Universal Controller 7.2.x

Integrations

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Integrations

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The information on these pages also is located in the Universal Controller 7.2.x Tasks.pdf.

Universal Tasks Overview

Overview

Universal Tasks allow Universal Controller users to implement task types that are specific to their own in-house applications, utilities, or third-party vendor applications.

In cases where you are using a generic script with a Windows or Linux/Unix Universal Agent-based task, you now can create a customized Universal Task Details that encapsulates the specific input needed for that command or script.

Universal Tasks are created for specific Universal Task types, which are based on Universal Templates. When a Universal Template is created, or imported from the Stonebranch Integration Hub, Universal Controller creates a corresponding Universal Task type - **<template name> Tasks** - under the Universal Tasks folder in the Automation Center navigation pane.

Each Universal Template contains user-defined fields, to which the Controller assigns a variable to be used in the Universal Template script. The Controller also automatically adds these fields to the Details of all Universal Tasks created for the Universal Task type based on that Universal Template. When a Universal Task is run, it executes the script in the Universal Template and the variables in the script are resolved to the values of their matching fields in the Universal Task instance.

In this way, you can execute the same script from different tasks and have the script variables resolve to different values.

If you want to change the script, including the adding or removing variables, you only have to change it in the Universal Template.

Universal Task User-Defined Fields

The Details for each Universal Task contains any editable fields that were created in the Universal Template on which the Universal Task type for that Universal Task is based. System-assigned variables that match these fields are provided for inclusion in the template script. When the task is run, it executes the script, and the variables are resolved to the values of their matching values in the task.

There are eight types of user-defined fields that can appear in the Details of a Universal Task:

- Text
  - Normal text (for a single line of text)
  - Large Text (for multiple lines of text)
- Integer
- Boolean
- Choice
- Credential
- Script
- Array
- Float

For each type of field, default values, format, and/or limitations are specified in the Universal Template. In any Universal Task based on that Universal Template, you can override and/or define values - within the specified format and limitations - for those fields.

- If the Allow Empty Choice field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will include an empty (blank) selection.
- If the Allow Multiple Choices field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will allow selection of more than one choice. When multiple choices are selected, the built-in field variable will resolve to a comma-delimited String of choice values.
- Any field that has a Require If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from required to optional (or optional to required) when toggling the Boolean field checkbox, depending on the Require If Field Value(s).

- Any field that has a Require If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become required when selecting a choice value specified in the Require If Field Value(s) and optional when selecting a choice value not specified in the Require If Field Value(s).
- Any field that has a Show If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from visible to hidden (or hidden to visible) when toggling the Boolean field checkbox, depending on the Show If Field Value(s).
- Any field that has a Show If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become visible when selecting a choice value specified in the Show If Field Value(s) and hidden when selecting a choice value not specified in the Show If Field Value(s).
- Any field visible due to a Show If Field dependency in the Universal Template on which the Universal Task is based will display as required (bold label) if the Require If Visible option is specified for the Universal Template field; otherwise, it will display as optional (non-bold label).
- By default, the column and row space occupied by a field remain reserved even when the field is hidden by a Show If Field dependency. To change the default behaviour, the No Space If Hidden option must be specified for the Universal Template field.

Setting Up Universal Templates and Tasks

Step 1	Create a Universal Template, which includes selecting the type of Agent(s) on which Universal Tasks based on this Universal Template can be run, and a variable prefix used for script variables that you want resolved when a Universal Task executes the script in this Universal Template.
Step 2	Enter a script in the Universal Template that all Universal Tasks based on this Universal Template will execute when they are run.
Step 3	After you have entered/selected any other desired values in the Universal Template Details, save the Universal Template.
Step 4	For each parameter in the script that you want to replace with a variable, create a Universal Template Field of an appropriate Field type. The Controller automatically assigns a variable (format: `ops_<Variable Prefix>_<Field Name>`) to each Field, using the variable prefix that you specified in Step 1, and - in the Details of all Universal Tasks based on this Universal Template - will place fields that match these Universal Template Fields (see Step 7).
Step 5	Replace the appropriate parameters in the script with the system-assigned variables.
Step 6	Update the Universal Template. Now that the Universal Template has one or more defined Fields, the Controller creates a Universal Task type for it and adds the Universal Task type to the Automation Center navigation pane. (You must refresh the Automation Center navigation pane in order to see the new Universal Task type.)
Step 7	Create a Universal Task for that Universal Task type. The Universal Task Details will contain fields that match the Fields you created in the Universal Template (Step 4) for that Universal Task type.
Step 8	Enter/change values in the Universal Task fields that match the Universal Template Fields, based on how you want their matching variables in the script to be resolved.
Step 9	Run the task, which executes the script. The variables in the script are resolved to the values of their matching fields in the Universal Task.

Creating a Universal Task

Before You Begin

Universal Task allows you to run a platform-specific application on a Linux/Unix or Windows machine. To run a Universal task, you must first complete the following tasks:

- Install Universal Agent for Linux/Unix on a Linux/Unix machine and/or install Universal Agent for Windows on a Windows machine.
- Launch the Agent(s). When an Agent connects with the Controller, it automatically creates an Agent resource definition in the database.
- Optionally, customize the Agent heartbeat and log levels, as described in:
  - Linux/Unix Agent Details Field Descriptions.
  - Windows Agent Details Field Descriptions

Built-In Variables

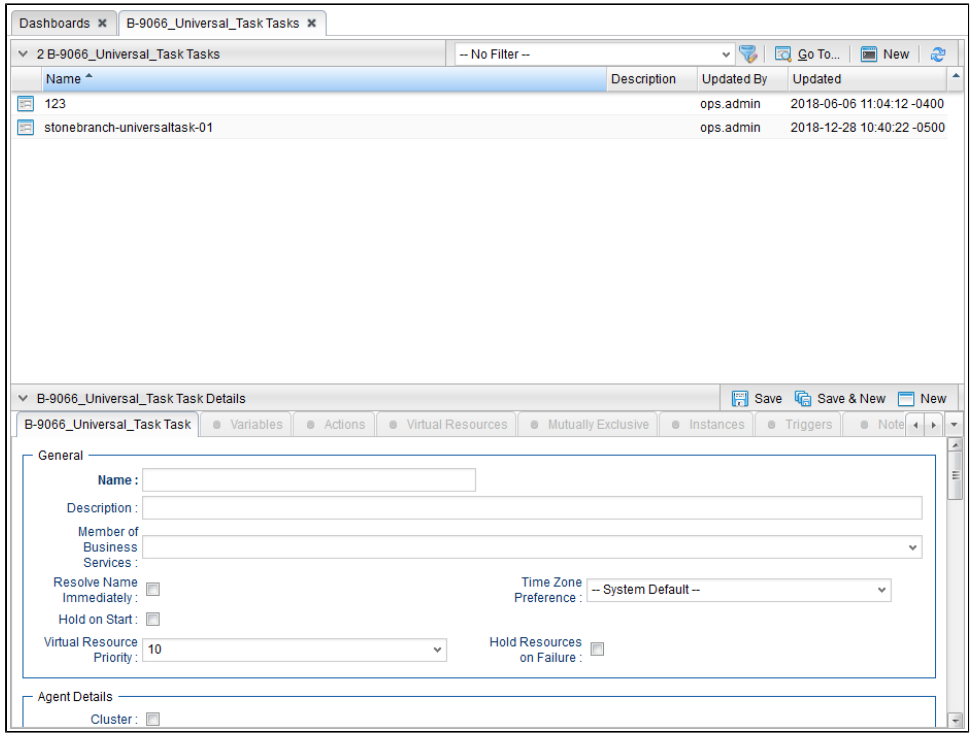
In addition to the system-assigned variables in the Universal Template script that a Universal task executes, the following built-in variables can be used in a Universal task to pass data where appropriate:

- Agent-Based Task Instance variables
- Task Instance variables

Creating a Universal Task

Step 1	From the **Universal Tasks** section of the Automation Center navigation pane, select a Universal Task type. The Universal Tasks list for that Universal Task type displays.

Below the list, Universal Task Details for a new Universal Task displays.



Step 2

Enter / select Details for a new Universal 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 **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **Save** button. The task is added to the database, and all buttons and tabs in the Universal Task Details are enabled.

Note

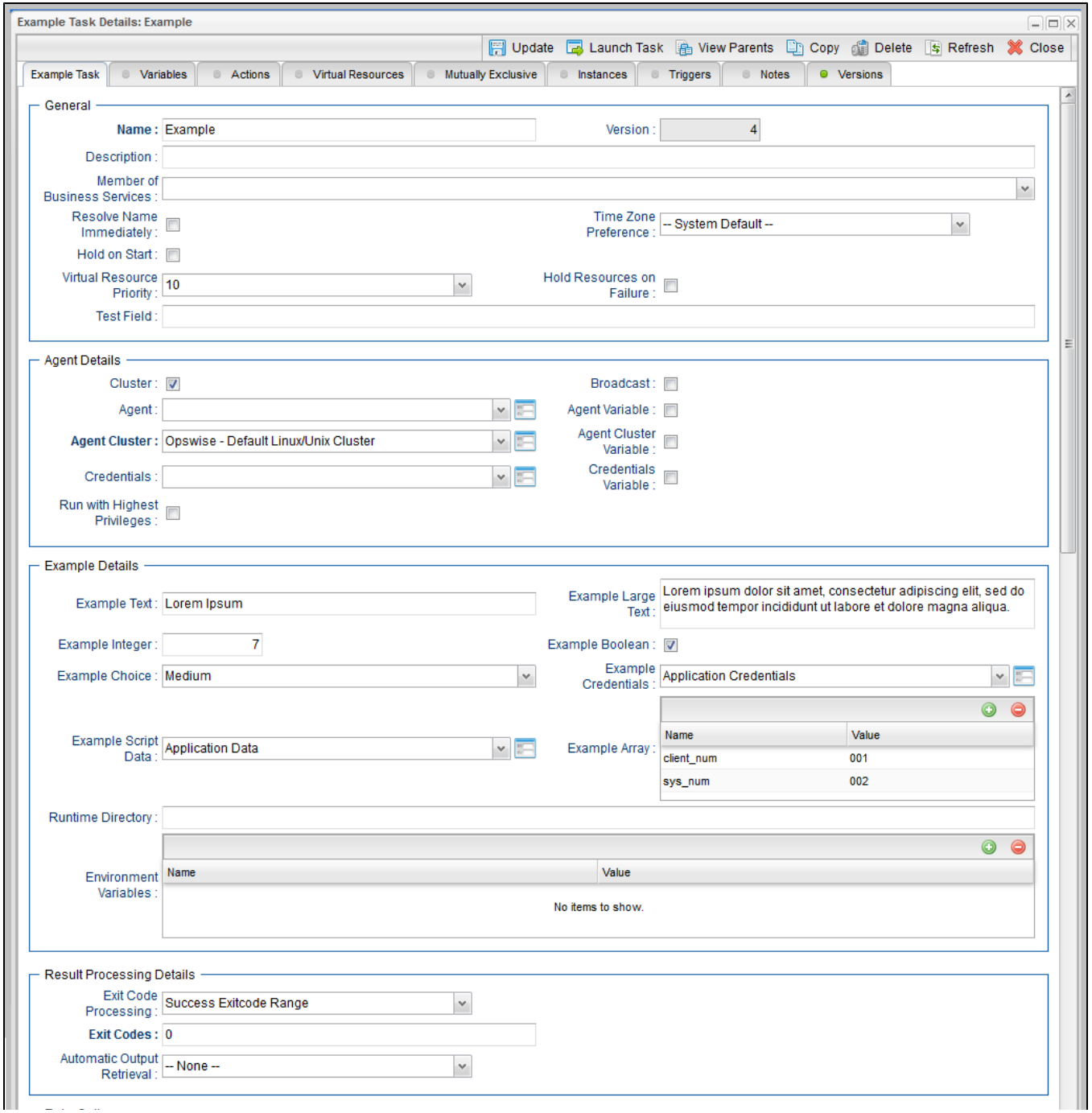
To open an existing record on the list, either:

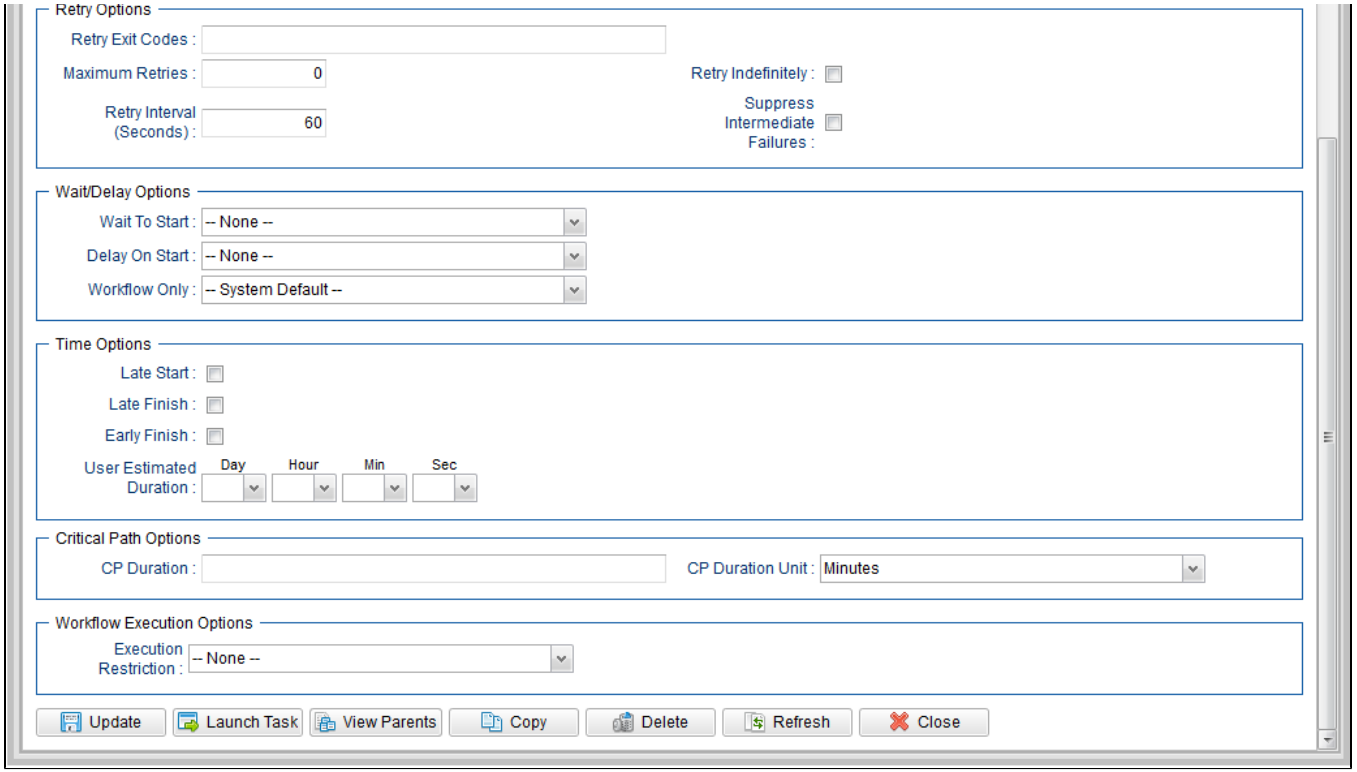
- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** 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).

Universal Task Details

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

Depending on the values that you enter / select for these fields, and whether or not the Universal 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 Task Details.


Example Task Details: Example
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
Example Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Name : Example
Version : 4
Description :
Member of Business Services :
Resolve Name Immediately :
Time Zone Preference : -- System Default --
Hold on Start :
Virtual Resource Priority : 10
Hold Resources on Failure :
Test Field :
Agent Details
Cluster :
Broadcast :
Agent :
Agent Variable :
Agent Cluster : Opswise - Default Linux/Unix Cluster
Agent Cluster Variable :
Credentials :
Credentials Variable :
Run with Highest Privileges :
Example Details
Example Text : Lorem Ipsum
Example Large Text : Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
Example Integer : 7
Example Boolean :
Example Choice : Medium
Example Credentials : Application Credentials
Example Script Data : Application Data
Example Array :
Name
Value
client_num
001
sys_num
002
Runtime Directory :
Environment Variables :
Name
Value
No items to show.
Result Processing Details
Exit Code Processing : Success Exitcode Range
Exit Codes : 0
Automatic Output Retrieval : -- None --



Universal Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the Universal 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 = 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 Timezone 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.
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.
Agent Details	This section contains assorted detailed information about the Agent.
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.
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 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: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an Agent reference to using an Agent variable, you must change the **Agent Variable** field to **Yes** and specify the Agent variable in the **Agent Unresolved** field. Conversely, to change from using an Agent variable to using an Agent reference, you must change the **Agent Variable** field to **No** and specify the Agent reference in the **Agent** field.
Agent Cluster Variable	Indication of whether the Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Agent Cluster as a variable (checked). Use the format: `${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.
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.
Run with Highest Privileges	For Windows Agents; Execute the task using an elevated privileges token, rather than one subject to User Account Control (UAC) restrictions. An elevated token allows a process to execute with all the privileges available to its specified credentials. For example, a task executed with an administrative account will behave as though it received permission via a UAC dialog to perform a privileged operation. This option will **not** give a user account privileges that have are not already granted to it. For example, taking ownership of a file is a privileged operation by default. A task will still fail even with this option selected if it is run with a regular user account that has not been granted the ability to change file ownership. Note This option only will affect tasks executed on Windows systems that support User Account Control (UAC). It will have no affect on tasks run on Windows releases prior to Vista (for example, Windows XP, Server 2003).
Universal Task Details	This section contains assorted detailed information about the Agent. Note The fields in this section may have Read Only or Hidden restrictions applied to them, as specified in the Universal Template on which the Universal Task is based.

(user-defined fields)	The Details for each Universal Task contains any editable fields that were created in the Universal Template on which the Universal Task type for that Universal Task is based. System-assigned variables that match these fields are provided for inclusion in the template script. When the task is run, it executes the script, and the variables are resolved to the values of their matching values in the task.
	
	There are seven types of user-defined fields that can appear in the Details of a Universal Task:
	
	• Text
	  ◦ Normal text (for a single line of text)
	  ◦ Large Text (for multiple lines of text)
	• Integer
	• Boolean
	• Choice
	• Credential
	• Script
	• Array
	
	For each type of field, default values, format, and/or limitations are specified in the Universal Template. In any Universal Task based on that Universal Template, you can override and/or define values - within the specified format and limitations - for those fields.
	
	• If the Allow Empty Choice field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will include an empty (blank) selection.
	• If the Allow Multiple Choices field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will allow selection of more than one choice. When multiple choices are selected, the built-in field variable will resolve to a comma-delimited String of choice values.
	• Any field that has a Require If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from required to optional (or optional to required) when toggling the Boolean field checkbox, depending on the Require If Field Value(s).
	• Any field that has a Require If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become required when selecting a choice value specified in the Require If Field Value(s) and optional when selecting a choice value not specified in the Require If Field Value(s).

	• Any field that has a Show If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from visible to hidden (or hidden to visible) when toggling the Boolean field checkbox, depending on the Show If Field Value(s). • Any field that has a Show If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become visible when selecting a choice value specified in the Show If Field Value(s) and hidden when selecting a choice value not specified in the Show If Field Value(s). • Any field visible due to a Show If Field dependency in the Universal Template on which the Universal Task is based will display as required (bold label) if the Require If Visible option is specified for the Universal Template field; otherwise, it will display as optional (non-bold label). • By default, the column and row space occupied by a field remain reserved even when the field is hidden by a Show If Field dependency. To change the default behaviour, the No Space If Hidden option must be specified for the Universal Template field.
Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Content Type	If Output Type is Extension; Output type that the Result Processing mechanism should assume when evaluating the output. If the expected output is XML or JSON, it is valid to specify Text. However, when specifying XML or JSON, the output must be XML or JSON respectively; otherwise, the parsing will fail and the path expression evaluation will return no matches.
Path Expression	XPath Expression if Content Type is XML, or the JsonPath Expression if Content Type is JSON, to be used when evaluating the Extension output.

Operator	If Output Type is Extension; Condition Operator to evaluate in combination with the specified condition Value.
Value	If Output Type is Extension; Condition Value to evaluate in combination with the specified condition Operator.
Strategy	If Content Type is XML or JSON; Strategy to take when applying the condition Operator and Value against the Path Expression matches when Content Type is XML or JSON.
Auto Cleanup	Enables the auto cleanup of Extension output upon task instance completion or, if the task instance is within a workflow, when the top level workflow instance completes.
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
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. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, 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, File, 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, File, 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, File, 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, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. 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.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.

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; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = 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**.
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**.
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.
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 Task	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.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.
Actions	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:

Abort Action	Abort the task if certain events occur. For details, see Abort Actions.
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions.
Set Variable	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.
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions.
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.

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.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
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.

Viewing a Universal Task Instance

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

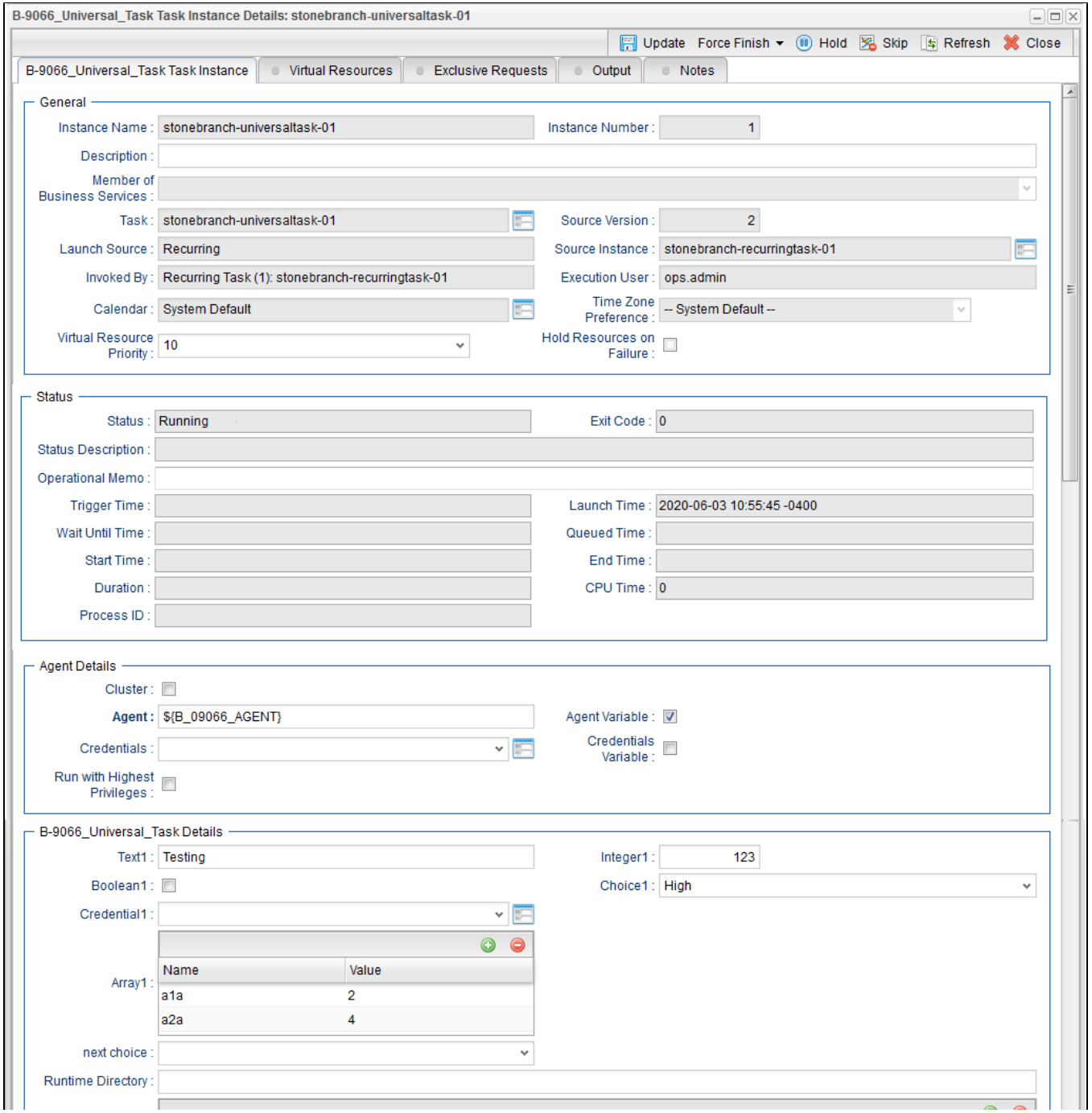
A task instance contains detailed information about a single execution of that task.

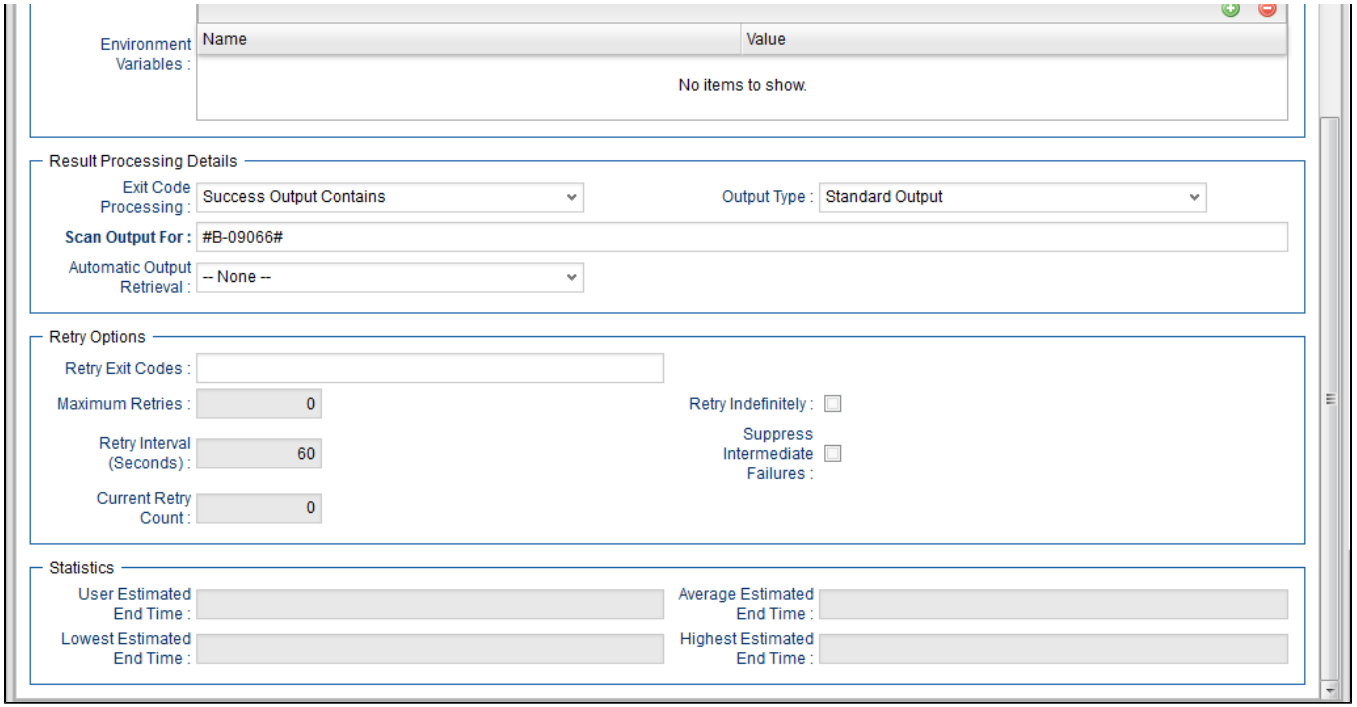
You can access a task instance from:

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

Universal Task Instance Details

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


B-9066_Universal_Task Task Instance Details: stonebranch-universaltask-01
Update
Force Finish
Hold
Skip
Refresh
Close
B-9066_Universal_Task Task Instance
Virtual Resources
Exclusive Requests
Output
Notes
General
Instance Name : stonebranch-universaltask-01
Instance Number : 1
Description :
Member of Business Services :
Task : stonebranch-universaltask-01
Source Version : 2
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Invoked By : Recurring Task (1): stonebranch-recurringtask-01
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure :
Status
Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-06-03 10:55:45 -0400
Wait Until Time :
Queued Time :
Start Time :
End Time :
Duration :
CPU Time : 0
Process ID :
Agent Details
Cluster :
Agent : ${B_09066_AGENT}
Agent Variable :
Credentials :
Credentials Variable :
Run with Highest Privileges :
B-9066_Universal_Task Details
Text1 : Testing
Integer1 : 123
Boolean1 :
Choice1 : High
Credential1 :
Array1 :
Name
Value
a1a
2
a2a
4
next choice :
Runtime Directory :



Universal Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in Universal 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 = 255 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. 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 Timezone 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.
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.
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.

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.
CPU Time	System-supplied; amount of CPU time the task took to run.
CPU Time	System-supplied; amount of CPU time the task took to run.
Process ID	System-supplied; ID of the process that was launched.
Agent Details	This section contains assorted detailed information about the Agent.
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.
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 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 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.
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.
Run with Highest Privileges	For Windows Agents; Execute the task using an elevated privileges token, rather than one subject to User Account Control (UAC) restrictions. An elevated token allows a process to execute with all the privileges available to its specified credentials. For example, a task executed with an administrative account will behave as though it received permission via a UAC dialog to perform a privileged operation. This option will **not** give a user account privileges that have are not already granted to it. For example, taking ownership of a file is a privileged operation by default. A task will still fail even with this option selected if it is run with a regular user account that has not been granted the ability to change file ownership. Note This option only will affect tasks executed on Windows systems that support User Account Control (UAC). It will have no affect on tasks run on Windows releases prior to Vista (for example, Windows XP, Server 2003).
Universal Task Details	This section contains assorted detailed information about the Agent. Note The fields in this section may have Read Only or Hidden restrictions applied to them, as specified in the Universal Template on which the Universal Task is based.

(user-defined fields)	The Details for each Universal Task contains any editable fields that were created in the Universal Template on which the Universal Task type for that Universal Task is based. System-assigned variables that match these fields are provided for inclusion in the template script. When the task is run, it executes the script, and the variables are resolved to the values of their matching values in the task.
	
	There are seven types of user-defined fields that can appear in the Details of a Universal Task:
	
	• Text
	  • Normal text (for a single line of text)
	  • Large Text (for multiple lines of text)
	• Integer
	• Boolean
	• Choice
	• Credential
	• Script
	• Array
	
	For each type of field, default values, format, and/or limitations are specified in the Universal Template. In any Universal Task based on that Universal Template, you can override and/or define values - within the specified format and limitations - for those fields.
	
	• If the Allow Empty Choice field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will include an empty (blank) selection.
	• If the Allow Multiple Choices field was selected for a Choice field in the Universal Template on which this Universal Task was based, that Choice field in the task will allow selection of more than one choice. When multiple choices are selected, the built-in field variable will resolve to a comma-delimited String of choice values.
	• Any field that has a Require If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from required to optional (or optional to required) when toggling the Boolean field checkbox, depending on the Require If Field Value(s).
	• Any field that has a Require If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become required when selecting a choice value specified in the Require If Field Value(s) and optional when selecting a choice value not specified in the Require If Field Value(s).
	• Any field that has a Show If Field dependency on a Boolean field in the Universal Template on which the Universal Task is based will change from visible to hidden (or hidden to visible) when toggling the Boolean field checkbox, depending on the Show If Field Value(s).
	• Any field that has a Show If Field dependency on a Choice field in the Universal Template on which the Universal Task is based will become visible when selecting a choice value specified in the Show If Field Value(s) and hidden when selecting a choice value not specified in the Show If Field Value(s).
	• Any field visible due to a Show If Field dependency in the Universal Template on which the Universal Task is based will display as required (bold label) if the Require If Visible option is specified for the Universal Template field; otherwise, it will display as optional (non-bold label).

	• By default, the column and row space occupied by a field remain reserved even when the field is hidden by a Show If Field dependency. To change the default behaviour, the No Space If Hidden option must be specified for the Universal Template field.
Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Content Type	If Output Type is Extension; Output type that the Result Processing mechanism should assume when evaluating the output. If the expected output is XML or JSON, it is valid to specify Text. However, when specifying XML or JSON, the output must be XML or JSON respectively; otherwise, the parsing will fail and the path expression evaluation will return no matches.
Path Expression	XPath Expression if Content Type is XML, or the JsonPath Expression if Content Type is JSON, to be used when evaluating the Extension output.
Operator	If Output Type is Extension; Condition Operator to evaluate in combination with the specified condition Value.
Value	If Output Type is Extension; Condition Value to evaluate in combination with the specified condition Operator.
Strategy	If Content Type is XML or JSON; Strategy to take when applying the condition Operator and Value against the Path Expression matches when Content Type is XML or JSON.

Auto Cleanup	Enables the auto cleanup of Extension output upon task instance completion or, if the task instance is within a workflow, when the top level workflow instance completes.
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
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. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, 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, File, 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, File, 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, File, 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, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. 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.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Retry Exit Codes	Exit code range for which an auto-retry of tasks in FAILED status will occur. Exit code ranges must be in the same format as ranges specified in the Exit Codes field. Maximum Retries must be greater than 0. If this field is empty, any exit code potentially will cause a retry. Variables are supported. Note  If you are updating a task instance, the Retry Exit Codes field must be resolved; you cannot change the value to a variable. .
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled.

	• Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
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; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = 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**.
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**.
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).
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 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.
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.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.

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.
Output	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.
Notes	Lists all notes associated with this record.

Additional Task and Task Instance Details

For information on how to access additional details - such as Metadata and complete database Details - for Universal Tasks and Universal Task Instances (or any type of record), see Records.

Running a Universal Task

You can run a Universal Task:

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

Monitoring Task Execution

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

Import Integration Template

Overview

To create a Universal Integration, you must import a Universal Integration template.

In the Controller user interface, select Integrations > Import Integration Template to display the Import Template dialog.

PeopleSoft Task

Overview

Note

These instructions assume the user has a working knowledge of PeopleSoft.

The PeopleSoft task allows you to send commands to a PeopleSoft system and gather status information and output back from PeopleSoft. The PeopleSoft task uses Stonebranch's proprietary Universal Connector for PeopleSoft (UPPS) to communicate with PeopleSoft . Universal Connector for PeopleSoft allows Universal Controller to connect to a PeopleSoft system and manage PeopleSoft background processing tasks.

Before You Begin

To run a PeopleSoft task, you must first complete the following:

- Identify a Universal Agent for Linux/Unix that will interface with the PeopleSoft system.
- Define an PeopleSoft connection in the Controller database.

Built-In Variables

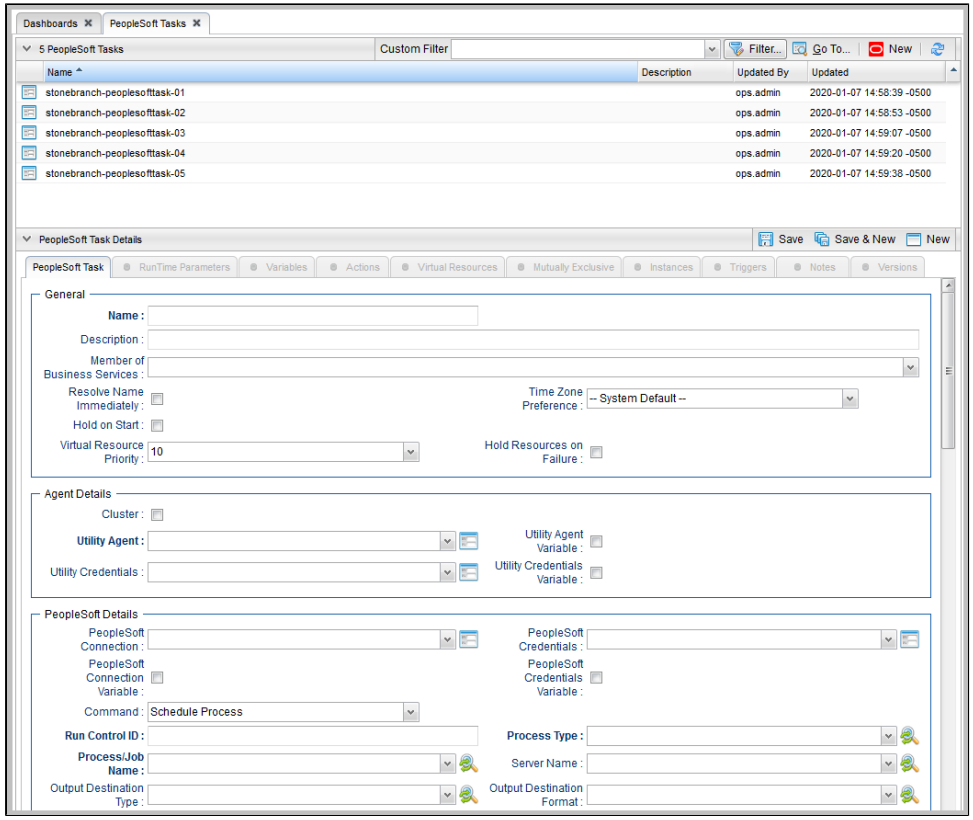
The following built-in variables can be used in a PeopleSoft task to pass data where appropriate:

- Task Instance variables
- Agent-Based Task Instance variables
- PeopleSoft Task variables

Creating a PeopleSoft Task

Step 1	From the Automation Center navigation pane, select **Tasks > PeopleSoft Tasks**. The PeopleSoft Tasks list displays a list of all currently defined PeopleSoft tasks.

Below the list, PeopleSoft Task Details for a new PeopleSoft task displays.



Step 2

Enter/select Details for a new PeopleSoft 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 **New** button above the list to display a pop-up version of the Details.

Step 3

Click a **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:

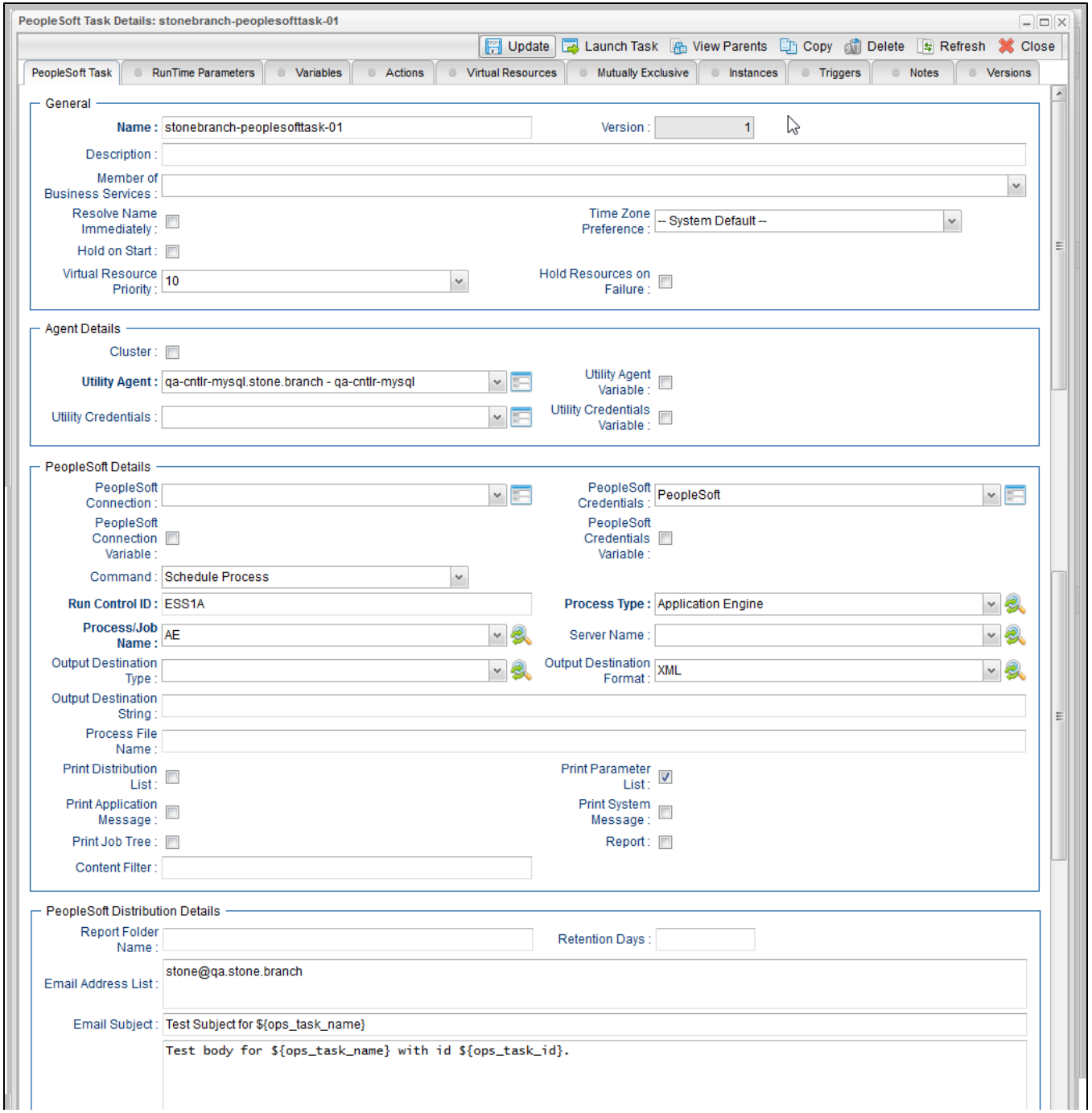
- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** in the Action menu that displays, to display a pop-up version of the record Details.

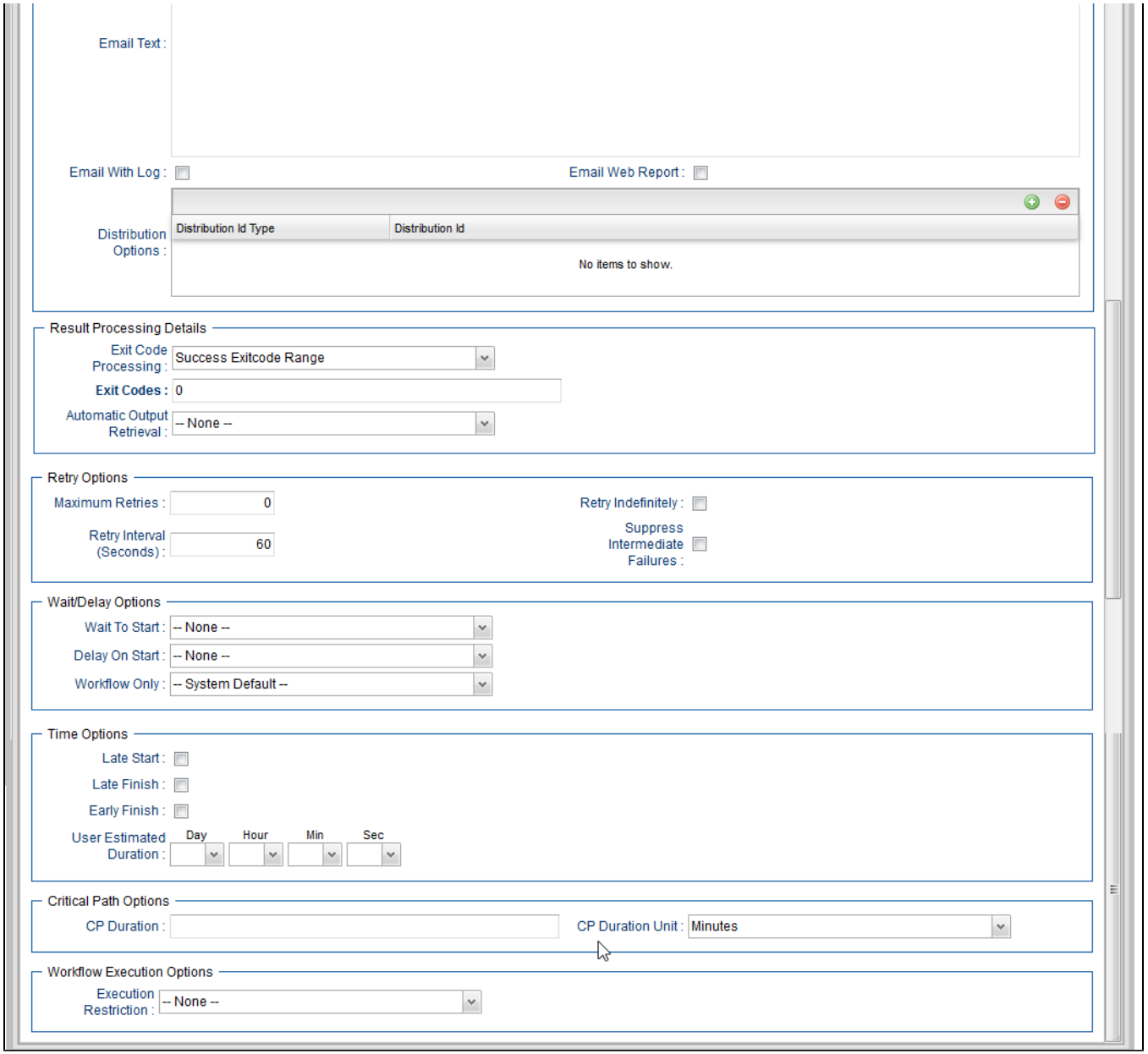
- Right-click a record in the a list, or open a record and right-click in the record Details, and then click **Open In Tab** in the Action menu that displays, to display the record Details under a new tab on the record list page (see Record Details as Tabs).

PeopleSoft Task Details

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

Depending on the values that you enter / select for these fields, and whether or not the PeopleSoft 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 PeopleSoft Task Details.


PeopleSoft Task Details: stonebranch-peoplesofttask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
PeopleSoft Task
RunTime Parameters
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Name : stonebranch-peoplesofttask-01
Version : 1
Description :
Member of Business Services :
Resolve Name Immediately :
Time Zone Preference : -- System Default --
Hold on Start :
Virtual Resource Priority : 10
Hold Resources on Failure :
Agent Details
Cluster :
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable :
Utility Credentials :
Utility Credentials Variable :
PeopleSoft Details
PeopleSoft Connection :
PeopleSoft Credentials : PeopleSoft
PeopleSoft Connection Variable :
PeopleSoft Credentials Variable :
Command : Schedule Process
Run Control ID : ESS1A
Process Type : Application Engine
Process/Job Name : AE
Server Name :
Output Destination Type :
Output Destination Format : XML
Output Destination String :
Process File Name :
Print Distribution List :
Print Parameter List :
Print Application Message :
Print System Message :
Print Job Tree :
Report :
Content Filter :
PeopleSoft Distribution Details
Report Folder Name :
Retention Days :
Email Address List : stone@qa.stone.branch
Email Subject : Test Subject for ${ops_task_name}
Test body for ${ops_task_name} with id ${ops_task_id}.



PeopleSoft Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the PeopleSoft 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 = 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 Timezone 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.

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.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.
Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. 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 Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.
Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility 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 a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.

Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials 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 Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
PeopleSoft Details	This section contains assorted detailed information about the task.
PeopleSoft Connection	Name of the PeopleSoft connection. The PeopleSoft connection specifies information about the PeopleSoft server. Select an existing PeopleSoft Connection from the drop-down list or click the icon to create a new PeopleSoft Connection.
PeopleSoft Connection Variable	Indication of whether the PeopleSoft Connection field is a reference field for selecting a specific PeopleSoft Connection (unchecked) or a text field for specifying the PeopleSoft Connection as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a PeopleSoft Connection reference to using a PeopleSoft Connection variable, you must change the **PeopleSoft Connection Variable** field to **Yes** and specify the PeopleSoft Connection variable in the **PeopleSoft Connection Unresolved** field. Conversely, to change from using a PeopleSoft Connection variable to using a PeopleSoft Connection reference, you must change the **PeopleSoft Connection Variable** field to **No** and specify the PeopleSoft Connection reference in the **PeopleSoft Connection** field.
PeopleSoft Credentials	Login credentials that the Controller will use to access the PeopleSoft system. The credentials are stored in the Universal Controller credentials table; see Credentials. Note Either the PeopleSoft Connection or the PeopleSost task using that connection must specify PeopleSoft Credentials. If a PeopleSoft task using the PeopleSoft Connection specifies PeopleSoft Credentials, those PeopleSoft task credentials override the PeopleSoft Connection credentials.
PeopleSoft Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${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.

Command	PeopleSoft command to execute. Options: • Schedule Process Schedule a process. • Schedule Job Schedule a job. • Run Jobset Run a job. Default is Schedule Process.
Run Control ID	If Command = Schedule Process or Schedule Job; Run control ID to be used for the process submission.
Process Type	If Command = Schedule Process or Schedule Job; Specific type of PeopleSoft process. (If Command = Schedule Job, Process Type defaults to PSJob and is read-only.)
Process/Job Name	If Command = Schedule Process or Schedule Job; Name of the PeopleSoft process/job.
Server Name	If Command = Schedule Process or Schedule Job; Specific server name. If Command = Schedule Process or Schedule Job; Specific server name.
Output Destination Type	If Command = Schedule Process or Schedule Job; Type of output for the submitted process.
Output Destination Format	If Command = Schedule Process or Schedule Job; Override of the default output format for the submitted process.
Output Destination String	If Command = Schedule Process or Schedule Job; File path or printer destination for the output.
Process File Name	If Command = Schedule Process or Schedule Job; Dependent file name.
Main Schedule Name	If Command = Run Jobset; Name of the jobset schedule.
Main Job Name	If Command = Run Jobset; Name of the job within the jobset schedule.
Print Distribution List	Specification for whether or not the report-recipient distribution list is included in the Job Report.
Print Parameter List	Specification for whether or not the parameter list job items are included in the Job Report.

Print Application Message	Specification for whether or not the application messages for the monitored processes are included in the Job Report.
Print System Message	Specification for whether or not the application messages for the monitored processes are included in the Job Report.
Print Job Tree	Specification for whether or not the job tree is included in the Job Report.
Report	Specification for whether or not reports associated with a process are returned.
Content Filter	Comma-delimited list of report file suffixes that will not be returned. For example: pdf,xls
PeopleSoft Distribution Details	If Command = Schedule Process or Schedule Job; This section contains assorted distribution details about the task.
Report Folder Name	If Command = Schedule Process or Schedule Job; Folder in which the report will be viewed in Report Manager.
Retention Days	If Command = Schedule Process or Schedule Job; Number of days that reports generated by the submitted process should be retained by the system.
Email Address List	If Command = Schedule Process; List of email addresses, separated by semicolons.
Email Subject	If Command = Schedule Process; Subject line of the email. If not specified, the default subject line is used.
Email Text	If Command = Schedule Process; Body of the email. If not specified, the default body message is used.
Email With Log	If Command = Schedule Process; Indication (checked or unchecked) for whether or not to attach log files resulting from the Structured Query Report. Only applicable if Process Type = SQR Report.
Email Web Report	If Command = Schedule Process; Indication (checked or unchecked) for whether or not to include a link to the completed report output. Only applicable if Output Destination Type = WEB.
Distribution Options	If Command = Schedule Process; Recipients of the process output To add an option, click the **+** icon and enter:

	• **Distribution Id Type**: User or Role • **Distribution Id** To delete an option, select in the list of variables and click the **-** icon.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
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. Options:

	• None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, 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, File, 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, File, 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, File, 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, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. 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.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.

Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
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; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = 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**.
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**.
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.
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 Task	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.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task instance.
RunTime Parameters	See Adding RunTime Parameters, below.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.
Actions	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:

Abort Action	Abort the task if certain events occur. For details, see Abort Actions.
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions.
Set Variable	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 .
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions.
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.

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.
Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
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.

Options Fields

Five PeopleSoft Task fields allow you to populate their drop-down lists with options retrieved from the PeopleSoft system:

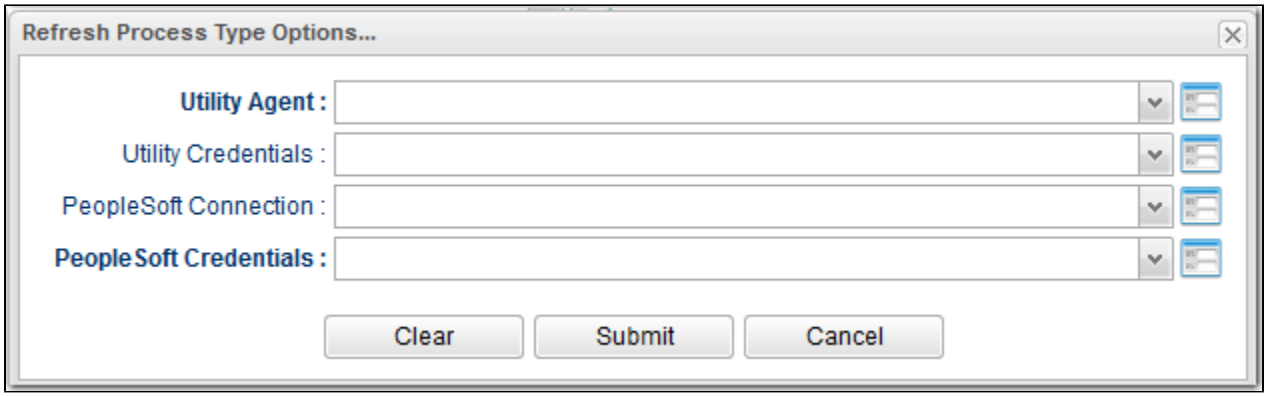
- Process Type
- Process/Job Name
- Server Name
- Output Destination Type
- Output Destination Format

To select the options for a field, click the refresh picker icon next to its drop-down list to display a Refresh Options... dialog. There is a different Refresh Options... dialog for each options field (see below).

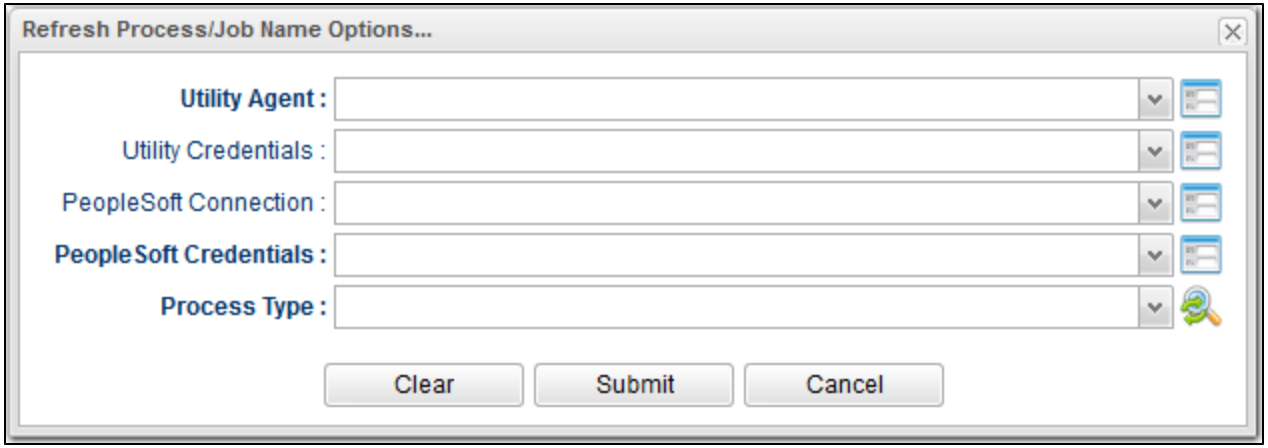
Most of the fields on a Refresh Options... dialog are fields from the PeopleSoft Task Details, and the values for those fields in the dialog are, by default, the same as the values for the fields in the Details. You can keep the current values or change them from their drop-down lists.

When you click the Submit button on the Refresh Options... dialog for an options field, the drop-down list for that field is populated with values that are determined by the values that you submitted on the Refresh Options... dialog.

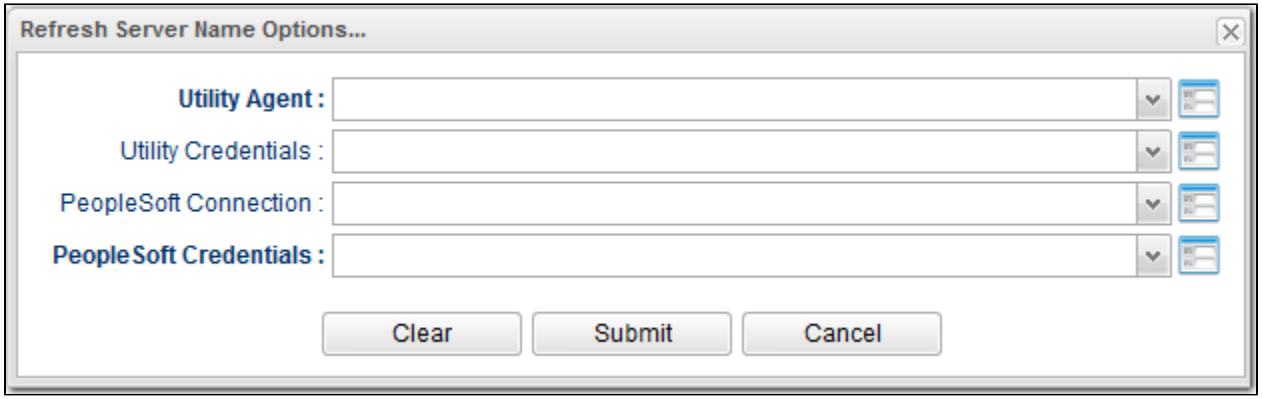
Process Type



Process/Job Name

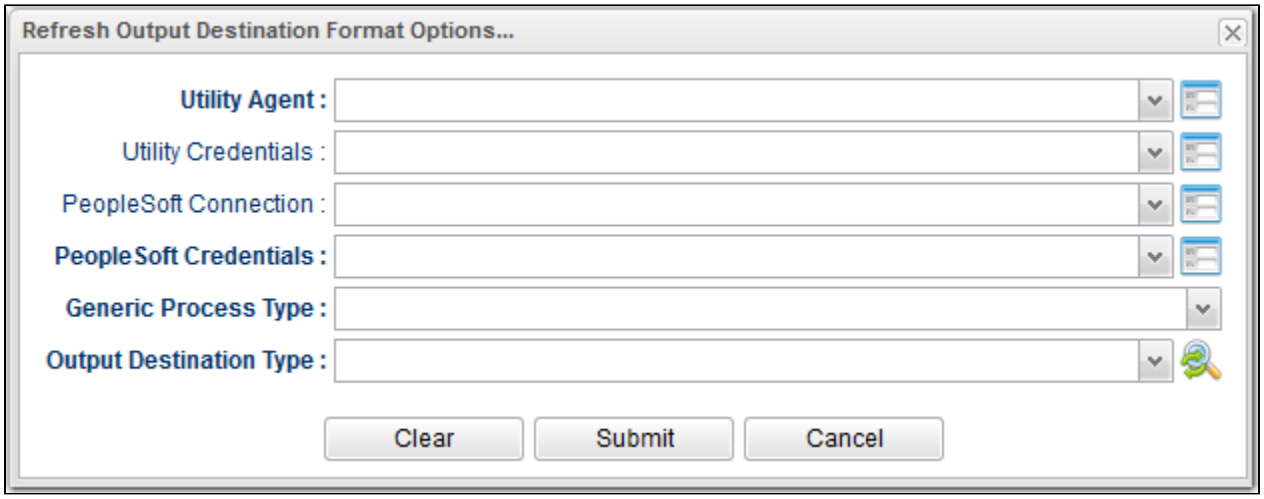


Server Name



Output Destination Type

Output Destination Format



Viewing a PeopleSoft Task Instance

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

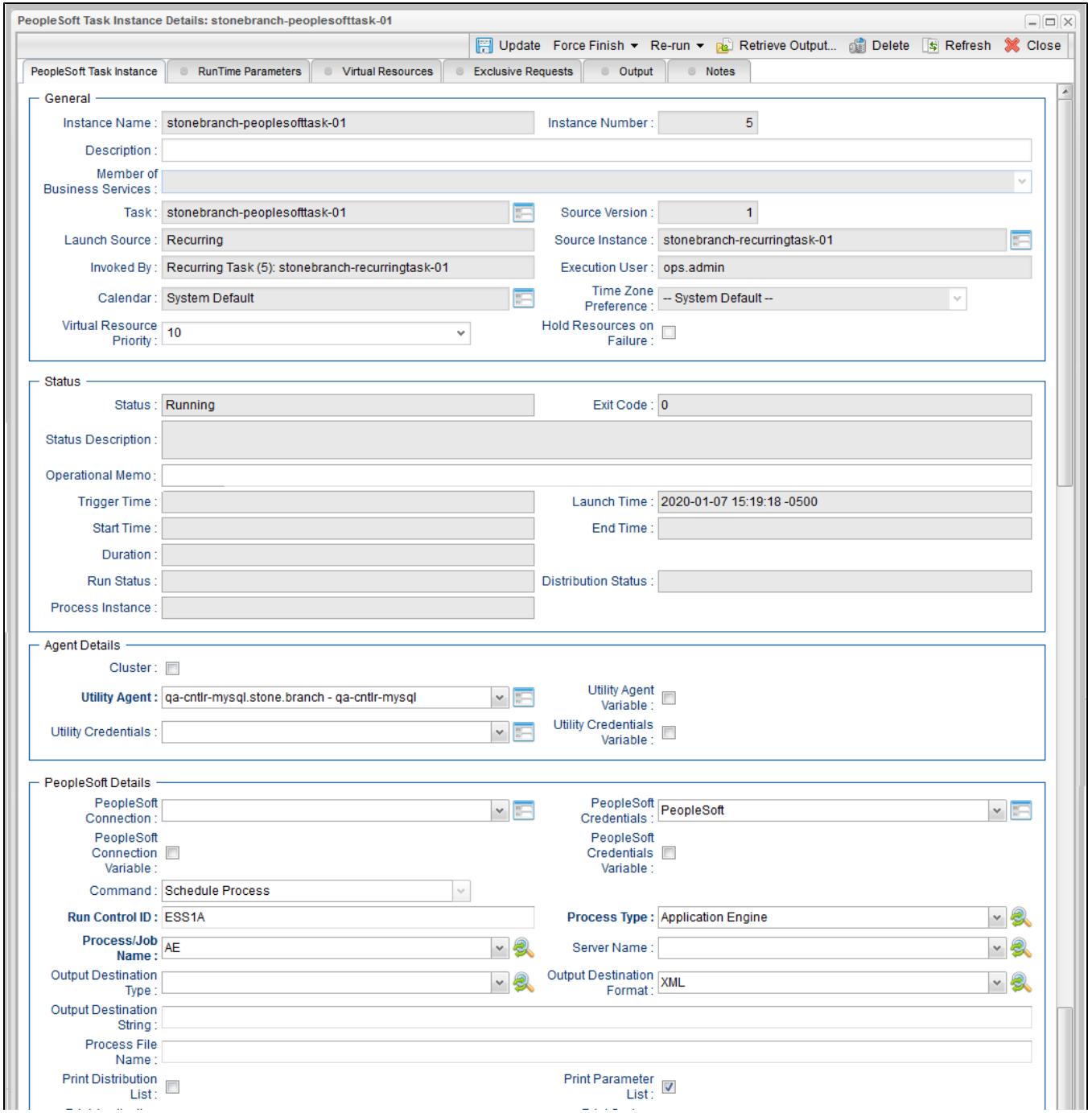
A task instance contains detailed information about a single execution of that task.

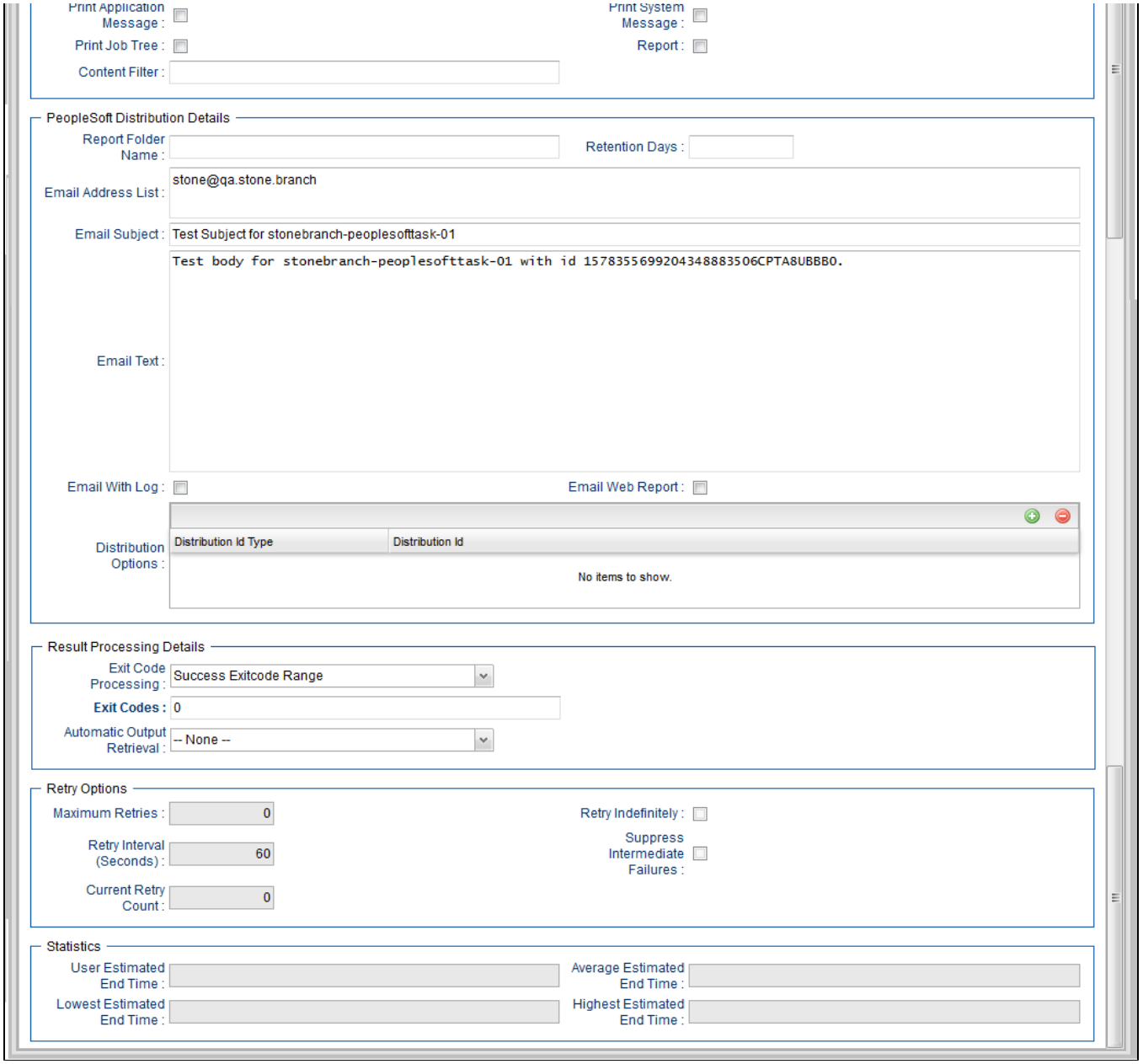
You can access a task instance from:

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

PeopleSoft Task Instance Details

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


PeopleSoft Task Instance Details: stonebranch-peoplesofttask-01
Update
Force Finish
Re-run
Retrieve Output...
Delete
Refresh
Close
PeopleSoft Task Instance
RunTime Parameters
Virtual Resources
Exclusive Requests
Output
Notes
General
Instance Name : stonebranch-peoplesofttask-01
Instance Number : 5
Description :
Member of Business Services :
Task : stonebranch-peoplesofttask-01
Source Version : 1
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Invoked By : Recurring Task (5): stonebranch-recurringtask-01
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure :
Status
Status : Running
Exit Code : 0
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 15:19:18 -0500
Start Time :
End Time :
Duration :
Run Status :
Distribution Status :
Process Instance :
Agent Details
Cluster :
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable :
Utility Credentials :
Utility Credentials Variable :
PeopleSoft Details
PeopleSoft Connection :
PeopleSoft Credentials : PeopleSoft
PeopleSoft Connection Variable :
PeopleSoft Credentials Variable :
Command : Schedule Process
Run Control ID : ESS1A
Process Type : Application Engine
Process/Job Name : AE
Server Name :
Output Destination Type :
Output Destination Format : XML
Output Destination String :
Process File Name :
Print Distribution List :
Print Parameter List :



PeopleSoft Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in PeopleSoft 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 = 255 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. 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 Timezone 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.
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.
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.
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.
Run Status	Status of the PeopleSoft process being monitored on the PeopleSoft Process Scheduler
Distribution Status	Displays the distribution status for reports associated with the main (parent) process being monitored on the PeopleSoft system.
Process Instance	The Instance ID (generated by the PeopleSoft system) associated with the process being monitored on the PeopleSoft system.

Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.
Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. 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 Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.
Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${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 Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
PeopleSoft Details	This section contains assorted detailed information about the task.
PeopleSoft Connection	Name of the PeopleSoft connection. The PeopleSoft connection specifies information about the PeopleSoft server. Select an existing PeopleSoft Connection from the drop-down list or click the icon to create a new PeopleSoft Connection.
PeopleSoft Connection Variable	Indication of whether the PeopleSoft Connection field is a reference field for selecting a specific PeopleSoft Connection (unchecked) or a text field for specifying the PeopleSoft Connection as a variable (checked). Use the format: ${variable name} . The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a PeopleSoft Connection reference to using a PeopleSoft Connection variable, you must change the **PeopleSoft Connection Variable** field to **Yes** and specify the PeopleSoft Connection variable in the **PeopleSoft Connection Unresolved** field. Conversely, to change from using a PeopleSoft Connection variable to using a PeopleSoft Connection reference, you must change the **PeopleSoft Connection Variable** field to **No** and specify the PeopleSoft Connection reference in the **PeopleSoft Connection** field.
PeopleSoft Credentials	Login credentials that the Controller will use to access the PeopleSoft system. The credentials are stored in the Universal Controller credentials table; see Credentials. Note Either the PeopleSoft Connection or the PeopleSost task using that connection must specify PeopleSoft Credentials. If a PeopleSoft task using the PeopleSoft Connection specifies PeopleSoft Credentials, those PeopleSoft task credentials override the PeopleSoft Connection credentials.
PeopleSoft Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${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.
Command	PeopleSoft command to execute. Options:

	• Schedule Process Schedule a process. • Schedule Job Schedule a job. • Run Jobset Run a job. Default is Schedule Process.
Run Control ID	If Command = Schedule Process or Schedule Job; Run control ID to be used for the process submission.
Process Type	If Command = Schedule Process or Schedule Job; Specific type of PeopleSoft process. (If Command = Schedule Job, Process Type defaults to PSJob and is read-only.)
Process/Job Name	If Command = Schedule Process or Schedule Job; Name of the PeopleSoft process/job.
Server Name	If Command = Schedule Process or Schedule Job; Specific server name. If Command = Schedule Process or Schedule Job; Specific server name.
Output Destination Type	If Command = Schedule Process or Schedule Job; Type of output for the submitted process.
Output Destination Format	If Command = Schedule Process or Schedule Job; Override of the default output format for the submitted process.
Output Destination String	If Command = Schedule Process or Schedule Job; File path or printer destination for the output.
Process File Name	If Command = Schedule Process or Schedule Job; Dependent file name.
Main Schedule Name	If Command = Run Jobset; Name of the jobset schedule.
Main Job Name	If Command = Run Jobset; Name of the job within the jobset schedule.
Print Distribution List	Specification for whether or not the report-recipient distribution list is included in the Job Report.
Print Parameter List	Specification for whether or not the parameter list job items are included in the Job Report.
	Specification for whether or not the application messages for the monitored processes are included in the Job Report.

Print Application Message	
Print System Message	Specification for whether or not the application messages for the monitored processes are included in the Job Report.
Print Job Tree	Specification for whether or not the job tree is included in the Job Report.
Report	Specification for whether or not reports associated with a process are returned.
Content Filter	Comma-delimited list of report file suffixes that will not be returned. For example: pdf,xls
PeopleSoft Distribution Details	If Command = Schedule Process or Schedule Job; This section contains assorted distribution details about the task.
Report Folder Name	If Command = Schedule Process or Schedule Job; Folder in which the report will be viewed in Report Manager.
Retention Days	If Command = Schedule Process or Schedule Job; Number of days that reports generated by the submitted process should be retained by the system.
Email Address List	If Command = Schedule Process; List of email addresses, separated by semicolons.
Email Subject	If Command = Schedule Process; Subject line of the email. If not specified, the default subject line is used.
Email Text	If Command = Schedule Process; Body of the email. If not specified, the default body message is used.
Email With Log	If Command = Schedule Process; Indication (checked or unchecked) for whether or not to attach log files resulting from the Structured Query Report. Only applicable if Process Type = SQR Report.
Email Web Report	If Command = Schedule Process; Indication (checked or unchecked) for whether or not to include a link to the completed report output. Only applicable if Output Destination Type = WEB.
Distribution Options	If Command = Schedule Process; Recipients of the process output To add an option, click the **+** icon and enter: • **Distribution Id Type**: User or Role • **Distribution Id**

	To delete an option, select in the list of variables and click the **-** icon.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
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. Options: • None Do not attach any output to the task instance record.

	• Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, 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, File, 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, File, 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, File, 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, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. 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.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.

Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
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; Number of hours and minutes to wait before starting the task.

Wait Day Constraint	If Wait Time = 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**.
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**.
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).
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.
	This section contains Execution Restriction specifications for the task if it is within a Workflow.

Workflow Execution Options	
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 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.
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.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
RunTime Parameters	See Adding RunTime Parameters, below.
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.
Output	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.
Notes	Lists all notes associated with this record.

Adding RunTime Parameters

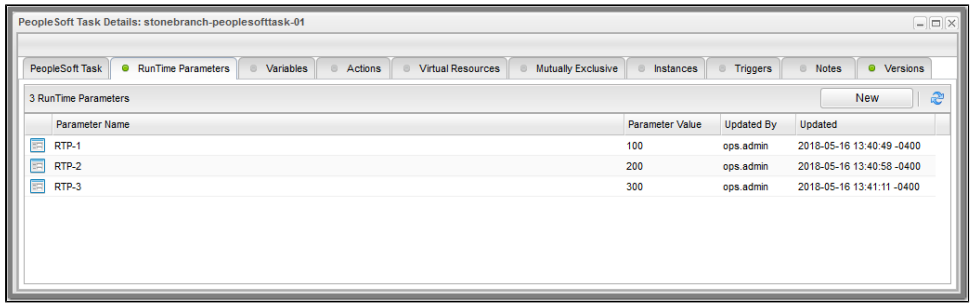
You can add one or more RunTime Parameters for each PeopleSoft task, and define the values for those parameters, as described below.

Adding a Parameter

Step 1	Open the PeopIsSoft task to which you want to add the parameter.

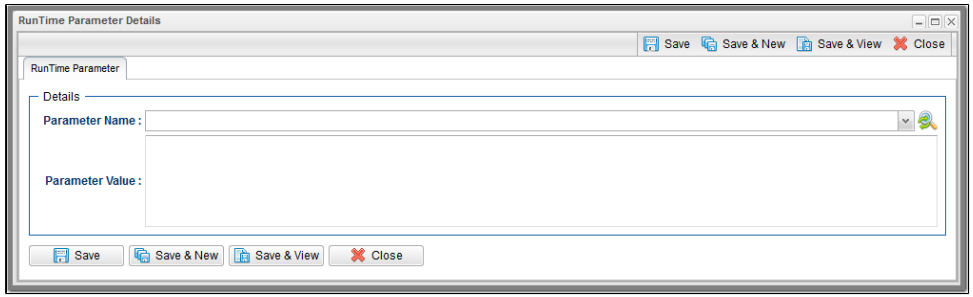
Step 2

Click the **Runtime Parameters** tab. The Runtime Parameters list displays a list of all Runtime Parameters for which values have been defined for this task.



Step 3

Click the **New** button to display RunTime Parameter Details.

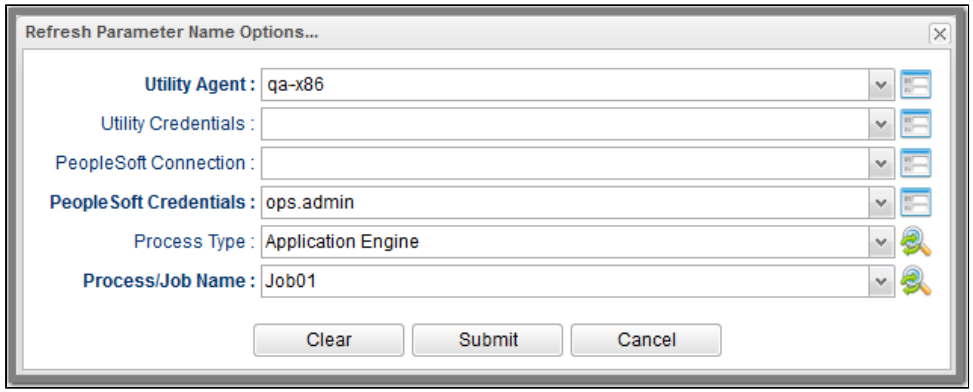


Note

If the Command field in the PeopleSoft Details specifies Schedule Job, the RunTime Parameter Details also requires you to select a Process Name and Process Type.

Step 4

Click the refresh picker icon next to the **Parameter Name** field to select options for the RunTime Parameter.



Step 5

For each field on the Refresh Parameter Name Options... dialog, you can select from a list of values that may have changed since the last time that a value was selected.

	Most of the fields on a Refresh Options... dialog are fields from the PeopleSoft Task Details, and the values for those fields in the dialog are, by default, the same as the values for the fields in the Details. You can keep the current values or change them from their drop-down lists. When you click the Submit button on the Refresh Parameter Name Options... dialog, the drop-down list for the **Parameter Name** field in the RunTime Parameter Details is populated with values that are determined by the values that you submitted on the Refresh Parameter Name Options... dialog.
Step 6	Select a parameter from the drop-down list and enter a **Parameter Value**.
Step 7	Click the **Save** button.

Deleting a RunTime Parameter

To delete a single RunTime Parameter for a task, either:

- Right-click the parameter on the RunTime Parameters list and click **Delete** on the Action menu.
- Open the RunTime Parameter record and click the **Delete** button.

Running a PeopleSoft Task

You can run a PeopleSoft task:

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

Monitoring Task Execution

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

SAP Task

Overview

Note

These instructions assume the user has a working knowledge of SAP.

The SAP task allows you to send commands to an SAP system and gather status information and output back from SAP. The SAP task uses Stonebranch's proprietary Universal Connector for SAP (USAP) to communicate with SAP. Universal Connector for SAP allows Universal Controller to connect to an SAP system and manage SAP background processing tasks.

Before You Begin

To run an SAP task, you must first complete the following:

- Identify the Utility Agent that has Universal Connector for SAP installed and licensed; either a Universal Agent for Linux/Unix or a Universal Agent for Windows that will interface with the SAP system.
- Define an SAP connection in the Controller database.

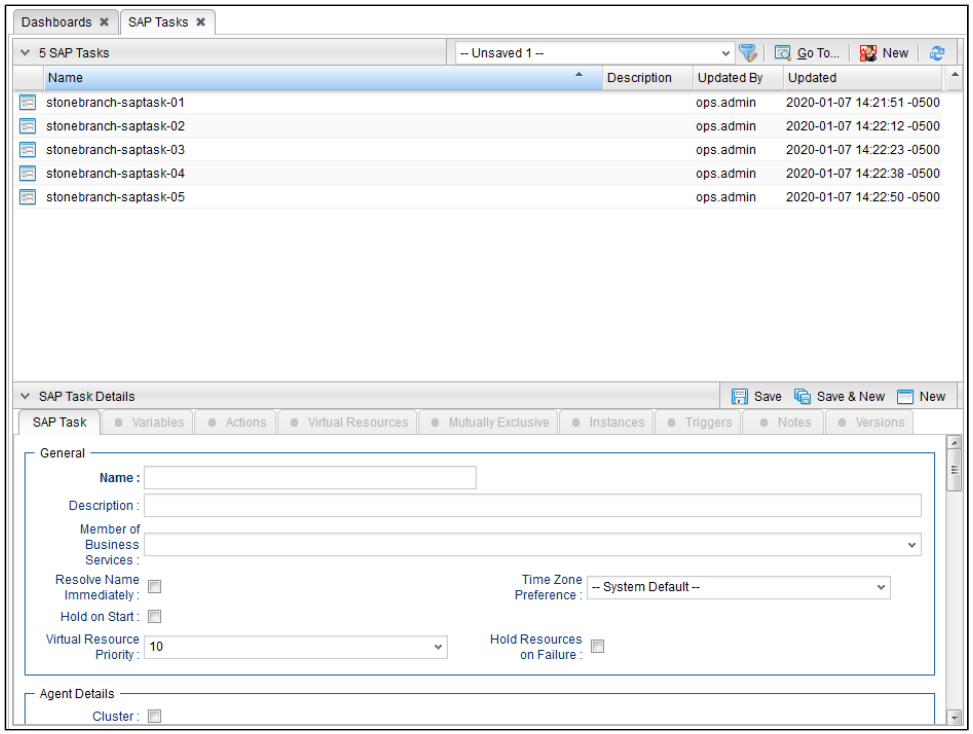
Built-In Variables

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

- Task Instance variables
- Agent-Based Task Instance variables
- SAP Task variables

Creating an SAP Task

Step 1	From the Automation Center navigation pane, select **Tasks > SAP Tasks**. The SAP Tasks list displays a list of all currently defined SAP tasks. Below the list, SAP Task Details for a new SAP task displays.



Step 2	Enter/select Details for a new SAP 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 **New** button above the list to display a pop-up version of the Details.
Step 3	Click a **Save** button. The task is added to the database, and all buttons and tabs in the Task Details are enabled.

Note

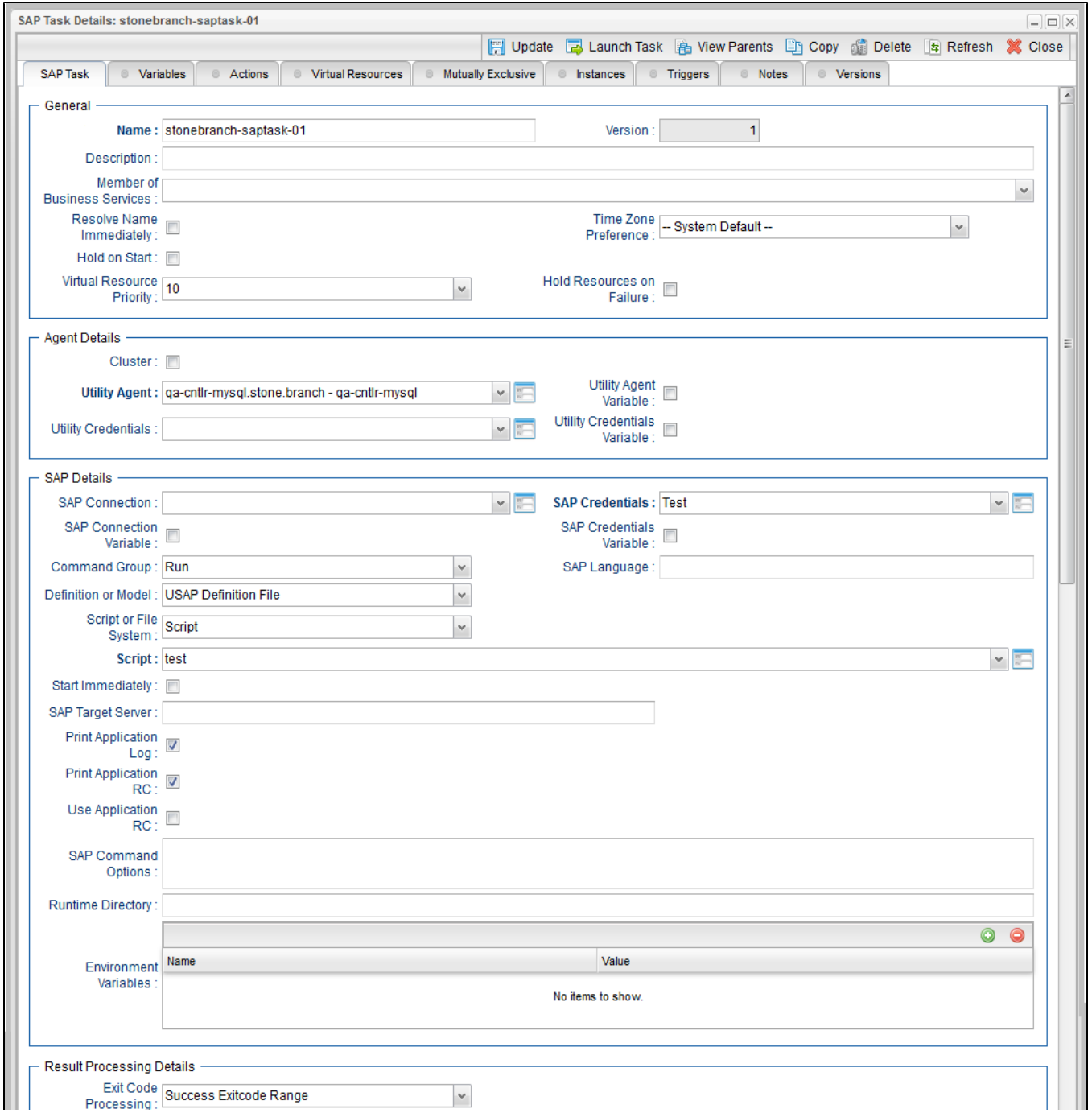
To open an existing record on the list, either:

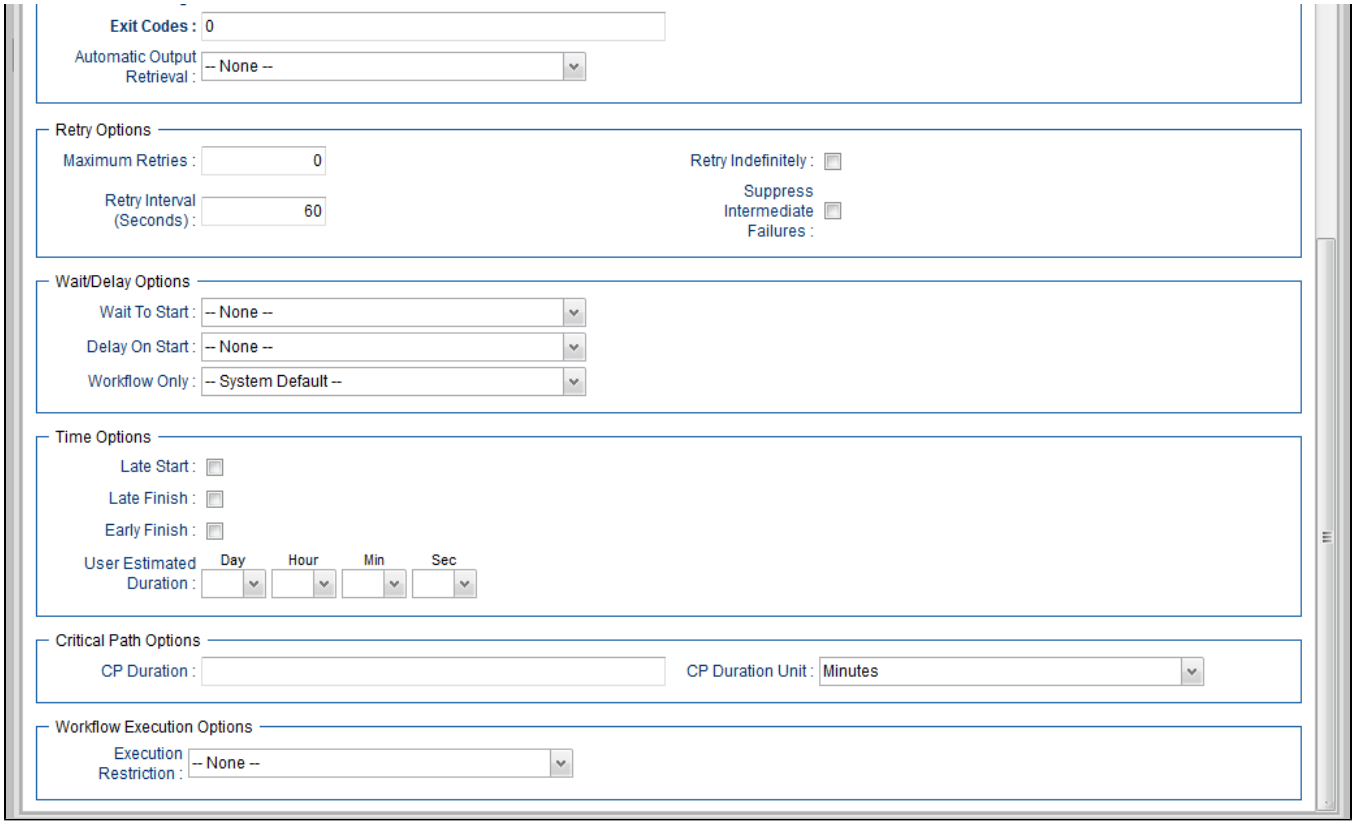
- Click a record in the list to display its record Details below the list. (To clear record Details below the list, click the **New** button that displays above and below the Details.)
- Clicking the Details icon next to a record name in the list, or right-click a record in the list and then click **Open** 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).

SAP Task Details

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

Depending on the values that you enter / select for these fields, and whether or not the SAP 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 SAP Task Details.


SAP Task Details: stonebranch-saptask-01
Update
Launch Task
View Parents
Copy
Delete
Refresh
Close
SAP Task
Variables
Actions
Virtual Resources
Mutually Exclusive
Instances
Triggers
Notes
Versions
General
Name : stonebranch-saptask-01
Version : 1
Description :
Member of Business Services :
Resolve Name Immediately :
Time Zone Preference : -- System Default --
Hold on Start :
Virtual Resource Priority : 10
Hold Resources on Failure :
Agent Details
Cluster :
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable :
Utility Credentials :
Utility Credentials Variable :
SAP Details
SAP Connection :
SAP Credentials : Test
SAP Connection Variable :
SAP Credentials Variable :
Command Group : Run
SAP Language :
Definition or Model : USAP Definition File
Script or File System : Script
Script : test
Start Immediately :
SAP Target Server :
Print Application Log :
Print Application RC :
Use Application RC :
SAP Command Options :
Runtime Directory :
Environment Variables :
Name
Value
No items to show.
Result Processing Details
Exit Code Processing : Success Exitcode Range



SAP Task Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in the SAP 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 = 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 Timezone 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.
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.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.
Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. 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 Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.
Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${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 Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
SAP Details	This section contains assorted detailed information about the task.
SAP Connection	Name of the SAP connection. The SAP connection specifies information about the SAP server. Select an existing SAP Connection from the drop-down list or click the icon to create a new SAP Connection.

SAP Connection Variable	Indication of whether the SAP Connection field is a reference field for selecting a specific SAP Connection (unchecked) or a text field for specifying the SAP Connection as a variable (checked). Use the format: `${variable name}`. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using an SAP Connection reference to using an SAP Connection variable, you must change the **SAP Connection Variable** field to **Yes** and specify the SAP Connection variable in the **SAP Connection Unresolved** field. Conversely, to change from using an SAP Connection variable to using an SAP Connection reference, you must change the **SAP Connection Variable** field to **No** and specify the SAP Connection reference in the **SAP Connection** field.
SAP Language	SAP logon language used when executing the SAP task. Valid values are: • Any valid 1-character SAP language identifier. • Any valid 2-character ISO language identifier. • (no value). SAP will use the default language set up for the user. If there is no such default, the default is EN (English).
SAP Credentials	Login credentials that the Controller will use to access the SAP system. The credentials are stored in the Universal Controller credentials table; see Credentials.
SAP Credentials Variable	Indication of whether the Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Credential as a variable (checked). Use the format: `${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.
SAP Job Name	Job name of the SAP job. Variables supported.
SAP Job ID	Job ID of the SAP job. Variables supported. Required for the Wait, Abort, Purge Job, and Display commands. See Universal Connector Commands, below, for SAP Job ID usage with the Run, Submit, Start, and Generate Job Definition commands.
SAP Process Chain Log ID	Log ID for process chain instance to be monitored to completion.
SAP InfoPackage Request ID	Request ID of the InfoPackage that is to be monitored.
Command Group	See Universal Connector Commands, below, for a description of all supported commands and their contingent fields (options).

SAP Command Options	Use this field to specify any additional command options supported by Universal Connector (USAP).
Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	

	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.
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. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, 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, File, 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, File, 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, File, 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, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. 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.
Output File (for Automati	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.

c Output Retrieval)	
Retry Options	This section contains specifications for retrying the task.
Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
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; Number of hours and minutes to wait before starting the task.
Wait Day Constraint	If Wait Time = 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**.
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**.
	If Late Finish Offset Type = Duration;

Late Finish Duration Offset Unit	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**.
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.
	This section contains Execution Restriction specifications for the task if it is within a Workflow.

Workflow Execution Options	
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 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 Task	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.
Tabs	This section identifies the tabs across the top of the Task Details that provide access to additional information about the task instance.
Variables	Lists all user-defined variables associated with this record; that is, variables that have been defined for this specific record.
Actions	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:

Abort Action	Abort the task if certain events occur. For details, see Abort Actions.
Email Notification	Send an email if certain events occur. For details, see Email Notification Actions.
Set Variable	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.
SNMP Notification	Send an email if certain events occur. For details, see SNMP Notification Actions.
System Operation	Run an Universal Controller system operation based on specified conditions. For details, see System Operation Actions.

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.

Mutually Exclusive	Lists all tasks that have been set to be mutually exclusive of this task.
Instances	Lists all instances of the task.
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.

Viewing an SAP Task Instance

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

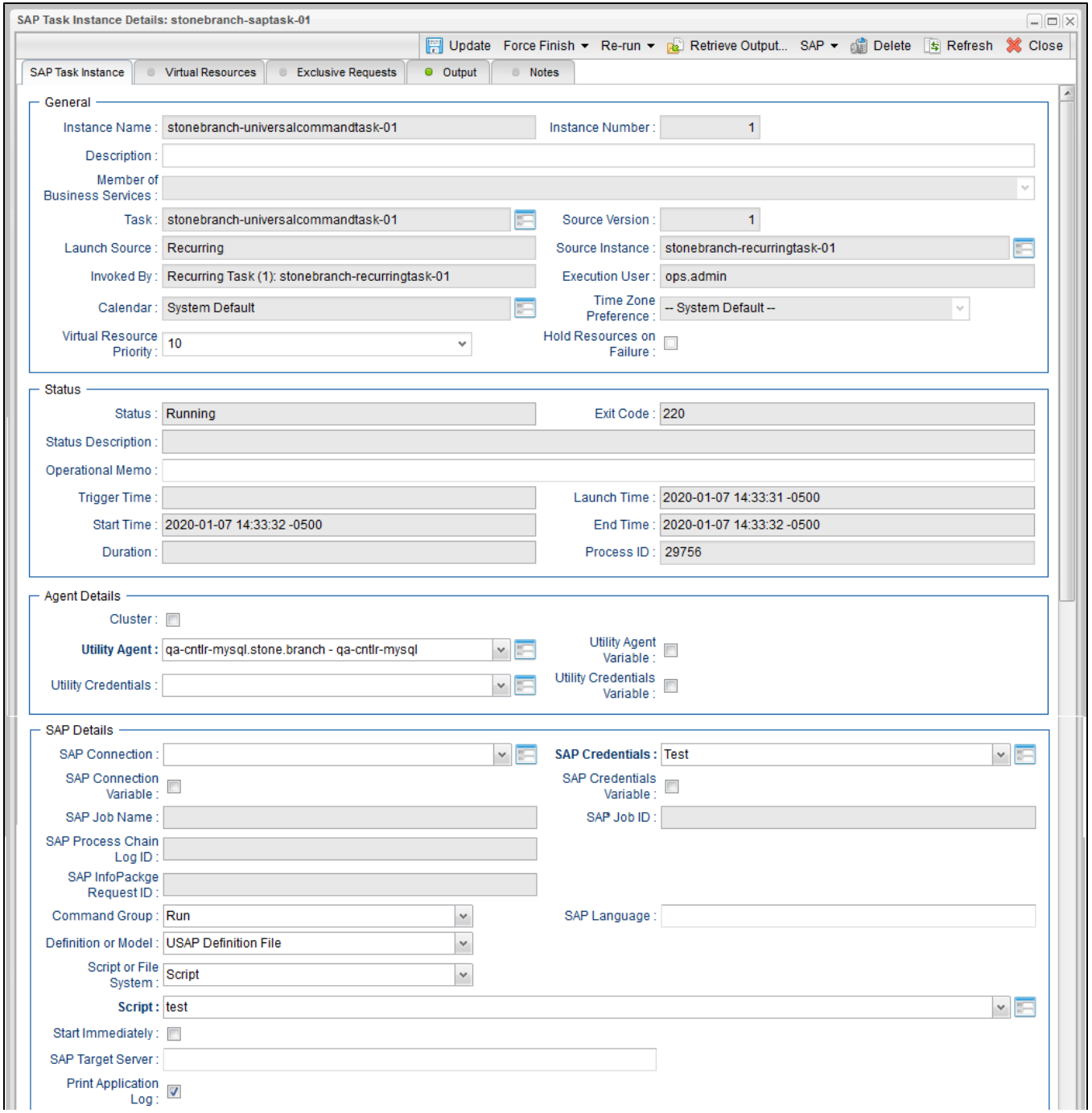
A task instance contains detailed information about a single execution of that task.

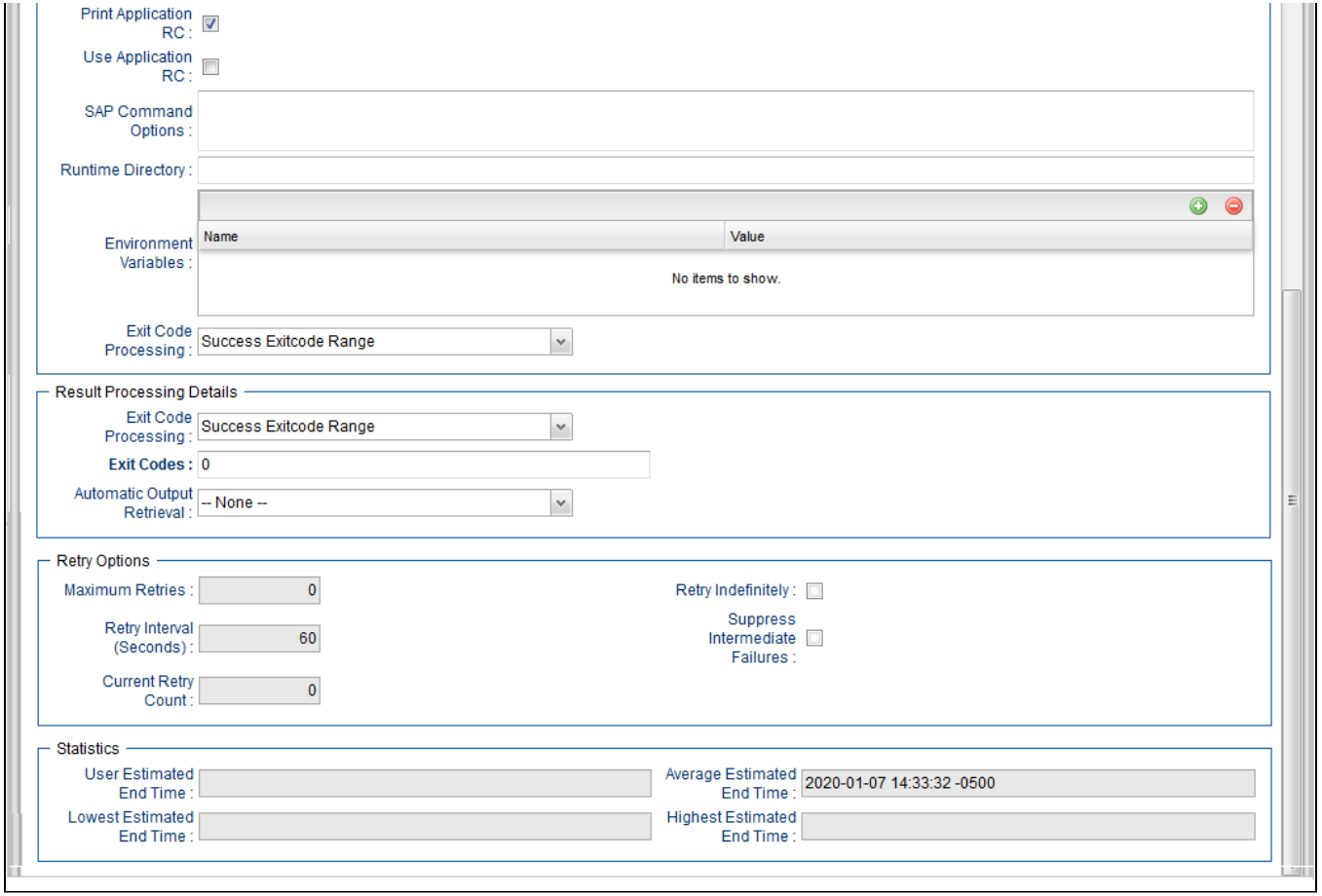
You can access a task instance from:

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

SAP Task Instance Details

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


SAP Task Instance Details: stonebranch-saptask-01
Update
Force Finish
Re-run
Retrieve Output...
SAP
Delete
Refresh
Close
SAP Task Instance
Virtual Resources
Exclusive Requests
Output
Notes
General
Instance Name : stonebranch-universalcommandtask-01
Instance Number : 1
Description :
Member of Business Services :
Task : stonebranch-universalcommandtask-01
Source Version : 1
Launch Source : Recurring
Source Instance : stonebranch-recurringtask-01
Invoked By : Recurring Task (1): stonebranch-recurringtask-01
Execution User : ops.admin
Calendar : System Default
Time Zone Preference : -- System Default --
Virtual Resource Priority : 10
Hold Resources on Failure :
Status
Status : Running
Exit Code : 220
Status Description :
Operational Memo :
Trigger Time :
Launch Time : 2020-01-07 14:33:31 -0500
Start Time : 2020-01-07 14:33:32 -0500
End Time : 2020-01-07 14:33:32 -0500
Duration :
Process ID : 29756
Agent Details
Cluster :
Utility Agent : qa-cntlr-mysql.stone.branch - qa-cntlr-mysql
Utility Agent Variable :
Utility Credentials :
Utility Credentials Variable :
SAP Details
SAP Connection :
SAP Credentials : Test
SAP Connection Variable :
SAP Credentials Variable :
SAP Job Name :
SAP Job ID :
SAP Process Chain Log ID :
SAP InfoPackge Request ID :
Command Group : Run
SAP Language :
Definition or Model : USAP Definition File
Script or File System : Script
Script : test
Start Immediately :
SAP Target Server :
Print Application Log :



SAP Task Instance Details Field Descriptions

The following table describes the fields, buttons, and tabs that display in SAP 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 = 255 characters.)
Member of Business Services	User-defined; allows you to select one or more Business Services that this record belongs to. 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 Timezone 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.
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.
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.
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.
Process ID	System-supplied; ID of the process that was launched.
Agent Details	This section contains assorted detailed information about the Agent / Agent Cluster selected for this task.
Cluster	Indication that selecting a Utility Agent Cluster is required. If Cluster is selected, selecting a Utility Agent is not required unless Utility Agent Variable is selected.
Utility Agent	Name of the Agent resource that identifies the machine where the operation will run. If you do not specify a Utility Agent, you must specify a Utility Agent Cluster or Utility Cluster Broadcast.
Utility Agent Variable	If enabled, the Utility Agent field converts from a reference field (where you browse and select a record) into a text field that allows you to enter a variable. 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 Utility Agent reference to using a Utility Agent variable, you must change the **Utility Agent Variable** field to **Yes** and specify the Utility Agent variable in the **Utility Agent Unresolved** field. Conversely, to change from using a Utility Agent variable to using a Utility Agent reference, you must change the **Utility Agent Variable** field to **No** and specify the Utility Agent reference in the **Utility Agent** field.
Utility Agent Cluster	If Cluster is selected; Group of Agents, one of which the Controller will choose to run this task. You can specify a Utility Agent Cluster in addition to or in place of a specific Utility Agent. If you specify a Utility Agent and a Utility Agent Cluster, the Controller first tries to run the task on the specific Utility Agent. If the Utility Agent is not available, the Controller reverts to the Utility Agent Cluster. See Agent Clusters for more information.
Utility Agent Cluster Variable	Indication of whether the Utility Agent Cluster field is a reference field for selecting a specific Agent Cluster (unchecked) or a text field for specifying the Utility Agent Cluster as a variable (checked). Use the format: ${variable name}. The variable must be a supported type as described in Variables and Functions. Note When updating multiple Tasks, to change from using a Utility Agent Cluster reference to using a Utility Agent Cluster variable, you must change the **Utility Agent Cluster Variable** field to **Yes** and specify the Utility Agent Cluster variable in the **Utility Agent Cluster Unresolved** field. Conversely, to change from using a Utility Agent Cluster variable to using a Utility Agent Cluster reference, you must change the **Utility Agent Cluster Variable** field to **No** and specify the Utility Agent Cluster reference in the **Utility Agent Cluster** field.
Utility Credentials	Login credentials that the Agent will use to access the Universal Command server machine. Required if the Agent Credentials Required Universal Controller system property is true.
Utility Credentials Variable	Indication of whether the Utility Credentials field is a reference field for selecting a specific Credential (unchecked) or a text field for specifying the Utility Credentials as a variable (checked). Use the format: `${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 Utility Credentials reference to using a Utility Credentials variable, you must change the **Utility Credentials Variable** field to **Yes** and specify the Utility Credentials variable in the **Utility Credentials Unresolved** field. Conversely, to change from using a Utility Credentials variable to using a Utility Credentials reference, you must change the **Utility Credentials Variable** field to **No** and specify the Utility Credentials reference in the **Utility Credentials** field.
SAP Details	This section contains assorted detailed information about the task instance.
SAP Connection	Name of the SAP connection. The SAP connection specifies information about the SAP server. Select an existing SAP Connection from the drop-down list or click the icon to create a new SAP Connection.
SAP Connection Variable	Indication of whether the SAP Connection field is a reference field for selecting a specific SAP Connection (unchecked) or a text field for specifying the SAP 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 SAP Connection reference to using an SAP Connection variable, you must change the **SAP Connection Variable** field to **Yes** and specify the SAP Connection variable in the **SAP Connection Unresolved** field. Conversely, to change from using an SAP Connection variable to using an SAP Connection reference, you must change the **SAP Connection Variable** field to **No** and specify the SAP Connection reference in the **SAP Connection** field.
SAP Language	SAP logon language used when executing the SAP task. Valid values are: • Any valid 1-character SAP language identifier. • Any valid 2-character ISO language identifier. • (no value). SAP will use the default language set up for the user. If there is no such default, the default is EN (English).
SAP Credentials	Login credentials that the Controller will use to access the SAP system. The credentials are stored in the Universal Controller credentials table; see Credentials.
SAP 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.
SAP Job Name	Job name of the SAP job. Variables supported.
SAP Job ID	Job ID of the SAP job. Variables supported. Required for the Wait, Abort, Purge Job, and Display commands. See Universal Connector Commands, below, for SAP Job ID usage with the Run, Submit, Start, and Generate Job Definition commands.
SAP Process Chain Log ID	Log ID for process chain instance to be monitored to completion.
SAP InfoPackage Request ID	Request ID of the InfoPackage that is to be monitored.
Command Group	See Universal Connector Commands, below, for a description of all supported commands and their contingent fields (options).
SAP Command Options	Use this field to specify any additional command options supported by Universal Connector (USAP).

Runtime Directory	Directory from which the application should be executed. Variables supported.
Environment Variables	Allows you to enter environment variables needed by the program to run. To add a variable, click the **+** icon and enter a **Name** and **Value**. To delete a variable, select in the list of variables and click the **-** icon. You can add a maximum of 4,000 characters for the combined Names and Values of all variables. The variable is listed in the space underneath.
Result Processing Details	This section contains assorted detailed information about result processing for this task.
Exit Code Processing	Specifies how the Controller should determine whether the executed command failed or completed successfully. Options: • Success Exitcode Range Command is considered completed successfully if its exit code falls within the range specified in the Exit Codes field. • Failure Exitcode Range Command is considered failed if its exit code falls within the range specified in the Exit Codes field. • Success Output Contains Command is considered completed successfully if its output contains the text specified in the Scan Output For field. • Failure Output Contains Command is considered failed if its output contains the text specified in the Scan Output For field. • Step Conditions (z/OS only) Command is considered completed successfully/failed if any of its specified condition codes falls within the range specified under the Step Conditions tab (see Creating Step Conditions).
Output Type	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; type of output. Options: • Standard Output (STDOUT) • Standard Error (STDERR) • File
Scan Output For	Required if Exit Code Processing = Success Output Contains or Failure Output Contains; text for which the Controller should scan the output file. The Controller will process this field as a regular expression.
Output File (for Exit Code Processing)	Required if Output Type = File; path and file name of the output file that should be scanned for the text in the Scan Output For field.
Exit Codes	Required if Exit Code Processing = Success Exitcode Range or Failure Exitcode Range; range of exit codes. Format: Numeric. Use commas to list a series of exit codes; use hyphens to specify a range. Example: 1,5, 22-30. Variables are supported.

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. Options: • None Do not attach any output to the task instance record. • Standard Output Attach all standard output. • Standard Error Attach standard error output. • File Attach the file specified in the Output File field. • Standard Output/Error Attach all standard output and standard error output. Note Tasks specifying Automatic Output Retrieval will fail with Start Failure if the Agent Output Prohibited field is true in the Details of the specified Agent.
Wait For Output	If Automatic Output Retrieval = Standard Output, Standard Error, File, 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, File, 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, File, 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, File, 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, File, or Standard Output/Error; Regex pattern that the Controller will search for a match for in STDOUT/STDERR or a specified file. 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.
Output File (for Automatic Output Retrieval)	Required if Automatic Output Retrieval = File; path and file name containing the output that you want automatically retrieved and attached to the task instance.
Retry Options	This section contains specifications for retrying the task.

Maximum Retries	User-defined; maximum number of times that the Controller should retry this task after it has started and gone to a failed state.
Retry Indefinitely	User-defined; indicates whether the Controller should continue trying indefinitely to run this task. If you enable this field, it overrides any value placed in the Maximum Retries field.
Retry Interval (Seconds)	User-defined; number of seconds between each retry.
Current Retry Count	System-supplied; current number of times that the Controller has retried the task after it first went to failure status.
Suppress Intermediate Failures	User-defined; If the task instance is in the Failed status, indicates whether or not the following will be suppressed until all scheduled retry attempts (a Maximum Retries value has been entered or Retry Indefinitely has been enabled) have been made: • All Actions (Abort, Email Notification, Set Variable, SNMP Notification, and System Operation) defined for the task instance on a Failed status. • Workflow conditional path processing; any Successors waiting on a failure path will not be released. • Task Monitors will not be notified of the Failed status. Also, any Task Monitor task that has a Time Scope in the past will disqualify any matching task instance in the past with a Failed status if the task instance is scheduled for automatic retry and for which **Suppress Intermediate Failures** has been enabled. • Any Workflow containing the Failed task instance will not transition to the Running/Problems status.
Next Retry Time	System-supplied for a task instance in the Failed status that is scheduled for automatic retry; Next time that a retry will be made. If a task instance is not scheduled for automatic retry, Next Retry Time does not display in the task instance Details.
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; Number of hours and minutes to wait before starting the task.
Wait Day Constraint	If Wait Time = 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**.
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**.
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).
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 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.
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.
SAP	Displays an Action menu of SAP commands.
Delete	Deletes the current record.
Refresh	Refreshes any dynamic data displayed in the Details.
Close	For pop-up view only; closes the pop-up view of this task instance.
Tabs	This section identifies the tabs across the top of the Task Instance Details that provide access to additional information about the task instance.
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.
Output	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.
Notes	Lists all notes associated with this record.

Output Redirection

An Agent processes SAP, Universal Command, and File Transfer/UDM task types differently than Windows and Linux/Unix task types. SAP, Universal Command, and File Transfer/UDM command lines are sent to the user process via standard input, so any redirection operators entered as task command input are not processed as expected.

If you want to direct output from an SAP task to your file system, the **-uagstdio** command option lets you specify the same output redirection commands that are available for Windows and Linux/Unix task types. UAG will apply the user-specified value for **-uagstdio** directly to the command image.

The I/O redirection commands that you can use with **-uagstdio** are dependent on the OS/command shell. You should be able to set up any redirection that the OS/command shell supports (just as with Windows and Unix/Linux task types).

The syntax of **-uagstdio** is similar to Universal Data Mover, Universal Command, and Universal Connector command line options; option followed by value.

For the SAP task type, you can specify **uagstdio** in the following field:

- SAP Command Options

-uagstdio Examples

```
-uagstdio >C:\SAPOUT\sap.out
```

If the **-uagstdio** value contains spaces, it must be enclose in double quotation marks ("):

```
-uagstdio ">C:\SAPOUT\sap.out 2>C:\SAPOUT\sap.err"
```

If the quoted value itself requires double quotation marks, they must be doubled (""):

```
-uagstdio ">C:\tmp\""sap output""\sap.out 2>C:\tmp\""sap output""\sap.err"
```

Universal Connector Commands

The following table identifies supported Universal Connector commands, describes the actions that each command performs, and lists each command's related options, which display in the SAP Task Details when that command is selected.

Command Name	Description	Options
Run	Performs the following actions: 1. Defines a new SAP, job based on either a USAP Definition file or an SAP Model Job. 2. Starts the defined job. 3. Waits for the job to complete. 4. Prints the job's joblog to standard error and the spoollists to standard output. 5. Purges the job from the SAP system.	• **Definition or Model** Specifies how the new SAP job will be created, based either on a USAP Definition File or an SAP Model Job. • **Script or File System** Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts. • **Script**

Required if **Script or File System** = Script; Name of the script in the Controller database that will be executed by this task.

Note

If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.

- **Definition File**

  If you selected USAP Definition File above, use this field to provide the path and file name of the file.
- **SAP Job Name**

  Job name of the SAP job. Variables supported.
- **SAP Job ID**

  Job ID of the SAP job. Variables supported.

  For Utility Agents older than Universal Agent 6.4.2.2, this is a required field.

  If you are using a newer Utility Agent, specifying a Job ID of the target SAP job will ensure that it always can be uniquely identified.

  If you do not specify a Job ID, one of the following applies:

  - If the target SAP system has only one job with the specified name for the specified user in a status of scheduled, it is uniquely identified.
  - If the target SAP system has multiple jobs with the specified name for the specified user:
    - By default, we select the scheduled job if only one exists.
    - You can optionally add an SAP Command Option -model_status <scheduled | finished | any> to control which SAP job status is used if only one job with the specified status exists.
    - You also can optionally add an SAP Command Option -resolve_multi_model yes to select the latest SAP job if more than one exists.
- **Target Job Name**

  If you selected SAP Model Job above, use this field to provide the name of the new SAP job being created. If you leave this field blank, the Controller uses the same name as the SAP Model Job.
- **Start Immediately**

  Enabled or disabled. Enabling the Start Immediately flag will cause the job to fail if SAP resources are not available to start the job immediately (for example, a background work process). Otherwise, the job will wait for SAP resources to become available.
- **SAP Target Server**

  Name of an SAP instance at which a background job should be run. The name has the following format:

  ```
  [host name]_[SAP System name]_[SAP System number]
  ```

  Where host name is the name of the server computer on which the instance is running, as specified in the system profile parameter SAPLOCALHOST.

  Example:

		`hs0123_C11_55` • **Print Application Log** Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned. • **Print Application RC** Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned. • **Use Application RC** Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.
Run Process Chain	Performs the following actions: 1. Starts a process chain. 2. Waits for the process chain to complete. 3. Returns the process chain log. 4. Returns process logs. 5. Returns process spool lists.	• **Chain ID** ID of the process chain to run.
Run InfoPackage	Performs the following actions: 1. Starts an InfoPackage. 2. Wait for the InfoPackage request to complete. 3. Returns status messages for the completed Infopackage request.	• **InfoPackage** Name of the InfoPackage to run. • **InfoPackage Job Name** Name of the SAP batch job that processes the InfoPackage request.
Submit	Defines a new SAP job.	• **Definition or Model** Specifies how the new SAP job will be created, based either on a USAP Definition File or an SAP Model Job. • **Script or File System** Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts. • **Script** Required if **Script or File System** = Script; Name of the script in the Controller database that will be executed by this task. Note If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only. • **Definition File** If you selected USAP Definition File above, use this field to provide the path and file name of the file. • **SAP Job Name** Job name of the SAP job. Variables supported. • **SAP Job ID**

Job ID of the SAP job. Variables supported.

For Utility Agents older than Universal Agent 6.4.2.2, this is a required field.

If you are using a newer Utility Agent, specifying a Job ID of the target SAP job will ensure that it always can be uniquely identified.

If you do not specify a Job ID, one of the following applies:

- If the target SAP system has only one job with the specified name for the specified user in a status of scheduled, it is uniquely identified.
- If the target SAP system has multiple jobs with the specified name for the specified user:
  - By default, we select the scheduled job if only one exists.
  - You can optionally add an SAP Command Option -model_status <scheduled | finished | any> to control which SAP job status is used if only one job with the specified status exists.
  - You also can optionally add an SAP Command Option -resolve_multi_model yes to select the latest SAP job if more than one exists.

- **Target Job Name**

  If you selected SAP Model Job above, use this field to provide the name of the new SAP job being created. If you leave this field blank, the Controller uses the same name as the SAP Model Job.
- **Start**

  Enabled or disabled. Specifies whether or not the newly-defined SAP job should be started.
- **Start Immediately**

  Enabled or disabled. Enabling the Start Immediately flag will cause the job to fail if SAP resources are not available to start the job immediately (for example, a background work process). Otherwise, the job will wait for SAP resources to become available.
- **SAP Target Server**

  Name of an SAP instance at which a background job should be run. The name has the following format:

  ```
  [host name]_[SAP System name]_[SAP System number]
  ```

  Where host name is the name of the server computer on which the instance is running, as specified in the system profile parameter SAPLOCALHOST.

  Example:

  ```
  hs0123_C11_55
  ```

- **Wait**

  Specifies whether the Controller should wait for the SAP process chain to complete processing.
- **Print Job Log**

  Enabled or disabled. Specifies whether or not the job's joblog is returned.
- **Print Spooled Output**

  Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned.

		• **Print Application Log** Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned. • **Print Application RC** Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned. • **Use Application RC** Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task. • **SAP ABAP Program Name** Name of an ABAP program in an SAP system to which the model variant belongs. • **SAP Variant Name** Pre-existing SAP variant name to use as the model variant. • **Target Variant Name** One or more replacement variants for ABAP program job steps in an SAP job.
Modify	Modifies an SAP job that already exists in an SAP system. A USAP job definition file is used to specify the modifications.	• **Script Library or File System** Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts. • **Script** Required if Command or Script = Script; Name of the script in the Controller database that will be executed by this task. Note  If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only. • **Definition File** If you selected USAP Definition File above, use this field to provide the path and file name of the file. • **SAP Job ID** Job ID of the SAP job. Variables supported.
Start	Starts a currently defined SAP job.	• **SAP Job Name** Job name of the SAP job. Variables supported. • **SAP Job ID** Job ID of the SAP job. Variables supported. For Utility Agents older than Universal Agent 6.4.2.2, this is a required field. If you are using a newer Utility Agent, specifying a Job ID of the target SAP job will ensure that it always can be uniquely identified. If you do not specify a Job ID, one of the following applies:

		• If the target SAP system has only one job with the specified name for the specified user in a status of scheduled, it is uniquely identified.
		• If the target SAP system has multiple jobs with the specified name for the specified user:
		  • By default, we select the scheduled job if only one exists.
		  • You can optionally add an SAP Command Option -model_status <scheduled | finished | any> to control which SAP job status is used if only one job with the specified status exists.
		  • You also can optionally add an SAP Command Option -resolve_multi_model yes to select the latest SAP job if more than one exists.
		• **Start Immediately**
		
		Enabled or disabled. Enabling the Start Immediately flag will cause the job to fail if SAP resources are not available to start the job immediately (for example, a background work process). Otherwise, the job will wait for SAP resources to become available.
		• **SAP Target Server**
		
		Name of an SAP instance at which a background job should be run. The name has the following format:
		
		`[host name]_[SAP System name]_[SAP System number]`
		
		Where host name is the name of the server computer on which the instance is running, as specified in the system profile parameter SAPLOCALHOST.
		
		Example:
		
		`hs0123_C11_55`
		
		• **Wait**
		
		Specifies whether the Controller should wait for the SAP process chain to complete processing.
		• **Print Job Log**
		
		Enabled or disabled. Specifies whether or not the job's joblog is returned.
		• **Print Spooled Output**
		
		Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned.
		• **Print Application Log**
		
		Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned.
		• **Print Application RC**
		
		Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned.
		• **Use Application RC**
		
		Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.

Start Process Chain	Starts the specified process chain on the SAP system.	• **Chain ID** ID of process chain to start. • **Restart**

		Specification to restart failed and cancelled processes (R or X) in the specified process chain instance. • **Log ID** Log ID for process chain instance to be restarted. • **Wait** Specifies whether the Controller should wait for the SAP process chain to complete processing. • **Print Job Log** Enabled or disabled. Specifies whether or not the job's joblog is returned. • **Print Spooled Output** Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned. • **Print Application Log** Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned. • **Print Application RC** Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned. • **Use Application RC** Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.
Start InfoPackage	Starts the specified InfoPackage on the SAP system.	• **InfoPackage** Name of the InfoPackage to start. • **InfoPackage Job Name** Name of the SAP batch job that processes the InfoPackage request. • **Wait** Specifies whether the Controller should wait for the SAP InfoPackage to complete processing.
Wait	Reconnects to a started job and monitors it through completion.	• **SAP Job Name** Job name of the SAP job. Variables supported. • **SAP Job ID** Job ID of the SAP job. Variables supported. • **Print Job Log** Enabled or disabled. Specifies whether or not the job's joblog is returned. • **Print Spooled Output** Enabled or disabled. Specifies whether or not the spoollists of all job steps are returned. • **Print Application Log** Enabled or disabled. Specifies whether or not the job's application log, if one was generated, is returned. • **Print Application RC** Enabled or disabled. Specifies whether or not the job's application return codes, if they were set, are returned. • **Use Application RC**

		Specifies whether or not the SAP job's application return codes will be used to determine the return code for the Universal Controller task.
Wait Process Chain	Waits for a Process Chain to complete.	• **Chain ID** ID of process chain to be monitored to completion. • **Log ID** Log ID for process chain instance to be monitored to completion.
Wait InfoPackage	Waits for an InfoPackage to complete.	• **Request ID** Request ID of the InfoPackage that is to be monitored.
Abort	Cancels a running SAP job.	• **SAP Job Name** Job name of the SAP job. Variables supported. • **SAP Job ID** Job ID of the SAP job. Variables supported.
Interrupt Process Chain	Removes the specified process chain from the schedule.	• **Chain ID** ID of process chain that is to be interrupted.
Purge Job	Deletes a defined SAP job, its joblog, and all of its spoollists. This command is not available on SAP 3.1 and SAP 4.0.	• **SAP Job Name** Job name of the SAP job. Variables supported. • **SAP Job ID** Job ID of the SAP job. Variables supported.
Purge Variant	Deletes a variant from an SAP system.	• **SAP ABAP Program Name** Name of the ABAP program for which the variant will be deleted. • **SAP Variant Name** Name of the variant to be deleted.
Raise Event	Raises the specified SAP background processing event.	• **SAP Event** Name of the event. • **SAP Event Parameter** Optional parameter value for the event.
Display	Displays the data specified in the Display Command field. The data is written to standard output.	• **Display Command**

One of the following:

Job Log	Displays the job log for a specified SAP job.
Spool List	Displays the spoollist for a job step.
Status	Displays the current status for an SAP job.
Variants	Displays the variants available for the specified ABAP program.
Variant	Displays the contents of a specified variant. **Note:** Requires XBP interface 2.0 or greater.
Job Definition	Displays the definition of the specified SAP job.
Select	Displays a variety of attributes for a list of SAP jobs that match the specified criteria.
System Log	Displays a portion of an SAP syslog that meets the specified date/time constraints.
Intercept Table	Displays the contents of the job intercept criteria table for the connected SAP system.
Intercepted Jobs	Displays intercepted jobs for the connected SAP system.
Reports	Displays a list of ABAP reports that match the specified criteria.
Commands	Displays a list of SAP external commands that match the specified criteria.
Output Devices	Displays a list of SAP output devices that match the specified criteria.
Print Formats	Displays a list of print formats that are available for the specified printer.
Selection Screen	Displays information about the selection fields of an ABAP program.
Event History	Displays a list of events that were logged in an SAP system's event history. The retrieved events can optionally be set to "Confirmed."
Criteria Manager Profiles	Displays a list of Criteria Manager profiles.
Criteria Manager Criteria	Displays the criteria hierarchy of a particular profile in XML format.
Process Chains	Displays a list of process chains from the SAP system that meet the specified criteria.
Process Chain	Displays the list of processes contained within the specified process chain.
Process Chain Log	Displays the SAP log associated with the process chain.
Process Chain Start Condition	Displays the SAP start condition for specified process chain.
Process Chain Status	Displays the current status of the process chain.
InfoPackages	Displays a list of InfoPackages on the SAP system that meet the specified criteria.
InfoPackage Status	Displays the current status for the InfoPackage instance identified by the request ID.

Generate Variant Definition	Generates a USAP variant definition file based on a model SAP variant. The generated definition file is written to standard output. Requires XBP interface 2.0 or greater.	• **SAP ABAP Program Name** Name of an ABAP program in an SAP system to which the model variant belongs. • **SAP Variant Name** Pre-existing SAP variant name to use as the model variant.

Generate Job Definition	Generates a USAP job definition file based on a model SAP job. The generated definition file is written to standard output.	• **SAP Job Name**
		
		Job name of the SAP job. Variables supported.
		• **SAP Job ID**
		
		Job ID of the SAP job. Variables supported.
		
		For Utility Agents older than Universal Agent 6.4.2.2, this is a required field.
		
		If you are using a newer Utility Agent, specifying a Job ID of the target SAP job will ensure that it always can be uniquely identified.
		
		If you do not specify a Job ID, one of the following applies:
		
		• If the target SAP system has only one job with the specified name for the specified user in a status of scheduled, it is uniquely identified.
		• If the target SAP system has multiple jobs with the specified name for the specified user:
		  • By default, we select the scheduled job if only one exists.
		  • You can optionally add an SAP Command Option -model_status <scheduled | finished | any> to control which SAP job status is used if only one job with the specified status exists.
		  • You also can optionally add an SAP Command Option -resolve_multi_model yes to select the latest SAP job if more than one exists.

Create CM Profile	Creates a new Criteria Manager profile.	• **Script or File System** Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts. • **Script** Required if **Script or File System** = Script; Name of the script in the Controller database that will be executed by this task. Note If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only. • **SAP Criteria Manager XML File** Name of the file that contains the Criteria Manager information. • **Event Select State** Event status of the events which should be read. • **SAP Event**

		Name of the event. • **SAP Event Parameter** Optional parameter value for the event. • **Confirm Returned Events** Specification for whether or not the status of returned events should be changed in the SAP system.

Set CM Criteria	Sets the criteria for a profile.	• **Script or File System**
		
		Specifies whether the USAP definition file exists in the file system of the machine where the Agent is running or in Scripts.
		• **Script**
		
		Required if **Script or File System** = Script; Name of the script in the Controller database that will be executed by this task.
		
		Note
		If you click the Details icon for a Script selected in this field, the Script Type field in the Details is read-only.
		• **SAP Criteria Manager XML File**
		
		Name of the file that contains the Criteria Manager information.
		• **SAP Criteria Manager Profile ID**
		
		ID of the profile.
		• **SAP Criteria Manager Profile Type**
		
		Type of profile. For the default criteria types provided by SAP, the values are:
		  • **EVTHIS** - Identifies a criteria type for event history.
		  • **EVHIRO** - Identifies a criteria type for the reorganization of raised events.
		  • **INTERC** - Identifies a criteria type for job interception.
		• **Event Select State**
		
		Event status of the events which should be read.
		• **SAP Event**
		
		Name of the event.
		• **SAP Event Parameter**
		
		Optional parameter value for the event.
		• **Confirm Returned Events**
		
		Specification for whether or not the status of returned events should be changed in the SAP system.

Activate CM Profile	Activates a criteria profile of the specified type.	• **SAP Criteria Manager Profile ID**
		
		ID of the profile.
		• **SAP Criteria Manager Profile Type**
		
		Type of profile. For the default criteria types provided by SAP, the values are:
		  • **EVTHIS** - Identifies a criteria type for event history.
		  • **EVHIRO** - Identifies a criteria type for the reorganization of raised events.

		• **INTERC** - Identifies a criteria type for job interception. • **Event Select State** Event status of the events which should be read. • **SAP Event** Name of the event. • **SAP Event Parameter** Optional parameter value for the event. • **Confirm Returned Events** Specification for whether or not the status of returned events should be changed in the SAP system.
Deactivate CM Profile	Deactivates a criteria profile of the specified type.	• **SAP Criteria Manager Profile Type** Type of profile. For the default criteria types provided by SAP, the values are: • **EVTHIS** - Identifies a criteria type for event history. • **EVHIRO** - Identifies a criteria type for the reorganization of raised events. • **INTERC** - Identifies a criteria type for job interception. • **Event Select State** Event status of the events which should be read. • **SAP Event** Name of the event. • **SAP Event Parameter** Optional parameter value for the event. • **Confirm Returned Events** Specification for whether or not the status of returned events should be changed in the SAP system.
Delete CM Profile	Deletes a criteria profile from an SAP system.	• **SAP Criteria Manager Profile ID** ID of the profile. • **SAP Criteria Manager Profile Type** Type of profile. For the default criteria types provided by SAP, the values are: • **EVTHIS** - Identifies a criteria type for event history. • **EVHIRO** - Identifies a criteria type for the reorganization of raised events. • **INTERC** - Identifies a criteria type for job interception. • **Event Select State** Event status of the events which should be read. • **SAP Event** Name of the event. • **SAP Event Parameter** Optional parameter value for the event. • **Confirm Returned Events**

		Specification for whether or not the status of returned events should be changed in the SAP system.

Running an SAP Task

You can run an SAP task:

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

Monitoring Task Execution

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

Available Integrations

Built-In Universal Templates

Integrations

The information on these pages also is located in the Universal Controller 7.2.x Administration.pdf.