instance will be resolved immediately at trigger/launch time.
Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Hold on Start	If enabled, when the task is launched it appears in the Activity Monitor with a status of **Held**. The task runs when the user releases it.
Hold Reason	Information about why the task will be put on hold when it starts.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.

Override Previous Instance Wait	Specifies whether or not to override the parent workflow's **Previous Instance Wait** configuration. This option only applies for an instance running within a workflow. Options: • No Behavior determined by the parent workflow configuration. • Yes / -- None -- Regardless of the parent workflow configuration, the task instance will never wait for a previous instance to complete. • Yes / Wait for Last Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Yes / Wait for Last / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Yes / Wait for All Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Yes / Wait for All / Same Workflow Regardless of the parent workflow configuration, the task instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Agent Details	This section contains assorted detailed information about the Agent selected for this task.
Agent	Name of the Agent resource that identifies the machine where the operation will run.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
z/OS Monitor Details	
Job Name	Job Name or Job Name Mask ('*' = Multiple Character ignore, '?' =Single Character ignore)
User Id	Submit User Id or User Id Mask ('*' = Multiple Character ignore, '?' =Single Character ignore)
Job Event	Job Event to Monitor. Options: • Job Start • Job End • Job Abend • Step End • Step Abend
Step Name	Step Name or Step Name Mask ('*' = Multiple Character ignore, '?' =Single Character ignore). Displayed only if Job Event = Step End or Step Abend
Condition Codes(s)	Condition Codes in the format: 1,2,10-4095,Sxxxx,Unnnn. Displayed only if Job Event = Job End or Step End
Time Scope	Allows monitoring of z/OS Jobs that were run prior to the z/OS Monitor task running, or limits how long the z/OS Monitor task continues to monitor before becoming Failed or Finished, Options: • -- None -- • Relative
Expiration Action	If Time Scope is Relative; State to transition to if Relative Time Scope conditions are not met within the specific window. Options: • Failed • Finished

Time Scope From	Format is (+/-)hh:mm If Time Scope = Relative; Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the z/OS Monitor task launched, during which the conditions of the z/OS Monitor must be met. If the conditions are not met within the specified window, the z/OS Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.
Time Scope To	Format is (+/-)hh:mm If Time Scope = Relative; Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the z/OS Monitor task launched, during which the conditions of the z/OS Monitor must be met. If the conditions are not met within the specified window, the z/OS Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Workflow Only	Specification for whether or not to apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. Options are: • - - System Default - - Apply the Wait To Start and Delay On Start specifications as defined by the System Default Wait/Delay Workflow Only system property. (Default is **yes**.) • Yes Apply the Wait To Start and Delay On Start specifications only if the task is in a Workflow. • No Apply the Wait To Start and Delay On Start specifications whether or not the task is in a Workflow.
Time Options	This section contains time-related statistics for task instances of the task.

Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.
Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.

Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration
Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.

Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.
Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.

Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
User Estimated Duration	Required if Early Finish Type or Late Finish Type = Average Duration; Estimated amount of time it should normally take to run this task. The Controller uses this information to calculate the User Estimated End Time on a task instance record. **User Estimated Duration** is used when the Average Duration is not available; for example, on the first launch of a task.
Critical Path Options	This section contains Critical Path-related specifications for the task.
CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.

11.4 Viewing a z/OS Monitor Task Instance

When a z/OS Monitor task is launched, the Controller creates a task instance record of that task.

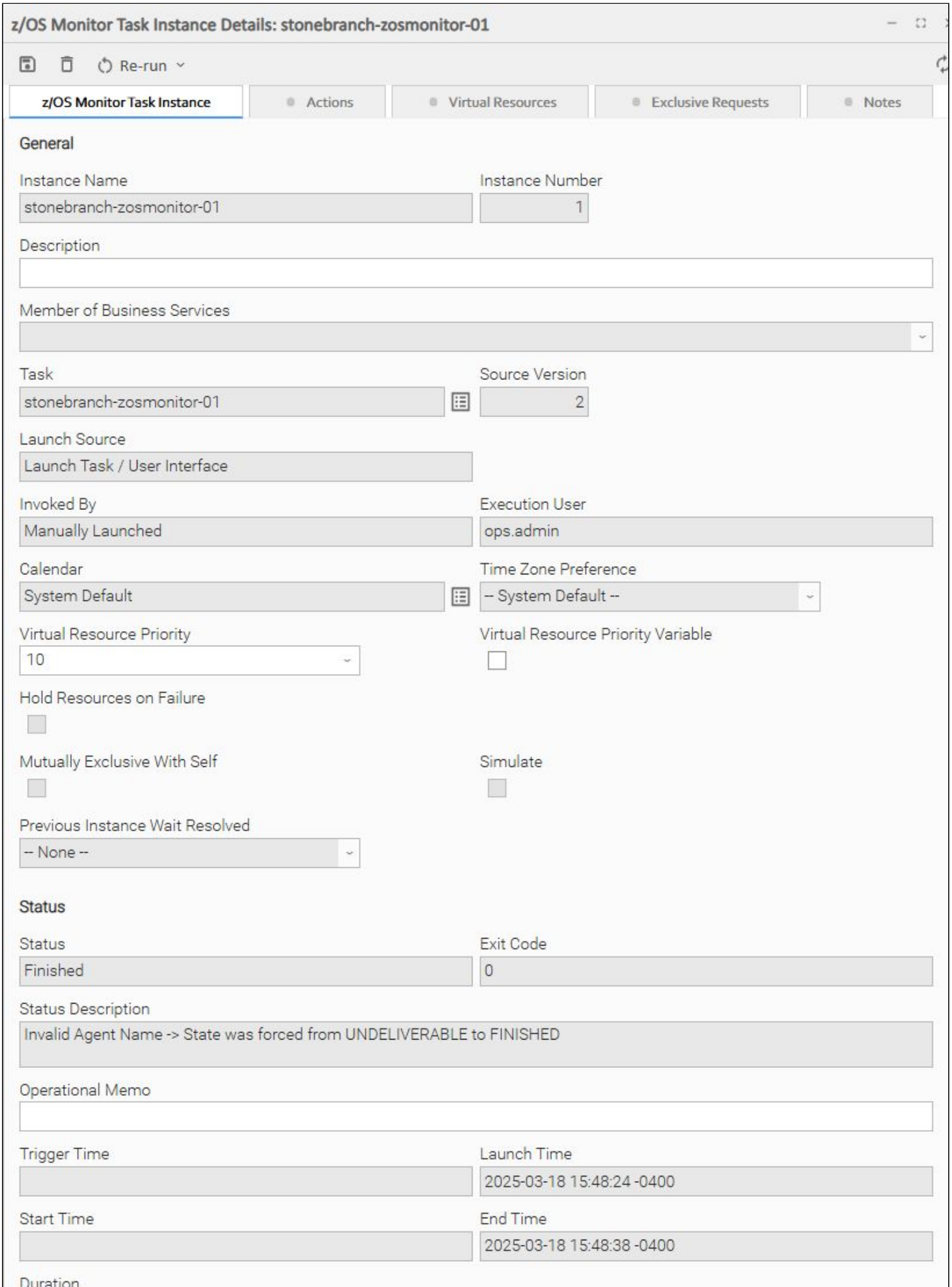
A task instance contains detailed information about a single execution of that task.

You can access a task instance from:

- **Instances tab** on the z/OS Monitor Task Details for that task
- Activity Monitor
- Task Instances list

11.4.1 z/OS Monitor Task Instance Details

The following z/OS Monitor Task Instance Details contains information on the execution of the task shown in the z/OS Monitor Task Details.


z/OS Monitor Task Instance Details: stonebranch-zosmonitor-01
Re-run
z/OS Monitor Task Instance
Actions
Virtual Resources
Exclusive Requests
Notes
General
Instance Name
stonebranch-zosmonitor-01
Instance Number
1
Description
Member of Business Services
Task
stonebranch-zosmonitor-01
Source Version
2
Launch Source
Launch Task / User Interface
Invoked By
Manually Launched
Execution User
ops.admin
Calendar
System Default
Time Zone Preference
-- System Default --
Virtual Resource Priority
10
Virtual Resource Priority Variable
Hold Resources on Failure
Mutually Exclusive With Self
Simulate
Previous Instance Wait Resolved
-- None --
Status
Status
Finished
Exit Code
0
Status Description
Invalid Agent Name -> State was forced from UNDELIVERABLE to FINISHED
Operational Memo
Trigger Time
Launch Time
2025-03-18 15:48:24 -0400
Start Time
End Time
2025-03-18 15:48:38 -0400
Duration

11.4.2 z/OS Monitor Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in z/OS Monitor Task Instance Details.

Field Name	Description
General	This section contains general information about the task instance.
Instance Name	Name of this task instance.
Instance Number	System-supplied; Sequentially assigned number, maintained per task, representing the creation order of the instance.
Description	Description of this record. Maximum length is 255 characters.
Member of Business Services	User-defined; Allows you to select one or more Business Services that this record belongs to. (You also can Check All or Uncheck All Business Services for this record.) You can select up to 62 Business Services for any record type, and enter a maximum of 2048 characters for each Business Service. If the Business Service Visibility Restricted Universal Controller system property is set to true, depending on your assigned (or inherited) Permissions or Roles, Business Services available for selection may be restricted.
Task	Name of the task that was run to create this task instance. Click the icon to display Task Details for the task.
Source Version	Version of the task that was run to create this task instance.

Launch Source	System-supplied; Source from which this task was launched. Options: • Scheduled Trigger If the instance was directly launched by a scheduled trigger, the Trigger (trigger_id) column is assigned the UUID of the scheduled trigger. • Trigger Monitor If the instance is a monitor associated with monitor trigger, the Trigger (trigger_id) column is assigned the UUID of the monitor trigger. • Trigger Now / User Interface If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / System Operation If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger and the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Trigger Now / Web Service If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Trigger Now / Command Line If the instance was directly launched by a Trigger Now command, the Trigger (trigger_id) column is assigned the UUID of the trigger. • Workflow If the instance was launched by a workflow, the Workflow (workflow_id) column is assigned the UUID of the workflow instance. Likewise, the Source Instance (source_instance) column will also be assigned the UUID of the workflow instance. • Launch Task / User Interface If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / System Operation If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be assigned the UUID of the instance invoking the System Operation. • Launch Task / Web Service If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Launch Task / Command Line If the instance was directly launched by the Launch Task command, the Source Instance (source_instance) column will be null. • Recurring If the instance was directly launched by a Recurring Task Instance, the Source Instance (source_instance) column will be assigned the UUID of the Recurring Task Instance.
Source Instance	System-supplied; UUID of the source instance. • If the instance was directly launched by a **Trigger Now** command; the UUID of the instance invoking the System Operation. • If the instance was launched by a workflow; the UUID of the workflow instance. • If the instance was directly launched by the **Launch Task** command; the UUID of the instance invoking the System Operation. • If the instance was directly launched by a **Recurring Task Instance;** the UUID of the **Recurring Task Instance**.
Invoked by	System-supplied; how the task instance was launched. Options: • Trigger: (Trigger Name) Instance was launched by the named trigger. • Workflow: (Workflow Name) Instance was launched by the named workflow. • Manually Launched Instance was launched by a user. To identify the user, check the Execution User column for that task instance on the Task Instances screen or, on most task instance screens, the Execution User field.
Execution User	System-supplied; If the task was launched manually; ID of the user who launched it.
Calendar	Calendar associated with the task instance.

Time Zone Preference	User-defined; Allows you to specify the time zone that will be applied to the task. Options: • – System Default – Time zone is based on the value of the Task Time Zone Preference Universal Controller system property: Server or Inherited. • Server (xxx) Where (xxx) is the time zone ID of the server; time zone is evaluated in the time zone of the server. • Inherited Time zone is evaluated in the time zone of the Parent Workflow or Trigger / Launch specification in the case there is no Parent Workflow.
Virtual Resource Priority	Priority for acquiring a resource when two or more tasks are waiting for the resource. This priority applies to all resources required by the task. Options: 1 (high) - 100 (low). Default is 10.
Virtual Resource Priority Variable	Indication of whether the **Virtual Resource Priority** field is a number select field for choosing the Virtual Resource Priority (unchecked) or a text field for specifying the Virtual Resource Priority as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
Hold Resources on Failure	If enabled, the task instance will continue to hold Renewable resources if the task instance fails. Renewable resources will be returned only if the task instance status is either Complete, Finished, or Skipped.
Mutually Exclusive With Self	If enabled, the task will not be allowed to run concurrently with itself. Task will not start until the instance that is running finishes. An instance will transition to Exclusive Wait status if it cannot start due to another instance already running.
Simulate	Specifies if the instance should execute under simulation mode.
Previous Instance Wait Resolved	System-supplied; If the Override Previous Instance Wait field for the task is set to No, the Previous Instance Wait Resolved field will be set to the value of the Previous Instance Wait field of the parent workflow. Otherwise, it will be set to the value specified by the Override Previous Instance Wait. Options: • -- None -- • Wait for Last Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task has completed. • Wait for Last / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until the most recent prior instance of the same task, within an instance of the same workflow, have completed. • Wait for All Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task has completed. • Wait for All / Same Workflow Every task instance directly within the workflow instance will remain in **Instance Wait** until all prior instances of the same task, within an instance of the same workflow, have completed.
Status	This section contains information about the current status of the task instance.
Status	System-supplied; see Task Instance Statuses.
Exit Code	System-supplied; the exit code captured by the Agent when executing the task (for example, a command or script).
Status Description	System-supplied; additional information, if any, about the status of the task instance.
Operational Memo	User-defined operational memo.
Evaluation Time	If time zone of user is different than time zone of task instance; Time at which Execution Restrictions and Run Criteria were evaluated based upon the requested time zone. (Time zone of task instance displays in parentheses.)
Critical	Indicates that this task is in the Critical Path of a workflow.

Critical Endpoint	Indicates that this task was defined as a Critical Endpoint of a Critical Path in a workflow.
Wait Until Time	Amount of time calculated to wait before the task was started, based on Wait To Start and Delay On Start times.
Queued Time	System-supplied; Date and time the task was queued for processing.
Trigger Time	System-supplied; Date and time the task instance was triggered.
Launch Time	System-supplied; Date and time the task instance was launched.
Start Time	System-supplied; Date and time the task instance started.
End Time	System-supplied; Date and time the task instance completed.
Duration	System-supplied; amount of time the task instance took to run.
Agent Details	
Agent	Name of the Agent resource that identifies the machine where the operation will run.
Agent Variable	Indication of whether the Agent field is a reference field for selecting a specific Agent (unchecked) or a text field for specifying the Agent as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions.
z/OS Monitor Details	
Job Name	Job Name or Job Name Mask ('*' = Multiple Character ignore, '?' =Single Character ignore)
User Id	Submit User Id or User Id Mask ('*' = Multiple Character ignore, '?' =Single Character ignore)
Job Event	Job Event to Monitor. Options: • Job Start • Job End • Job Abend • Step End • Step Abend
Step Name	Step Name or Step Name Mask ('*' = Multiple Character ignore, '?' =Single Character ignore). Displayed only if Job Event = Step End or Step Abend
Condition Codes(s)	Condition Codes in the format: 1,2,10-4095,Sxxxx,Unnnn. Displayed only if Job Event = Job End or Step End
Time Scope	Allows monitoring of z/OS Jobs that were run prior to the z/OS Monitor task running, or limits how long the z/OS Monitor task continues to monitor before becoming Failed or Finished, Options: • -- None -- • Relative
Expiration Action	If Time Scope is Relative; State to transition to if Relative Time Scope conditions are not met within the specific window. Options: • Failed • Finished

Time Scope From	Format is (+/-)hh:mm If Time Scope = Relative; Together with the Time Scope To field, it allows you to specify a window of time, relative to the time the z/OS Monitor task launched, during which the conditions of the z/OS Monitor must be met. If the conditions are not met within the specified window, the z/OS Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.
Time Scope To	Format is (+/-)hh:mm If Time Scope = Relative; Together with the Time Scope From field, it allows you to specify a window of time, relative to the time the z/OS Monitor task launched, during which the conditions of the z/OS Monitor must be met. If the conditions are not met within the specified window, the z/OS Monitor task instance will transition to Failed (default) or Finished status, as determined by the Expiration Action. **hh** must be a positive integer. **mm** must be a positive integer between 0 and 59 inclusive. For example, -124:00, -12:00, -6:00, 00:00, 6:00, 12:00, or 124:00.
Use Exit Code On Failed	As an alternative to ending in a Failed status, the monitor will instead transition to Success with Exit Code 255. Success and Finished statuses will remain unchanged with Exit Code 0. This option is not applicable for monitors running in association with a monitor trigger.
Wait / Delay Options	This section contains specifications for waiting to start and/or delaying on start the task.
Wait To Start	Amount of time to wait before starting a task from the time that it was launched. Options are: • – None – • Time • Relative Time • Duration • Seconds
Wait Time	If Wait To Start = Time or Relative Time; Time of day (in 24-hour time) to wait until before starting the task.

Wait Day Constraint	If Wait To Start = Time or Relative Time; Specification for whether or not to advance the wait time to another day.
	Valid values:
	• -- None --
	  • If Wait To Start = Time; Advance to the next day if the specified wait time is before the time that the task instance is eligible to start; that is, all dependencies have been met. For example: it is not being held, and it is not waiting on any predecessors.
	  • If Wait To Start = Relative Time; Advance to the next day if the specified wait time is before the task instance Trigger Time or, if there is no Trigger Time, before the task instance Launch Time. In the latter case, when a task instance is within a workflow, it will inherit the Launch Time of the top-level parent workflow task instance.
	• Same Day
	Do not advance day.
	• Next Day
	Advance to the next day.
	• Next Business Day
	Advance to the next business day.
	• Sunday
	If today is not Sunday, advance to next Sunday.
	• Monday
	If today is not Monday, advance to next Monday.
	• Tuesday
	If today is not Tuesday, advance to next Tuesday.
	• Wednesday
	If today is not Wednesday, advance to next Wednesday.
	• Thursday
	If today is not Thursday, advance to next Thursday.
	• Friday
	If today is not Friday, advance to next Friday.
	• Saturday
	If today is not Saturday, advance to next Saturday.
	Default is – None --.

Wait Duration	If Wait To Start = Duration; Number of days, hours, minutes, and seconds to wait before starting the task.
Wait Duration In Seconds	If Wait To Start = Seconds; Number of seconds to wait before starting the task.
Delay On Start	Amount of time to delay the start of a task, after it has been launched, from the time that it is eligible to start; that is, all dependencies have been met. For example: it is not being held, it is not waiting on any predecessors, or there is no wait time specified. Options are: • – None – • Duration • Seconds
Delay Duration	If Delay On Start = Duration; Number of days, hours, minutes, and seconds to delay after starting the task.
Delay Duration In Seconds	If Delay On Start = Seconds; Number of seconds to delay after starting the task.
Time Options	This section contains time-related specifications for the task instance.
Late Start	If enabled, and if the task instance starts after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late start (see Late Start Type). To determine whether a task instance started late, open the task instance and locate the Started Late field; the field is checked if the instance started after the specified time. The Started Late field displays in the task instance Details only if the user specified a Late Start in the task Details.
Started Late	System-supplied; this field is flagged if the task started later than the time specified in the Late Start fields.
Late Start Type	Required if Late Start is enabled. Options: • Time - Flag the task if it starts after the specified time. • Duration - Flag the task if it starts a certain amount of time after the programmed start time. The task must have a specific start time.

Late Start Time	If Late Start Type = Time; Time after which the task start time is considered late. Use HH:MM, 24-hour time.
Late Start Day Constraint	If Late Start Type = Time; Specification for whether or not to advance the late start time to another day. Valid values: • -- None -- Advance to the next day if the specified late start time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Start Nth Amount	If Late Start Day Constraint = Nth Day; Number of days to advance.
Late Start Duration	If Late Start Type = Duration; Duration (amount of relative time) after which the task is considered to have started late. For a task within a workflow, the duration is the period between the time the workflow starts and the time the task itself starts. For example, a task might have a Late Start Duration of 60 minutes. If the workflow starts at 9:00 a.m. but the task itself does not start until 10:30, the task has started late. For a task that is not within a workflow, Late Start Duration has meaning only if the task has been held upon starting. For example, if a task has a Late Start Duration of 60 minutes and the Hold on Start field is enabled, if the task is not released from hold within the amount of time specified in the Late Start Duration field, the task has started late.
Computed Late Start Time	If Late Start is enabled, the computed Date/Time for when the task instance will be Late Started.
Late Finish	If enabled, and if the task instance finishes after the time or period specified, the task instance is flagged as late. You can specify a time or duration to determine a late finish (see Late Finish Type). To determine whether a task instance finished late, open the task instance and locate the Finished Late field; the field is checked if the instance finished after the specified time or lasted longer than expected. This field only appears on the task instance if the user specified a Late Finish in the task definition.
Finished Late	System-supplied; this field is flagged if the task finished later than the time or duration specified in the Late Finish fields.
Late Finish Type	Required if Late Finish is enabled. Options: • Time - Flag the task if it finishes after the specified time (see Late Finish Time). • Duration - Flag the task if it finishes a certain amount of time after the programmed finish time (see Late Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Late Finish Offset Type), if specified.
Late Finish Offset Type	If Late Finish Type = Average Duration; Options: • Percentage • Duration

Late Finish Percentage Offset (+)	Required if Late Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**. (Minimum = 0 and Maximum = 1000)
Late Finish Duration Offset (+)	Required if Late Finish Offset Type = *Duration*; Duration to use as an offset. The late finish time is calculated by adding the offset to the **Average Duration**.
Late Finish Duration Offset Unit	If Late Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Late Finish Time	If Late Finish Type = Time; Time after which the task finish time is considered late. Use HH:MM, 24-hour time.
Late Finish Day Constraint	If Late Finish Type = Time; Specification for whether or not to advance the late finish time to another day. Valid values: • -- None -- Advance to the next day if the specified late finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None --.
Late Finish Nth Amount	If Late Finish Day Constraint = Nth Day; Number of days to advance.
Late Finish Duration	If Late Finish Type = Duration; Longest amount of time this task instance should take to run.
Computed Late Finish Time	If Late Finish is enabled, the computed Date/Time for when the task instance will be Late Finished.
Early Finish	If enabled, and if the task instance finishes before the time or period specified, the task instance is flagged as early. You can specify a time or duration to determine an early finish (see Early Finish Type). To determine whether a task instance finished early, open the task instance and locate the Finished Early field; the field is checked if the instance finished before the specified time or did not last as long as expected. This field only appears on the task instance if the user added Early Finish specifications to the task definition.
Finished Early	System-supplied; this field is flagged if the task finished earlier than the time specified in the Early Finish fields.
Early Finish Type	Required if Early Finish is enabled. Options: • Time - Flag the task if it finishes before the specified time (see Early Finish Time). • Duration - Flag the task if it finishes a certain amount of time before the programmed finish time (see Early Finish Duration). The task must have a specific finish time. • Average Duration - Flag the task if it finishes before the average duration (see Average Instance Time) for the task, less an offset (see Early Finish Offset Type), if specified.

Early Finish Offset Type	If Early Finish Type = Average Duration; Options: • Percentage • Duration
Early Finish Percentage Offset (-)	Required if Early Finish Offset Type = *Percentage*; Percentage of **Average Duration** to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**. (Minimum = 0 and Maximum = 100)
Early Finish Duration Offset (-)	Required if Early Finish Offset Type = *Duration*; Duration to use as an offset. The early finish time is calculated by subtracting the offset from the **Average Duration**.
Early Finish Duration Offset Unit	If Early Finish Offset Type = Duration; Options: • Seconds • Minutes • Hours
Early Finish Time	If Early Finish Type = Time; Time before which the task finish time is considered early. That is, enter a time at which the task should still be running. Use HH:MM, 24-hour time.
Early Finish Day Constraint	If Early Finish Type = Time; Specification for whether or not to advance the early finish time to another day. Valid values: • -- None -- Advance to the next day if the specified early finish time is before the Created time of the task instance. • Same Day Do not advance day. • Next Day Advance to the next day. • Next Business Day Advance to the next business day. • Sunday If today is not Sunday, advance to next Sunday. • Monday If today is not Monday, advance to next Monday. • Tuesday If today is not Tuesday, advance to next Tuesday. • Wednesday If today is not Wednesday, advance to next Wednesday. • Thursday If today is not Thursday, advance to next Thursday. • Friday If today is not Friday, advance to next Friday. • Saturday If today is not Saturday, advance to next Saturday. • Nth Day Advance to a specific number of days in the future. Default is – None –.
Early Finish Nth Amount	If Early Finish Day Constraint = Nth Day; Number of days to advance.
Early Finish Duration	If Early Finish Type = Duration; Shortest amount of time this task instance should take to run.
Projected Late	System-provided if Late Start Time, Late Start Duration, or Late Finish Time is specified; This field is flagged if the task instance is projected to be late based on critical path projected end times (see Critical Path Projected Late Action Maximum and Critical Path Projected Late Threshold In Minutes Universal Controller system properties). .
Critical Path Options	This section contains Critical Path-related specifications for the task.

CP Duration	Optional; Allows you to override the estimated Critical Path Duration of the task when running in a Workflow; used in conjunction with the CP Duration Unit field. In most cases, this field should be left blank, which implies that the Controller will estimate the Critical Path Duration based on historical executions. Valid values are any integer equal to or greater than 0. Variables and Functions are supported.
CP Duration (Resolved)	Displays the current resolved value of the CP Duration field, which may contain variables or functions that will be displayed as unresolved until the task instance starts. The CP Duration (Resolved) field can continue to change value until the task instance starts, at which time CP Duration will display as resolved and CP Duration (Resolved) will no longer be visible unless there was an issue resolving the variables and/or functions contained within CP Duration. If the Controller is unable to resolve CP Duration or it resolves to an invalid value, CP Duration will be ignored and the Controller will estimate the Critical Path Duration based on historical executions.
CP Duration Unit	Type of CP Duration; used in conjunction with the CP Duration field. For example, for a CP Duration of two minutes, specify 2 in the CP Duration field and select **Minutes** in this field. Options: • Seconds • Minutes • Hours Default is Minutes.
Workflow Execution Options	This section contains Execution Restriction specifications for the task if it is within a Workflow.
Execution Restriction	Specification for whether or not there is a restriction for this task to be run, skipped, or held. Options are: • -- None -- No restriction for this task. • Run Restriction for when this task will be run. • Skip Restriction for when this task will be skipped. • Hold Restriction for when this task will be held. If Execution Restriction on a task is Run or Skip, then when it is part of a Workflow that is being launched, the Restriction Period is evaluated. The task instance will be skipped if Execution Restriction is Skip and the date is within the Restriction Period or Execution Restriction is Run and the date is not within the Restriction Period. Execution Restriction can be set to Skip with a Restriction Period of - None -, meaning the restriction is always active and the task will be skipped when it is part of a Workflow.
Restriction Period	If Execution Restriction = Run, Skip, or Hold; Period of time when the task is restricted. Options are: • – None – No period of restriction for this task. • Before Restriction is valid if the date is before the Before Date value. • After Restriction is valid if the date is after the After Date value. • Span Restriction is valid if the date is before the Before Date value and after After Date value. • On Restriction is valid if the date is one of the Date List values.
Before Date	If Restriction Period = Before or Span; Date before which the restriction is valid.
Before Time	If Restriction Period = Before or Span; Time on the selected date before which the restriction is valid.
After Date	If Restriction Period = After or Span; Date after which the restriction is valid.
After Time	If Restriction Period = After or Span; Time on the selected date after which the restriction is valid.
Date List	If Restriction Period = On; Date(s) on which the restriction is valid.
Statistics	This section contains time-related statistics for the task instance.

User Estimated End Time	System-supplied; If the user entered information into the User Estimated Duration field in the task Details, the Controller uses this information to calculate an end time for the task instance, based on the date/time the task instance started.
Lowest Estimated End Time	System-supplied; Lowest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Average Estimated End Time	System-supplied; Average estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Highest Estimated End Time	System-supplied; Highest estimated end time of the task instance, calculated by the Controller based on the date/time the task instance started.
Projected Start Time	System-supplied; projected start time of the task instance, calculated by the Controller based on Projected End Time minus Projected Duration.
Projected End Time	System-supplied; projected end time of the task instance, calculated by the Controller based on the projected end time of its predecessor (or the maximum projected end time of all its predecessors, if more than one path exists to that task instance) plus its estimated critical path duration.
Metadata	This section contains Metadata information about this record.
UUID	Universally Unique Identifier of this record.
Updated By	Name of the user that last updated this record.
Updated	Date and time that this record was last updated.
Created By	Name of the user that created this record.
Created	Date and time that this record was created.
Status History	History of all statuses that the task instance has gone through.
Operational Memo History	History of all Operational Memos for the task.
Buttons	This section identifies the buttons displayed above and below the Task Instance Details that let you perform various actions.
Update	Saves updates to the record.
Force Finish	See Force Finishing a Task.
Hold	Places the task instance on Hold (see Putting a Task on Hold).
Skip	For tasks loaded into the schedule that have not yet run; allows you to tell the Controller to skip this task. See Skipping a Task.
Re-run	See Re-running a Task Instance. **Note** If the Re-run (Suppress Intermediate Failures) Permitted Universal Controller system property is set to true, the Re-run button is a drop-down list containing the following options: • Re-run • Re-run (Suppress Intermediate Failures) The Re-run button does not display if the task instance does not qualify for Re-run. If the task instance qualifies for Re-run, but already has Retry Options enabled, Re-run (Suppress Intermediate Failures) displays as disabled in the drop-down list.

<table>
<tr><td>View Parent</td><td>Displays the task instance Details for the parent Workflow of this task instance.</td></tr>
<tr><td>Delete</td><td>Deletes the current record.</td></tr>
<tr><td>Refresh</td><td>Refreshes any dynamic data displayed in the Details.</td></tr>
<tr><td>Close</td><td>For pop-up view only; closes the pop-up view of this task instance.</td></tr>
<tr><td>Tabs</td><td>This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.</td></tr>
<tr><td>Actions</td><td>Actions that the Controller took automatically based on events that occurred during the execution of this task.
Events are:
Task instance status
Exit codes
Late start
Late finish
Early finish
Actions are:<table><tr><td>Abort Action</td><td>Abort the task if certain events occur. For details, see Abort Actions.</td></tr><tr><td>Email Notification</td><td>Send an email if certain events occur. For details, see Email Notification Actions.</td></tr><tr><td>Set Variable</td><td>Used in tasks and workflows to set a variable based on the occurrence of certain events. For details, see Creating a Set Variable Action within a Task or Workflow.</td></tr><tr><td>SNMP Notification</td><td>Send an email if certain events occur. For details, see SNMP Notification Actions.</td></tr><tr><td>System Operation</td><td>Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.</td></tr></table></td></tr>
<tr><td>Virtual Resources</td><td>Lists all Virtual Resources to which this task is assigned.

If you want to create a Task Virtual Resource for this task, you can select an existing Virtual Resource (or, optionally, first create a new Virtual Resource and then select it as the Task Virtual Resource) or enter a Virtual Resource variable. The variable must be a supported type as described in Variables and Functions.</td></tr>
<tr><td>Exclusive Requests</td><td>Lists all records in the Exclusive Requests table (<code>ops_exclusive_order</code>) for this task instance.</td></tr>
<tr><td>Notes</td><td>Lists all notes associated with this record.</td></tr>
</table>

11.5 Running a z/OS Monitor Task

You can run a z/OS Monitor task:

- Manually, by clicking the Launch or Launch with Variables button in the z/OS Monitor Tasks list or z/OS Monitor Task Details Action menu.
- As part of a workflow.
- Specify triggers that run the task automatically based on times or events.

11.6 Monitoring Task Execution

You can monitor all system activity from the Activity Monitor and can view activity history from the History list.