Universal CMDB

Software Version: Content Pack 21.00 (CP21)

Discovery and Integrations Content Guide - Discovery Activities

Hewlett Packard Enterprise

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Contents

Chapter 1: Basic Software Configuration Discovery Activity

The Basic Software Configuration Discovery activity discovers basic software configuration information to detect and map out what is running in your data center.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone **>** click **>** select **New Discovery Activity > Software Configuration > Basic**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **Basic Software Configuration Discovery Activity** contains: "Activity Name Page" > "Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Activity Name Page

Enables you to configure a name for the Basic Software Configuration Discovery activity.

Important Information	- Enter a unique name for the Basic Software Configuration Discovery activity. - General information about the activity is available in "Basic Software Configuration Discovery Activity" above. **Note:** This screen is not displayed when editing a Basic Software Configuration Discovery activity.
Wizard Map	The "Basic Software Configuration Discovery Activity" contains: **Activity Name Page** > "Preferences Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the Basic Software Configuration activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Preferences Page

Enables you to select preferences for the Basic Software Configuration Discovery activity.

Important Information	• Select preferences relating to what information is discovered. • General information about the activity is available in "Basic Software Configuration Discovery Activity" on the previous page.
Wizard Map	The "Basic Software Configuration Discovery Activity" contains: "Activity Name Page" > **Preferences Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Host TCP Connections	Select this check box to discover TCP communication channels to map dependency relationships between hosts. **Note:** For this discovery to work, you must configure at least one of the credentials in the Infrastructure Discovery activity.
Operating System Users	Select this check box to discover local operating system users.
Port Scanning	Select this check box to scan TCP ports to discover open server ports.

UI Element (A–Z)	Description
	Under **Choose TCP Ports for Port Scanning**: - Click the ![+] button to add new ports to the list. - Click the ![X] button to remove ports from the list. **Note:** The scanning process may affect network performance. You may need to tell machine owners about Universal Discovery trying to connect to their machines.
Running Software	Select this check box to discover running software.

Schedule Discovery Page

Enables you to define a schedule for the Basic Software Configuration Discovery activity.

Important Information	General information about the activity is available in "Basic Software Configuration Discovery Activity" on page 7.
Wizard Map	The "Basic Software Configuration Discovery Activity" contains: "Activity Name Page" > "Preferences Page" > **Schedule Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
![Time Templates icon]	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to	Select the time template that you want to use to schedule the discovery activity.

UI Element (A–Z)	Description
run at	
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select multiple days. • **Select All.** Select all the days. • **Clear Selection.** Clear all the selected days. • **Invert Selection.** Switch the selection.
<Days of the week> **(Sunday -** **Saturday)**	(Appears when you select **Weekly**.) Select the day or days on which the discovery activity should run.
<Schedule options>	• **Once.** Define the task to run only once. • **Interval.** Defines the interval between successive runs. • **Daily.** Run a task on a daily basis. • **Weekly.** Run a task on a weekly basis. • **Monthly.** Run a task on a monthly basis. • **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> **(January -** **December)**	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening

UI Element (A–Z)	Description
	the calendar, selecting the date and time, and clicking **OK**. **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. • **Select All.** Select all the times. • **Clear Selection.** Clear all the selected times. • **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**.

UI Element (A–Z)	Description
	Note: • When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**. • This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations. For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the Basic Software Configuration Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes. General information about the activity is available in "Basic Software Configuration Discovery Activity" on page 7.
Wizard Map	The "Basic Software Configuration Discovery Activity" contains: "Activity Name Page" > "Preferences Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate	Activates the activity upon creating it.

UI Element (A–Z)	Description
Activity	**Note:** If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.

Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone tree.
	
	    Note: If you selected **Activate Activity**, the activity is activated upon creation.
	
	• **Edit mode:** Saves the changes to the activity.
	
	    Note: You cannot activate the activity from the wizard in Edit mode.

Chapter 2: Cloud Software Configuration Discovery Activity

The Cloud Software Configuration Discovery activity discovers cloud software configuration information to detect and map out what is running in your data center.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone **>** click **New Discovery Activity** ☀ **> Software Configuration > Cloud**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **Cloud Software Configuration Discovery Activity** contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Activity Name Page

Enables you to configure a name for the Cloud Software Configuration Discovery activity.

Important Information	• Enter a unique name for the Cloud Software Configuration Discovery activity. • General information about the activity is available in "Cloud Software Configuration Discovery Activity" above. **Note:** This screen is not displayed when editing a Cloud Software Configuration Discovery activity.
Wizard Map	The "Cloud Software Configuration Discovery Activity" contains: **Activity Name Page** > "Define Credentials Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the Cloud Software Configuration activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Define Credentials Page

Enables you to select and configure credentials for protocols that are used for discovery jobs.

Important information	• Configure credentials depending on what must be discovered and which protocols are supported on your site's network. • Credentials for protocols that were configured during Data Flow Probe setup are displayed on this page. For more information, see the section describing setting up the Data Flow Probe in the *HPE Universal CMDB Data Flow Management Guide*. • To see additional fields that are available for protocols, and for more information about field definitions for the Protocol Parameters dialog box, see the section about Supported Protocols in the *HPE UCMDB Discovery and IntegrationsContent Guide - Supported Content* document. • General information about the activity is available in "Cloud Software Configuration Discovery Activity" on the previous page.
Wizard map	The "Cloud Software Configuration Discovery Activity" contains: "Activity Name Page" > **Define Credentials Page** > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Protocol pane

Lists the protocols that are available for this activity.

User interface elements are described below:

UI Element	Description
⬚	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
⬚	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
⬚	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
⬚	Indicates that a protocol has no credentials.

Credentials pane

Lists the credentials for the selected protocol.

Important information	- To sort the credentials in a column in ascending or descending order, click the column header. - To edit parameters of a credentials, double-click a credential to open the Protocol Parameters dialog box. - When you right-click a credential, a menu is displayed. For more information about right-click menu options, see the section describing the Data Flow Probe Setup Window-Details pane in the *HPE Universal CMDB Data Flow Management Guide*.

User interface elements are described below:

UI Element	Description
✳	**Create New Connection Details.** Opens the Protocol Parameters dialog box, enabling you to define credentials for the selected protocol. To determine which protocols require credentials for this activity, go to **Data Flow Management** > **Universal Discovery** > **Zone-Based Discovery** tab > **Activity Jobs** tab. Ensure that you create credentials for all of the protocols in the **Protocol** pane for the activity.
✖	**Remove Connection Details.** Removes the selected credential.

UI Element	Description
✏️	**Edit Connection Details.** Opens the Protocol Parameters dialog box, enabling you to edit the credentials for the selected protocol.
⬆ ⬇	**Move Entry Up/Move Entry Down.** Enables you to move credentials up or down, enabling you to set the order in which selected credentials are used for the selected protocol. **Note:** Moving credentials affects the value in the **Index** column.
🔳	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
🔲	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
🔳	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
Selected	Enables you to select credentials to use for the activity.
Index	Indicates the order in which the system selects credential instances to make a connection attempt. The lower the index, the higher the priority.
User Label	The description of the credential that is configured in the Protocol Parameters dialog box.

Discovery Preferences Page

Enables you to select detailed preferences for the Cloud Software Configuration Discovery activity.

Important Information	General information about the wizard is available in "Cloud Software Configuration Discovery Activity" on page 14.
Wizard Map	The "Cloud Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > **Discovery Preferences Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
VMware vCloud SDK jar files	Select the check box and click **Import file...** to locate the appropriate JAR files, as follows: **SDK-<version>\rest-api-schemas-<version>.jar** **SDK-<version>\vcloud-java-sdk-<version>.jar**

Run VMware vCloud Director Discovery using direct connection URL	Select the check box to run VMware vCloud Director discovery by using direct connection URL.
	
	Click the ▨ button beside **Discovery Options** to display the available options:
	
	• **Report Powered off VMs**
	
	  Select to report powered off VMs.
	
	• **Base URL**
	
	  Base URL to VMware Cloud Director.

Run VMware vCloud Director Discovery using vCloud API	Select the check box to run VMware vCloud Director discovery by using vCloud API. Click the ▨ button beside **Discovery Options** to display the available option: • **Report Powered off VMs** Select to report powered off VMs.

UI Element	Description
Run Amazon Web Services Discovery	Select the check box to run Amazon Web Services discovery. Click the ⊠ button beside **Discovery Options** to display the available option: • **Amazon WebServices SDK jar files** Select the check box and click **Import file...** to locate the **aws-java-sdk-${VERSION}.jar** file.

Schedule Discovery Page

Enables you to define a schedule for the Cloud Software Configuration Discovery activity.

Important Information	General information about the activity is available in "Cloud Software Configuration Discovery Activity" on page 14.
Wizard Map	The "Cloud Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" > **Schedule Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
🕑	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select

UI Element (A–Z)	Description
	multiple days. • ⬚ **Select All.** Select all the days. • ⬚ **Clear Selection.** Clear all the selected days. • ⬚ **Invert Selection.** Switch the selection.
<Days of the week> (Sunday - Saturday)	(Appears when you select **Weekly**.) Select the day or days on which the discovery activity should run.
<Schedule options>	• **Once.** Define the task to run only once. • **Interval.** Defines the interval between successive runs. • **Daily.** Run a task on a daily basis. • **Weekly.** Run a task on a weekly basis. • **Monthly.** Run a task on a monthly basis. • **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.

UI Element (A–Z)	Description
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. • ⊞ **Select All.** Select all the times. • ⊞ **Clear Selection.** Clear all the selected times. • ⊞ **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** • When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**.

UI Element (A–Z)	Description
	• This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations. For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the Cloud Software Configuration Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes. General information about the activity is available in "Cloud Software Configuration Discovery Activity" on page 14.
Wizard Map	The "Cloud Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it. **Note:** If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.
Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone

UI Element (A–Z)	Description
	tree.
	Note: If you selected **Activate Activity**, the activity is activated upon creation.
	• **Edit mode:** Saves the changes to the activity.
	Note: You cannot activate the activity from the wizard in Edit mode.

Chapter 3: Cluster Software Configuration Discovery Activity

The Cluster Software Configuration Discovery activity discovers cluster software configuration information to detect and map out what is running in your data center.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone **>** click ![icon] **>** select **New Discovery Activity > Software Configuration > Cluster**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **Cluster Software Configuration Discovery Activity** contains: "Activity Name Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Activity Name Page

Enables you to configure a name for the Cluster Software Configuration Discovery activity.

Important Information	- Enter a unique name for the Cluster Software Configuration Discovery activity. - General information about the activity is available in "Cluster Software Configuration Discovery Activity" above. **Note:** This screen is not displayed when editing a Cluster Software Configuration Discovery activity.
Wizard Map	The "Cluster Software Configuration Discovery Activity" contains: **Activity Name Page** > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the Cluster Software Configuration activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Discovery Preferences Page

Enables you to select detailed preferences for the Cluster Software Configuration Discovery activity.

Important Information	General information about the wizard is available in "Cluster Software Configuration Discovery Activity" on page 24.
Wizard Map	The "Cluster Software Configuration Discovery Activity" contains: "Activity Name Page" > **Discovery Preferences Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Run Oracle Service Guard Discovery	Select the check box to run Oracle Service Guard discovery. Click the ⊠ button beside **Discovery Options** to display the available options: ● **ServiceGuard configuration filename** Select to specify the configuration file name (file extention or file name). **Default:** ascii ● **ServiceGuard configuration filepath** Select to specify the path to the configuration files. ● **Target machine codepage** Select to specify the discovered machine code page.
Run Microsoft Cluster Discovery	Select the check box to run Microsoft Cluster discovery. Click the ⊠ button beside **Discovery Options** to display the available option: ● **Target machine codepage** Select to specify the discovered machine code page.
Run Sun Cluster Discovery	Select the check box to run Sun Cluster discovery.

UI Element	Description
Run Symantec Veritas Cluster Discovery	Select the check box to run Symantec Veritas Cluster discovery. Click the ⊠ button beside **Discovery Options** to display the available options: • **Path to Main.cf folder** Select to specify the path to the Veritas **Main.cf** folder. • **Target machine codepage** Select to specify the discovered machine code page.
Run IBM HACMP Application Discovery	Select the check box to run IBM HACMP Application discovery. Click the ⊠ button beside **Discovery Options** to display the available options: • **cldisp command path** Select to specify the command path for **cldisp**. Use full path or **root/path/cldisp**. • **cllsif command path** Select to specify the command path for **cllsif -c**. Use full path or **root/path/cllsif -c**. **Note:** Do not leave off **-c**. • **Volume group command** Select to specify the actual command to use for gathering information about a volume group (**lspv -p** for AIX, **lvdisplay** for Linux).
Run IBM HACMP Topology Discovery	Select the check box to run IBM HACMP Topology discovery. Click the ⊠ button beside **Discovery Options** to display the available options: • **cldisp command path** Select to specify the command path for **cldisp**. Use full path or **root/path/cldisp**. • **AIX Cluster license command** Select to specify the command to get the cluster license on AIX.

Schedule Discovery Page

Enables you to define a schedule for the Cluster Software Configuration Discovery activity.

Important Information	General information about the activity is available in "Cluster Software Configuration Discovery Activity" on page 24.
Wizard Map	The "Cluster Software Configuration Discovery Activity" contains: "Activity Name Page" > "Discovery Preferences Page" > **Schedule Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
🕐	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select multiple days. • 🔲 **Select All.** Select all the days. • 🔲 **Clear Selection.** Clear all the selected days. • 🔲 **Invert Selection.** Switch the selection.
<Days of the week>	(Appears when you select **Weekly**.) Select the day or days on which the discovery activity should run.

UI Element (A–Z)	Description
(Sunday - Saturday)	
<Schedule options>	• **Once.** Define the task to run only once. • **Interval.** Defines the interval between successive runs. • **Daily.** Run a task on a daily basis. • **Weekly.** Run a task on a weekly basis. • **Monthly.** Run a task on a monthly basis. • **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. • **Select All.** Select all the times. • **Clear Selection.** Clear all the selected times. • **Invert Selection.** Switch the selection.

UI Element (A–Z)	Description
	Note: You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** - When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**. - This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations. For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the Cluster Software Configuration Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes. General information about the activity is available in "Cluster Software Configuration Discovery Activity" on page 24.
Wizard Map	The "Cluster Software Configuration Discovery Activity" contains: "Activity Name Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it. **Note:** If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.

Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone tree.
	
	    Note: If you selected **Activate Activity**, the activity is activated upon creation.
	
	• **Edit mode:** Saves the changes to the activity.
	
	    Note: You cannot activate the activity from the wizard in Edit mode.

Chapter 4: Database Software Configuration Discovery Activity

The Database Software Configuration Discovery activity discovers detailed configuration information about databases in your data center.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone > click ⚹ > select **New Discovery Activity > Software Configuration > Database**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **Database Software Configuration Discovery Activity** contains: "Activity Name Page" > "Define Credentials Page" > "Database Port Scanning" > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Activity Name Page

Enables you to configure a name for the Database Software Configuration Discovery activity.

Important Information	• Enter a unique name for the Database Software Configuration Discovery activity. • General information about the activity is available in "Database Software Configuration Discovery Activity" above. **Note:** This screen is not displayed when editing a Basic Software Configuration Discovery activity.
Wizard Map	The "Database Software Configuration Discovery Activity" contains: **Activity Name Page** > "Define Credentials Page" > "Database Port Scanning" > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the Database Software Configuration Discovery activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Define Credentials Page

Enables you to select and configure credentials for protocols that are used for discovery jobs.

Important information	• Configure credentials depending on what must be discovered and which protocols are supported on your site's network. • Credentials for protocols that were configured during Data Flow Probe setup are displayed on this page. For more information, see the section describing setting up the Data Flow Probe in the *HPE Universal CMDB Data Flow Management Guide*. • To see additional fields that are available for protocols, and for more information about field definitions for the Protocol Parameters dialog box, see the section about Supported Protocols in the *HPE UCMDB Discovery and IntegrationsContent Guide - Supported Content* document. • General information about the activity is available in "Database Software Configuration Discovery Activity" on the previous page.
Wizard map	The "Database Software Configuration Discovery Activity" contains: "Activity Name Page" > **Define Credentials Page** > "Database Port Scanning" > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Protocol pane

Lists the protocols that are available for this activity.

User interface elements are described below:

UI Element	Description
	Select All. Selects all protocols or selects all credentials for a selected protocol.
	Clear Selections. Clears all selected credentials or clears all selected protocols.
	Invert Selections. All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
	Indicates that a protocol has no credentials.

Credentials pane

Lists the credentials for the selected protocol.

Important information	• To sort the credentials in a column in ascending or descending order, click the column header.
	• To edit parameters of a credentials, double-click a credential to open the Protocol Parameters dialog box.
	• When you right-click a credential, a menu is displayed. For more information about right-click menu options, see the section describing the Data Flow Probe Setup Window-Details pane in the *HPE Universal CMDB Data Flow Management Guide*.

User interface elements are described below:

UI Element	Description
	Create New Connection Details. Opens the Protocol Parameters dialog box, enabling you to define credentials for the selected protocol. To determine which protocols require credentials for this activity, go to **Data Flow Management** > **Universal Discovery** > **Zone-Based Discovery** tab > **Activity Jobs** tab. Ensure that you create credentials for all of the protocols in the **Protocol** pane for the activity.
	Remove Connection Details. Removes the selected credential.

UI Element	Description
✎	**Edit Connection Details.** Opens the Protocol Parameters dialog box, enabling you to edit the credentials for the selected protocol.
⬆ ⬇	**Move Entry Up/Move Entry Down.** Enables you to move credentials up or down, enabling you to set the order in which selected credentials are used for the selected protocol. **Note:** Moving credentials affects the value in the **Index** column.
⯐	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
⯐	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
⯐	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
Selected	Enables you to select credentials to use for the activity.
Index	Indicates the order in which the system selects credential instances to make a connection attempt. The lower the index, the higher the priority.
Encryption Method	The encryption method of the credential that is configured in the Protocol Parameters dialog box.
Scope	Indicates the network scope of the Data Flow Probe that uses the selected credential. This value is configured in the Protocol Parameter dialog box, in the **Network Scope** field. For more information, see the section describing the Protocol Parameter dialog box in the *HPE Universal CMDB Data Flow Management Guide*.
User Name	The description of the credential that is configured in the Protocol Parameters dialog box.
Database Type	The description of the credential that is configured in the Protocol Parameters dialog box.
User Label	The description of the credential that is configured in the Protocol Parameters dialog box.
Port Number	The port number that is configured in the Protocol Parameters dialog box.

Database Port Scanning

Enables you to configure the ports to be scanned.

Important Information	General information about the wizard is available in "Database Software Configuration Discovery Activity" on page 32.
Wizard Map	The "Database Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > **Database Port Scanning** > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
➕	**Add port.** Opens the **Chose TCP Ports to Scan** dialog box, enabling you to select ports to be scanned.
✖	**Remove Port.** Enables you to remove a selected port from the list.

Discovery Preferences Page

Enables you to select detailed preferences for the Database Software Configuration Discovery activity.

Important Information	General information about the wizard is available in "Database Software Configuration Discovery Activity" on page 32.
Wizard Map	The "Database Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Database Port Scanning" > **Discovery Preferences Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Run DB2 Discovery	Select the check box to run DB2 discovery. Click the ⬇ button beside **Discovery Options** to display the available options: ● **DB2 JDBC Driver version 8.x** Select the check box and click **Import file...** to locate the appropriate JAR file in the DB2 JDBC installation, as follows: ○ **db2java.zip** ○ **db2jcc.jar** ● **DB2 JDBC Driver version 9.x** Select the check box and click **Import file...** to locate the appropriate JAR file in the DB2 JDBC installation, as follows: ○ **db2java.zip** ○ **db2jcc.jar** ○ **db2jcc_license_cu.jar** ○ **db2jcc_license_cisuz.jar** ● **Discover tables** Select to enable discovery of DB2 tables. ● **Discover system tables**

UI Element	Description
	Select to enable discovery of system tables, such as SYSCAT, SYSFUN, SYSIBM, SYSIBMADM, SYSPROC, and SYSSTAT. **Note:** If you do not select the **Discover tables** check box, the **Discover system tables** setting is unavailable.
Run MS SQL Discovery	Select the check box to run MS SQL discovery. Click the ⌇ button beside **Discovery Options** to display the available options: • **Discover configuration** Select to enable discovery of MS SQL server configuration (mssql.database.configuration.txt). • **Discover users** Select to enable discovery of database users. • **Discover sql/data files** Select to enable discovery of SQL/data files. • **Discover SQL jobs** Select to enable discovery of SQL jobs.
Run Sybase Discovery	Select the check box to run Sybase discovery. Click the ⌇ button beside **Discovery Options** to display the available option: • **Sybase JDBC Driver file** Select the check box and click **Import file...** to locate the **3pclasses.jar** file in the Sybase JDBC installation.

Run Oracle Discovery	Select the check box to run Oracle discovery.
	
	Click the ⌇ button beside **Discovery Options** to display the available option:
	
	• **Oracle Database Connection Method**
	
	   ○ **Thorough**. A comprehensive discovery of Oracle database servers.
	
	   ○ **Lightweight**. A lightweight, or faster discovery of Oracle database servers.
	
	• **Oracle Home Directory**
	
	Use this when no **ORACLE_HOME** environment variable is defined.

UI Element	Description
	Note: The value must coincide with the same parameter in the **Oracle Listeners by Shell** job.
Run MySQL Discovery	Select the check box to run MySQL discovery.
Run HanaDB Discovery	Select the check box to run HanaDB discovery.
Run MaxDB Discovery	Select the check box to run MaxDB discovery.
Run PostgreSQL Discovery	Select the check box to run PostgreSQL discovery.

Schedule Discovery Page

Enables you to define a schedule for the Database Software Configuration Discovery activity.

Important Information	General information about the activity is available in "Database Software Configuration Discovery Activity" on page 32.
Wizard Map	The "Database Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" > **Schedule Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
🕐	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.

UI Element (A–Z)	Description
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select multiple days. • **Select All.** Select all the days. • **Clear Selection.** Clear all the selected days. • **Invert Selection.** Switch the selection.
<Days of the week> (Sunday - Saturday)	(Appears when you select **Weekly**.) Select the day or days on which the discovery activity should run.
<Schedule options>	• **Once.** Define the task to run only once. • **Interval.** Defines the interval between successive runs. • **Daily.** Run a task on a daily basis. • **Weekly.** Run a task on a weekly basis. • **Monthly.** Run a task on a monthly basis. • **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.

UI Element (A–Z)	Description
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. • **Select All.** Select all the times. • **Clear Selection.** Clear all the selected times. • **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening

UI Element (A–Z)	Description
	the calendar, selecting the date and time, and clicking **OK**. **Note:** - When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**. - This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations. For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the Database Software Configuration Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes. General information about the activity is available in "Database Software Configuration Discovery Activity" on page 32.
Wizard Map	The "Database Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it. **Note:** If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.

Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone tree.
	
	     Note: If you selected **Activate Activity**, the activity is activated upon creation.
	
	 • **Edit mode:** Saves the changes to the activity.
	
	     Note: You cannot activate the activity from the wizard in Edit mode.

Chapter 5: Infrastructure Discovery Activity

The Infrastructure Discovery activity discovers the infrastructure in a management zone. Depending on the configuration, the Universal Discovery Agent may be installed, upgraded, or uninstalled on the discovery node.

> **Note:** The Infrastructure Discovery Activity should be run before all other discovery activities.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone **>** click 🔆 **>** select **New Discovery Activity > Infrastructure**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **Infrastructure Discovery Activity** contains: "Activity Name Page" > "Define Credentials Page" > "Preferences Page" > "Universal Discovery Agent Deployment Page" > "Schedule Discovery Page" > "Summary Page"
Relevant tasks	How to Install Universal Discovery Agent to Run Under a Non-Root Account on UNIX in the *HPE Universal CMDB Data Flow Management Guide*.
See also	• The section that describes the Universal Discovery Agent in the *HPE Universal CMDB Data Flow Management Guide*. • "Inventory Discovery Activity" on page 58

Activity Name Page

Enables you to configure a unique name for the Infrastructure Discovery activity.

Important Information	• Enter a unique name in the **Activity Name** field. • General information about the activity is available in "Infrastructure Discovery Activity" above. > **Note:** This screen does not appear when editing an existing discovery job.

Wizard Map	The "Infrastructure Discovery Activity" contains: **Activity Name Page** > "Define Credentials Page" > "Preferences Page" > "Universal Discovery Agent Deployment Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the Infrastructure Discovery activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Job names appear in some reports. These reports are located at **Modeling** > **Reports** > **Custom Reports** > **Discovery Status** and also at **Modeling** > **Reports** > **Custom Reports** > **Inventory**. See the section describing reports in the *HPE Universal CMDB Modeling Guide*. Job names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by the job. Job names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Define Credentials Page

Enables you to select and configure credentials for protocols that are used for discovery jobs.

Important information	• Configure credentials depending on what must be discovered and which protocols are supported on your site's network. • Credentials for protocols that were configured during Data Flow Probe setup are displayed on this page. For more information, see the section describing setting up the Data Flow Probe in the *HPE Universal CMDB Data Flow Management Guide*. • To see additional fields that are available for protocols, and for more information about field definitions for the Protocol Parameters dialog box, see the section about Supported Protocols in the *HPE UCMDB Discovery and IntegrationsContent Guide - Supported Content* document. • General information about the activity is available in "Infrastructure Discovery Activity" on the previous page.

Wizard map	The "Infrastructure Discovery Activity" contains: "Activity Name Page" > **Define Credentials Page** > "Preferences Page" > "Universal Discovery Agent Deployment Page" > "Schedule Discovery Page" > "Summary Page"

Protocol pane

Lists the protocols that are available for this activity.

User interface elements are described below:

UI Element	Description
⊞	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
⊟	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
⊡	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
⚠	Indicates that a protocol has no credentials.

Credentials pane

Lists the credentials for the selected protocol.

Important information	• To sort the credentials in a column in ascending or descending order, click the column header. • To edit parameters of a credentials, double-click a credential to open the Protocol Parameters dialog box. • When you right-click a credential, a menu is displayed. For more information about right-click menu options, see the section describing the Data Flow Probe Setup Window-Details pane in the *HPE Universal CMDB Data Flow Management Guide*.

User interface elements are described below:

UI Element	Description
*	**Create New Connection Details.** Opens the Protocol Parameters dialog box, enabling you to define credentials for the selected protocol. To determine which protocols require credentials for this activity, go to **Data Flow Management** > **Universal Discovery** > **Zone-Based Discovery** tab > **Activity Jobs** tab. Ensure that you create credentials for all of the protocols in the **Protocol** pane for the activity.
✖	**Remove Connection Details.** Removes the selected credential.
✎	**Edit Connection Details.** Opens the Protocol Parameters dialog box, enabling you to edit the credentials for the selected protocol.
⬆ ⬇	**Move Entry Up/Move Entry Down.** Enables you to move credentials up or down, enabling you to set the order in which selected credentials are used for the selected protocol. **Note:** Moving credentials affects the value in the **Index** column.
▣	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
▣	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
▣	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
Selected	Enables you to select credentials to use for the activity.
Index	Indicates the order in which the system selects credential instances to make a connection attempt. The lower the index, the higher the priority.
Scope	Indicates the network scope of the Data Flow Probe that uses the selected credential. This value is configured in the Protocol Parameter dialog box, in the **Network Scope** field. For more information, see the section describing the Protocol Parameter dialog box in the *HPE Universal CMDB Data Flow Management Guide*.
User Name	The description of the credential that is configured in the Protocol Parameters dialog box.
User Label	The description of the credential that is configured in the Protocol Parameters dialog box.

Preferences Page

Enables you to select preferences for the Infrastructure Discovery activity.

Important Information	• Select preferences relating to what information is discovered. • General information about the activity is available in "Infrastructure Discovery Activity" on page 44.
Wizard Map	The "Infrastructure Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > **Preferences Page** > "Universal Discovery Agent Deployment Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
IPv4 Ping Sweep Strategy for Data Center Ranges	Defines the strategy for discovering IPv4 addresses using the ICMP protocol. Select one of the following options: • **No Ping Sweep** • **Ping Sweep within the ranges of the Management Zone** • **Ping only discovered Class B or C Networks** • **Ping only discovered Class C Networks** **Note:** These options apply only to ranges that are configured as **Data Center** type. However the **Ping Sweep within the ranges of the Management Zone** option applies when performing discovery of Client type IP ranges without using SNMP. For more information, see the topic How to Discover Client IP Ranges Without SNMP in the *RTSM Data Flow Management Guide*.
Universal Discovery Protocol Connection Order	Specifies the order in which the Universal Discovery Protocol in used to connect to remote machines when the Host Connection by Shell job runs. Select one of the following options: **First.** The Universal Discovery Protocol is used first. **Last.** The Universal Discovery Protocol is used last.

UI Element	Description
	Note: • Applicable only when the Universal Discovery Protocol is selected for use in the Define Credentials page. • This setting is applied when the Host Connection by Shell job connects to the remote machine on the first attempt only.
Ping all IPv6 addresses within the ranges of the Management Zone	Enables a ping sweep of all the IPv6 addresses in the Management Zone.
IP/MAC Address Harvesting	Uses the SNMP protocol to connect to network devices to read ARP cache tables and then build associations between IP addresses and MAC addresses. If this check box is selected, enter a delay (in milliseconds) between SNMP request messages. **Note:** • If this option is selected, also select **Discover Network Devices in Client IP Ranges**. • Only applicable if **Client** is the **range** type. • Ensure that SNMP is configured on the DHCP server.
Discover Network Devices in Client IP Ranges	Select this check box to use SNMP to discover network nodes that are SNMP enabled. **Note:** • Only applicable if **Client** is the **range** type. • Ensure that SNMP is configured on the DHCP server.
Resolve DNS Names	Select this check box to resolve DNS names to IP addresses. If this check box is selected, enter fully qualified names or IP addresses of DNS servers you want to use for resolution. Use commas to separate each server.

UI Element	Description
	Note: If the check box is selected, but no name is entered in the field, the DNS server that is configured for the Data Flow Probe is used.
Microsoft Windows Domains	Select this check box to discover Windows domain controllers.

Universal Discovery Agent Deployment Page

Enables you to make Universal Discovery Agent configurations for the Infrastructure Discovery Activity.

Important Information	- Configure parameters for Universal Discovery Agents if you are using the activity to install or upgrade Universal Discovery Agents. - The maximum transfer rate for uploading and downloading files to and from the discovery node is defined in the **shellGlobalBandwidthLimit** parameter in the globalSettings.xml file. (**Data Flow Management > Adapter Management > Resources > Packages > AutoDiscoveryContent > Configuration Files**). Alternatively, you can view or set this value in the **Shell Bandwidth Limit** setting of the Management Zone General Settings. For details, see the section describing how to configure global settings for Management Zones in the *HPE Universal CMDB Data Flow Management Guide*. - General information about the activity is available in "Infrastructure Discovery Activity" on page 44.
Wizard Map	The "Infrastructure Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Preferences Page" > **Universal Discovery Agent Deployment Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Agent	Select the check box for the type of Universal Discovery Agent deployment.

UI Element (A–Z)	Description
Deployment	**Default**: Cleared If you want to run discovery without the Universal Discovery Agent, do not select any of these options. **Install UD Agent.** Installs a Universal Discovery Agent if no agent is currently installed. **Update UD Agent.** Updates the configuration of the Universal Discovery Agent. If you select the **Update UD Agent** check box, the following parameters are updated: **Software Utilization Period** **Primary Call Home Probe Address** **Secondary Call Home Probe Address** **Call Home Request Frequency** **Note:** When migrating a DDMI Agent to a UD Agent, use the **Migrate DDMI Agent** option. **Uninstall UD Agent.** Uninstalls a Universal Discovery Agent. **Migrate DDMI Agent.** Uninstalls a DDMI Agent and then installs a UD Agent. **Note:** Upgrading or uninstalling the Agent requires the same Universal Discovery (UD) Agent protocol credential that you used when you installed the Agent. For more information, see the section describing Universal Discovery Agent Certificates in the *HPE Universal CMDB Data Flow Management Guide*.
Install UD Agent to run under root account on UNIX machines	(UNIX only) - When selected, the UD Agent runs under the root account of the discovery node. - When this option is cleared, the UD Agent runs under the account that was used when installing the UD Agent. For more details about UD Agent deployment, see the section describing how to

UI Element (A–Z)	Description
	deploy the UD Agent in the *HPE Universal CMDB Data Flow Management Guide*.
Upgrade Agent	Specifies whether you want to upgrade the Universal Discovery Agent. If a new Content Pack was recently installed on the Data Flow Probe, the version information for the new Agent is compared to the version of the Agent that is currently installed on the discovery node. **Default**: Selected
Software Utilization Period	Select this check box to enable software utilization. If this option is selected, choose the time range for the data from the following: ● **31 days** ● **90 days** ● **365 days** For more information, see the section describing Software Utilization in the *HPE Universal CMDB Data Flow Management Guide*.

Primary Call Home Probe Address	Enter a primary IP address or host name for the Data Flow Probe server that you want to send Call Home messages to.
	
	Use one of the following formats:
	
	● Hostname (For example: probehost)
	
	● IP Address
	
	   ○ IPv4Address (For example: 10.11.12.13)
	
	   ○ IPv6Address (For example: 2010:836b:4179::836b:4179)
	
	● Full Path
	
	   ○ http://HostNameOrIPv4Address:Port/callhome (For example: http://probehost:1977/callhome)
	
	   ○ http://[IPv6Address]:Port/callhome (For example: http://[2010:836b:4179::836b:4179]:1977/callhome)
	
	Note:

UI Element (A–Z)	Description
	• Port 80 is used by default when no port number is specified. If port 80 is occupied, use a format that specifies port 1977 . • Ensure that you also select the **IP/MAC Address Harvesting** option on the Preferences page. For details, see "Preferences Page" on page 48. • For more information, see the section describing Call Home in the *HPE Universal CMDB Data Flow Management Guide*. • Separate each entry by using a comma. Multiple entries should only be used when you are running DDMI server and UCMDB in parallel. For more information, see the DDMI to Universal Discovery Migration Guide.
Secondary Call Home Probe Address	Enter a secondary IP address or host name for the Data Flow Probe server that you want to send Call Home messages to. See Primary Call Home Probe Address for formatting information.
Call Home Request Frequency	Enter the frequency (measured in days) that the Universal Discovery Agent contacts the Data Flow Probe for Call Home. **Default**: 3 days **Note:** If you want to disable the Call Home request, set this frequency as 999 days.
Credential for UD Agent Installation **Credential for UD Agent Update**	Select a credential to use. If no credentials are displayed, go back to the "Define Credentials Page" on page 45 and add a new Universal Discovery Agent credential. **Note:** The credential defined here is used to manage Universal Discovery Agent deployment (install/update/uninstall) only. UD credentials for running discovery jobs are defined on the "Define Credentials Page" on page 45. For a list of protocols, see the section about Supported Protocols in the *HPE UCMDB Discovery and IntegrationsContent Guide - Supported Content* document.

Schedule Discovery Page

Enables you to define a schedule for the Infrastructure Discovery activity.

| Important Information | Enables you to configure parameters and select time templates relating to the time and frequency that the Infrastructure Discovery activity runs.

General information about the activity is available in "Infrastructure Discovery Activity" on page 44. |
| --- | --- |
| Wizard Map | The "Infrastructure Discovery Activity" contains:

"Activity Name Page" > "Define Credentials Page" > "Preferences Page" > "Universal Discovery Agent Deployment Page" > **Schedule Discovery Page** > "Summary Page" |

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
🕘	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select multiple days.

- **Select All.** Select all the days.
- **Clear Selection.** Clear all the selected days.
- **Invert Selection.** Switch the selection. |
| **<Days of the week> (Sunday - Saturday)** | (Appears when you select **Weekly**.) Select the day or days on which the discovery activity should run. |

UI Element (A–Z)	Description
<Schedule options>	• **Once.** Define the task to run only once. • **Interval.** Defines the interval between successive runs. • **Daily.** Run a task on a daily basis. • **Weekly.** Run a task on a weekly basis. • **Monthly.** Run a task on a monthly basis. • **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. • **Select All.** Select all the times. • **Clear Selection.** Clear all the selected times. • **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box.

UI Element (A–Z)	Description
	Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** • When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**. • This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations. For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the Infrastructure Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes. General information about the activity is available in "Infrastructure Discovery Activity" on page 44.
Wizard Map	The "Infrastructure Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Preferences Page" > "Universal Discovery Agent Deployment Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it. **Note:** If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.
Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone tree. **Note:** If you selected **Activate Activity**, the activity is activated upon creation. • **Edit mode:** Saves the changes to the activity. **Note:** You cannot activate the activity from the wizard in Edit mode.

Chapter 6: Inventory Discovery Activity

Enables you to configure parameters for the Inventory Discovery activity. Depending on the configuration, the Scanner may be deployed to the discovery nodes that were discovered during the Infrastructure Discovery activity.

Tip: Run the Infrastructure Discovery activity before the Inventory Discovery activity.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone **>** click 🌼 **>** select **New Discovery Activity > Inventory**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **Inventory Discovery Activity** contains: "Activity Name Page" > "Preferences Page" > "Virtualization Page" > "Schedule Discovery Page" > "Summary Page"
See also	• The section that describes the Universal Discovery Agent in the *HPE Universal CMDB Data Flow Management Guide*. • "Infrastructure Discovery Activity" on page 44

Activity Name Page

Enables you to configure a name for the Inventory Discovery activity.

Important Information	• Enter a unique name for the Inventory Discovery activity. • General information about the activity is available in "Inventory Discovery Activity" above. **Note:** This screen is not displayed when editing an Inventory Discovery activity.
Wizard Map	The "Inventory Discovery Activity" contains: **Activity Name Page** > "Preferences Page" > "Virtualization Page" > "Schedule

	Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the Inventory Discovery activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Preferences Page

Enables you to select discovery types and options for the Inventory Discovery activity.

Important information	• General information about the activity is available in "Inventory Discovery Activity" on the previous page. • Click ⊠ to list options for the selected discovery type.
Wizard map	The "Inventory Discovery Activity" contains: "Activity Name Page" > **Preferences Page** > "Virtualization Page" > "Schedule Discovery Page" > "Summary Page"

Scanner-Based Inventory Discovery

Enables you to select detailed discovery options for scanner-based inventory discovery.

Important information	The maximum transfer rate for uploading and downloading files to and from the discovery node is defined in the **shellGlobalBandwidthLimit** parameter in the globalSettings.xml file (**Data Flow Management > Adapter Management > Resources > Packages > AutoDiscoveryContent > Configuration Files**. Alternatively, you can view or set this value in the **Shell Bandwidth Limit** setting of

| | the Management Zone General Settings. For details, see the section describing how to configure global settings for Management Zones in the *HPE Universal CMDB Data Flow Management Guide*. |

User interface elements are described below:

UI Element	Description
Scanner Based Inventory Discovery	Select to configure scanner-based inventory discovery.
Allow Scanner Downgrade	Specifies whether the scanner can be downgraded to an earlier version. **Note:** Select this option only if there are problems with the scanner and you want to revert to an earlier version. **Default:** Enabled
Allow Scanner Upgrade	Specifies whether the Scanner can be upgraded if a newer version is available. **Note:** Select if you plan to upgrade to a new Content Pack and want to test scanners before deployment. For more information on Content Packs, see the Universal Discovery Community web site (https://hpln.hp.com/group/universal-discovery/). **Default:** Enabled
Download Scan File Before Execution	Specifies whether the Data Flow Probe checks if the scan file on the discovery node is more current than the one on the Data Flow Probe server. If the file on the discovery node is newer, the scan file is downloaded. **Note:** Select if the Management Zone contains many mobile devices. **Default:** Enabled
Remove Scan Data	Specifies whether scan data are deleted from the discovery node immediately after the scan file has been copied to the Data Flow Probe. Removed files include the scanner executable, configuration files, and scan files. **Note:** • Do not use together with the **Delta Scanning** option that is configured in

UI Element	Description
	the **Scanner Generator**. For more information, see the section that describes the Scanner Generator in the *HPE Universal CMDB Data Flow Management Guide*. • Select when performing a one-time inventory discovery.
Run Pre/Post Scan Scripts	Specifies whether to run scripts that are configured to run on discovery nodes before and after scanning. **Note:** Scripts are global files and shared among Management Zones.
Script Maximum Run Time	Select or type the maximum amount of time UCMDB runs scripts. **Note:** Option is available only when **Run Pre/Post Scan Scripts** is selected. **Default:** 5 minutes
Edit scripts	Opens the Pre/Post Scan Script Editor dialog box, enabling you to customize scripts that run before and after scanning on discovery nodes. For more information, see the section that describes how to edit pre and post scan scripts in the *HPE Universal CMDB Data Flow Management Guide*.

Scanner Configuration

Enables you to select detailed preferences relating to scanner-based inventory discovery.

Important information	• Select preferences relating to the scanner configuration file (.cxz) that controls the Inventory Discovery workflow. • Click ☒ to list the scanner configuration options when scanner-based inventory discovery is selected.

User interface elements are described below:

UI Element	Description
Use One Scanner Configuration for All Platforms	Click to use the same scanner configuration file for all platforms. In the file name box, select the file you want to use. **Note:** You can create a new configuration file by using the

UI Element	Description
	Scanner Generator by clicking **New/Edit Scanner Configuration**.
Standalone Scanner Configuration for Each Platform	Click to specify the configuration file that you want to use for each platform. In each file name box, select a file. **Note:** You can create a new configuration file by using the Scanner Generator by clicking **New/Edit Scanner Configuration**.
New/Edit Scanner Configuration...	Starts the Scanner Generator to create a scanner configuration file. For more information about the Scanner Generator, see the section describing the Scanner Generator in the *HPE Universal CMDB Data Flow Management Guide*.

Mapping Options

Enables you to select detailed preferences relating to mapping data to UCMDB for scanner-based inventory discovery.

Important information	• Select options that send software data that are collected by the Scanner and contained in scan files to UCMDB. • Click ⊠ to list the mapping options when scanner-based inventory discovery is selected. • When writing regular expressions, observe the following guidelines: Enter a semicolon-separated regular expression. The following attributes are available: **name** **discovered_vendor** **version** **description** The dot character is allowed. For example, "a.c" matches "abc". Additionally, the asterisk character is allowed. For example, "ab*c" matches "ac", "abc", and

"abbbc".

For example, assume you type the following string (ignore quotes):
"name=my.*;discovered_vendor=HP;version=1.*;description=UCMDB".

In this example, applications are included or excluded if the application name
begins with the characters "my", the vendor name matches "HP" exactly, the
version number begins with "1", and the description string matches "UCMDB"
exactly.

For more information, see the section describing regular expressions in the *HPE
Universal CMDB Modeling Guide*.

User interface elements are described below:

UI Element	Description
Custom Mapping...	Click to open the **Hardware Mapping Configuration** wizard where you can configure mappings between scan file attributes and UCMDB CIs. For more information, see the section that describes the Hardware Mapping Configuration wizard in the *HPE Universal CMDB Data Flow Management Guide*.
Software Recognition Configuration	Click **Software Recognition Configuration** to open the **XML Enricher** where you can configure options for software recognition and for software utilization processing. For more information about software recognition configuration, see the section describing configuration of the XML Enricher in the *HPE Universal CMDB Data Flow Management Guide*.
Restore To Default	Click to restore the screen to the default values. **Caution:** All changes are lost.
Detailed Node Data (Configuration Document)	Select this check box to send data about personalized configurations. For example, environment variables.
Model Per User Data When Number of	In the **Users** box, type or select the minimum

UI Element	Description
User is at Least	numbers of users of an application to map utilization data. • If the number of software users is less than the value that is entered, per-user software utilization data are not sent to UCMDB. • If you want to model software utilization per user in UCMDB, set this value to 1. **Note:** Performance may be affected by this action.
Normalized Applications- Exclude	Names of installed applications which are contained in the Normalized section of the scan file that you do not want to send to UCMDB. Use a regular expression. For more information on how to create regular expressions, see "Important information" on page 62.
Normalized Applications- Include	Names of installed applications that are contained in the Normalized section of the scan file, which you want to send to UCMDB. If this field is blank, all installed applications that are detected are included. Use a regular expression. For more information on how to create regular expressions, see "Important information" on page 62.
Normalized Installed Software	Select this check box to send data about installed software applications that are detected in the file system of the discovery node. If this check box is selected, more options are displayed. Normalized application data are contained in the Normalized section of the scan file. **Note:** The Software Application Index (SAI) is used to generate normalized installed software information. For more information, see the section describing SAIs in the *HPE Universal*

UI Element	Description
	CMDB Data Flow Management Guide.
Partially Recognized Applications	Select this check box to parse and send information about software that is only partially matched using the SAI. This may indicate that a different version of the application might be installed. **Default:** Enabled **Note:** • Use when discovered applications are only partially matched. • Partial recognition results should be reviewed to ensure accuracy and may in some cases result in customers deciding to add new entries to their SAI.
Raw OS Installed Software	Select this check box to send data about installed applications that are known to the operating system of the discovery node. For Windows computers, it collects data about software that are listed in the **Control Panel** > **Add/Remove Programs** or **Programs and Features**. For UNIX computers, it collects data about software from the **system package manager**. **Note:** If you use the **Inventory Discovery by Scanner** job to collect the **Comments** information for the installed software, select and configure this check box.
Raw OS Installed Software-Exclude	Use a regular expression to enter names of installed applications that are contained in the Raw OS section of the scan file, which you do not want to send to UCMDB. If this field is blank, all installed applications are excluded. For more information on how to create regular

UI Element	Description
	expressions, see "Important information" on page 62.
Raw OS Installed Software-Include	Use a regular expression to enter names of installed applications that are contained in the Raw OS section of the scan file, which you want to send to UCMDB. If this field is blank, all installed applications are excluded. However, if this field is blank and applications are listed in the **Normalized Applications-Include** setting, the included applications are added. For more information on how to create regular expressions, see "Important information" on page 62.
Report Free Software	Specifies whether to report installed applications that are associated with free licenses to UCMDB. **Note:** Installed applications that are associated with unknown or with commercial licenses are reported to UCMDB by default. **Default:** Enabled
Services (Daemons)	Select this check box to send data about services and daemons on the discovery node.
Software Utilization	Select this check box to enable mapping of software utilization information. This information is required for recognition of used applications and executables that were executed. For more information, see the section describing Software Utilization in the *HPE Universal CMDB Data Flow Management Guide*.

SNMP Discovery Options

Enables you to select detailed preferences for the SNMP discovery options.

Important information	• Select preferences relating to the type of information that is collected during the SNMP discovery.
	• Click ⊠ to list the SNMP discovery options when scanner-based inventory discovery is selected.

User interface elements are described below:

UI Element	Description
Host Information	Select the check box for the information that you want to discover. • Disks • Installed Software • Modules • Processes • Services

Basic Inventory Discovery Options

Enables you to select detailed preferences for the basic inventory discovery options.

Important information	• Select preferences relating to the type of information that is collected during a script-based discovery. This option is best suited for data center environments.
	• Click ⊠ to list the options when basic inventory discovery is selected.

User interface elements are described below:

UI Element (A–Z)	Description
Basic Inventory Discovery (Data Center only)	Select to use Jython scripts that run on the Data Flow Probe.These scripts connect to discovery nodes, run commands, and then gather discovery information.
Host Information	Select the check box for the information that you want to discover. • CPUs

UI Element (A–Z)	Description
	- Disks - Drivers - Fibre Channel HBAs - Installed Software - iSCSI - Memory - Modules - Processes - Services - Shares

Virtualization Page

Enables you to select detailed preferences for the virtualization discovery option.

Important information	- General information about the activity is available in "Inventory Discovery Activity" on page 58. - Select preferences relating to discovering virtual topologies using scanner-based inventory discovery or basic inventory discovery. - Click ⊠ to list the options that are available.
Wizard map	The "Inventory Discovery Activity" contains: "Activity Name Page" > "Preferences Page" > **Virtualization Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Include Virtualization Topology	Select to discover virtualization topologies for the following platforms: - VMware - Microsoft Hyper-V

UI Element	Description
	• Solaris Zones **Note:** • Only shallow topologies are discovered. • Either scanner-based inventory discovery or basic inventory discovery must be selected.
VMware SDK Libraries	Select to include VMware SDK libraries. **Note:** Only Jar files are imported.
Import file...	Opens the Import File dialog box where you select the file that you want to import. **Note:** You can import many files.
Clear	Clears all of the files.

Schedule Discovery Page

Enables you to define a schedule for the Inventory Discovery activity.

Important Information	• No matter what schedule is defined for this activity, the **Inventory Discovery by Scanner** job is designed to be run every 14 days and this period cannot be changed.
	• General information about the activity is available in "Inventory Discovery Activity" on page 58.
Wizard Map	The "Inventory Discovery Activity" contains:
	"Activity Name Page" > "Preferences Page" > "Virtualization Page" > **Schedule Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
🕑	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select multiple days.
	• 📋 **Select All.** Select all the days.
	• 📋 **Clear Selection.** Clear all the selected days.
	• 📋 **Invert Selection.** Switch the selection.

UI Element (A–Z)	Description
<Days of the week> (Sunday - Saturday)	(Appears when you select **Weekly**.) Select the day or days on which the discovery activity should run.
<Schedule options>	**Once.** Define the task to run only once. **Interval.** Defines the interval between successive runs. **Daily.** Run a task on a daily basis. **Weekly.** Run a task on a weekly basis. **Monthly.** Run a task on a monthly basis. **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. **Select All.** Select all the times. **Clear Selection.** Clear all the selected times.

UI Element (A–Z)	Description
	• **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** • When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**. • This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations.

UI Element (A–Z)	Description
	For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the Inventory Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes. General information about the activity is available in "Inventory Discovery Activity" on page 58.
Wizard Map	The "Inventory Discovery Activity" contains: "Activity Name Page" > "Preferences Page" > "Virtualization Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it. **Note:** If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.

Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone tree.
	
	  Note: If you selected **Activate Activity**, the activity is activated upon creation.
	
	• **Edit mode:** Saves the changes to the activity.
	
	  Note: You cannot activate the activity from the wizard in Edit mode.

Chapter 7: JavaEE Software Configuration Discovery Activity

The JavaEE Software Configuration Discovery activity discovers detailed configuration information about your data center Java Enterprise Edition deployments.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone > click ✳ > select **New Discovery Activity > Software Configuration > JavaEE**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **JavaEE Software Configuration Discovery Activity** contains: "Activity Name Page" > "Define Credentials Page" > "JavaEE Port Scanning Page" > "JavaEE Discovery by JMX Protocol Page" > "JavaEE Discovery by Shell Protocol Page" > "Schedule Discovery Page" > "Summary Page"

Activity Name Page

Enables you to configure a name for the JavaEE Software Configuration Discovery activity.

Important Information	- Enter a unique name for the JavaEE Software Configuration Discovery activity. - General information about the activity is available in "JavaEE Software Configuration Discovery Activity" above. **Note:** This screen is not displayed when editing a Basic Software Configuration Discovery activity.
Wizard Map	The "JavaEE Software Configuration Discovery Activity" contains: **Activity Name Page** > "Define Credentials Page" > "JavaEE Port Scanning Page" > "JavaEE Discovery by JMX Protocol Page" > "JavaEE Discovery by Shell Protocol Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the JavaEE Software Configuration Discovery activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Define Credentials Page

Enables you to select and configure credentials for protocols that are used for discovery jobs.

Important information	• Configure credentials depending on what must be discovered and which protocols are supported on your site's network. • Credentials for protocols that were configured during Data Flow Probe setup are displayed on this page. For more information, see the section describing setting up the Data Flow Probe in the *HPE Universal CMDB Data Flow Management Guide*. • To see additional fields that are available for protocols, and for more information about field definitions for the Protocol Parameters dialog box, see the section about Supported Protocols in the *HPE UCMDB Discovery and IntegrationsContent Guide - Supported Content* document. • General information about the activity is available in "JavaEE Software Configuration Discovery Activity" on the previous page.
Wizard map	The "JavaEE Software Configuration Discovery Activity" contains: "Activity Name Page" > **Define Credentials Page** > "JavaEE Port Scanning Page" > "JavaEE Discovery by JMX Protocol Page" > "JavaEE Discovery by Shell Protocol Page" > "Schedule Discovery Page" > "Summary Page"

Protocol pane

Lists the protocols that are available for this activity.

User interface elements are described below:

UI Element	Description
	Select All. Selects all protocols or selects all credentials for a selected protocol.
	Clear Selections. Clears all selected credentials or clears all selected protocols.
	Invert Selections. All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
	Indicates that a protocol has no credentials.

Credentials pane

Lists the credentials for the selected protocol.

Important information	• To sort the credentials in a column in ascending or descending order, click the column header. • To edit parameters of a credentials, double-click a credential to open the Protocol Parameters dialog box. • When you right-click a credential, a menu is displayed. For more information about right-click menu options, see the section describing the Data Flow Probe Setup Window-Details pane in the *HPE Universal CMDB Data Flow Management Guide*.

User interface elements are described below:

UI Element	Description
*	**Create New Connection Details.** Opens the Protocol Parameters dialog box, enabling you to define credentials for the selected protocol. To determine which protocols require credentials for this activity, go to **Data Flow Management** > **Universal Discovery** > **Zone-Based Discovery** tab > **Activity Jobs** tab. Ensure that you create credentials for all of the protocols in the **Protocol** pane for the activity.
✖	**Remove Connection Details.** Removes the selected credential.

UI Element	Description
✏️	**Edit Connection Details.** Opens the Protocol Parameters dialog box, enabling you to edit the credentials for the selected protocol.
⬆️ ⬇️	**Move Entry Up/Move Entry Down.** Enables you to move credentials up or down, enabling you to set the order in which selected credentials are used for the selected protocol. **Note:** Moving credentials affects the value in the **Index** column.
🗔	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
🗔	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
🗔	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
Selected	Enables you to select credentials to use for the activity.
Index	Indicates the order in which the system selects credential instances to make a connection attempt. The lower the index, the higher the priority.
Scope	Indicates the network scope of the Data Flow Probe that uses the selected credential. This value is configured in the Protocol Parameter dialog box, in the **Network Scope** field. For more information, see the section describing the Protocol Parameter dialog box in the *HPE Universal CMDB Data Flow Management Guide*.
User Name	The description of the credential that is configured in the Protocol Parameters dialog box.
User Label	The description of the credential that is configured in the Protocol Parameters dialog box.
Port Number	The port number that is configured in the Protocol Parameters dialog box.

JavaEE Port Scanning Page

Enables you to configure the ports to be scanned.

Important Information	General information about the wizard is available in "JavaEE Software Configuration Discovery Activity" on page 75.
Wizard Map	The "JavaEE Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > **JavaEE Port Scanning Page** > "JavaEE Discovery by JMX Protocol Page" > "JavaEE Discovery by Shell Protocol Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
⊕	**Add port.** Opens the **Chose TCP Ports to Scan** dialog box, enabling you to select ports to be scanned.
✖	**Remove Port.** Enables you to remove a selected port from the list.

JavaEE Discovery by JMX Protocol Page

Enables you to select detailed preferences for the JavaEE Software Configuration Discovery activity using the JMX protocol.

Important Information	General information about the wizard is available in "JavaEE Software Configuration Discovery Activity" on page 75.
Wizard Map	The "JavaEE Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "JavaEE Port Scanning Page" > **JavaEE Discovery by JMX Protocol Page** > "JavaEE Discovery by Shell Protocol Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Discover WebLogic Application Server	Select the check box to enable WebLogic Application Server discovery. Click the ⊠ button beside **Discovery Options** to display the available options. Select the check box for the versions to be discovered. Click **Import file...**

UI Element	Description

	to locate the appropriate WebLogic JAR file, as listed below.
	
	• **WebLogic version 9.x**
	
	• **WebLogic version 10.x**
	
	For these versions, locate:
	
	   ○ wlclient.jar
	
	   ○ wljmxclient.jar
	
	For an SSL based discovery, select wlcipher.jar and the client trust store JKS file. (For example, DemoTrust.jks.)

Discover WebSphere Application Server	Select the check box to enable WebSphere Application Server discovery. Click the ⊗ button beside **Discovery Options** to display the available option: • **WebSphere JKS** For secure connection to WebSphere, select this option and click **Import file...** to locate the appropriate JKS file.
Discover JBoss Application Server	Select the check box to enable JBoss Application server discovery. Click the ⊗ button beside **Discovery Options** to display the available options. Select the check box for the versions to be discovered. Click **Import file...** to locate the **jbossall-client.jar** JBOSS JAR file.

JavaEE Discovery by Shell Protocol Page

Enables you to select detailed preferences for the JavaEE Software Configuration Discovery activity using Shell protocols (SSH, Telnet, NTCMD, or Universal Discovery).

Important Information	General information about the wizard is available in "JavaEE Software Configuration Discovery Activity" on page 75.
Wizard Map	The "JavaEE Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "JavaEE Port Scanning Page" > "JavaEE Discovery by JMX Protocol Page" > **JavaEE Discovery by Shell Protocol**

	Page > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Discover WebLogic Application Server	Select the check box to enable WebLogic Application Server discovery.
Discover WebSphere Application Server	Select the check box to enable WebSphere Application Server discovery.
Discover JBoss Application Server	Select the check box to enable JBoss Application server discovery.
Discover Oracle Application Server version 10g	Select the check box to enable Oracle Application Server version 10g discovery.
Discover Apache Tomcat Application Server	Select the check box to enable Apache Tomcat Application server discovery.
Discover Glassfish Application Server	Select the check box to enable Glassfish Application server discovery. Click the ▥ button beside **Discovery Options** to display the available option: • **Report Administrative Application** Select this check box to enable reporting of administrative applications.

Schedule Discovery Page

Enables you to define a schedule for the JavaEE Software Configuration Discovery activity.

Important Information	General information about the activity is available in "JavaEE Software Configuration Discovery Activity" on page 75.
Wizard Map	The "JavaEE Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "JavaEE Port Scanning Page" > "JavaEE Discovery by JMX Protocol Page" > "JavaEE Discovery by Shell Protocol Page" > **Schedule Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
🕐	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select multiple days. • **Select All.** Select all the days. • **Clear Selection.** Clear all the selected days. • **Invert Selection.** Switch the selection.
<Days of the	(Appears when you select **Weekly**.) Select the day or days on which the discovery

UI Element (A–Z)	Description
week> (Sunday - Saturday)	activity should run.
<Schedule options>	- **Once.** Define the task to run only once. - **Interval.** Defines the interval between successive runs. - **Daily.** Run a task on a daily basis. - **Weekly.** Run a task on a weekly basis. - **Monthly.** Run a task on a monthly basis. - **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**. > **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. - **Select All.** Select all the times. - **Clear Selection.** Clear all the selected times.

UI Element (A–Z)	Description
	• **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** • When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**. • This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations.

UI Element (A–Z)	Description
	For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the JavaEE Software Configuration Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes.
	General information about the activity is available in "JavaEE Software Configuration Discovery Activity" on page 75.
Wizard Map	The "JavaEE Software Configuration Discovery Activity" contains:
	"Activity Name Page" > "Define Credentials Page" > "JavaEE Port Scanning Page" > "JavaEE Discovery by JMX Protocol Page" > "JavaEE Discovery by Shell Protocol Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it.
	Note: If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.
Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone tree.
	Note: If you selected **Activate Activity**, the activity is activated upon creation.
	• **Edit mode:** Saves the changes to the activity.
	Note: You cannot activate the activity from the wizard in Edit mode.

Chapter 8: Message Queue Software Configuration Discovery Activity

The Message Queue Software Configuration Discovery activity discovers message queue software configuration information to detect and map out what is running in your data center.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone **>** click [icon] **>** select **New Discovery Activity > Software Configuration > Message Queue**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **Message Queue Software Configuration Discovery Activity** contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" >"Schedule Discovery Page" > "Summary Page"

Activity Name Page

Enables you to configure a name for the Message Queue Software Configuration Discovery activity.

Important Information	• Enter a unique name for the Message Queue Software Configuration Discovery activity. • General information about the activity is available in "Message Queue Software Configuration Discovery Activity" above. **Note:** This screen is not displayed when editing a Message Queue Software Configuration Discovery activity.
Wizard Map	The "Message Queue Software Configuration Discovery Activity" contains: **Activity Name Page** > "Define Credentials Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the Message Queue Software Configuration activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Define Credentials Page

Enables you to select and configure credentials for protocols that are used for discovery jobs.

Important information	• Configure credentials depending on what must be discovered and which protocols are supported on your site's network. • Credentials for protocols that were configured during Data Flow Probe setup are displayed on this page. For more information, see the section describing setting up the Data Flow Probe in the *HPE Universal CMDB Data Flow Management Guide*. • To see additional fields that are available for protocols, and for more information about field definitions for the Protocol Parameters dialog box, see the section about Supported Protocols in the *HPE UCMDB Discovery and IntegrationsContent Guide - Supported Content* document. • General information about the activity is available in "Message Queue Software Configuration Discovery Activity" on the previous page.
Wizard map	The "Message Queue Software Configuration Discovery Activity" contains: "Activity Name Page" > **Define Credentials Page** > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Protocol pane

Lists the protocols that are available for this activity.

User interface elements are described below:

UI Element	Description
⊞	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
⊟	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
⊞	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
⚠	Indicates that a protocol has no credentials.

Credentials pane

Lists the credentials for the selected protocol.

Important information	• To sort the credentials in a column in ascending or descending order, click the column header.
	• To edit parameters of a credentials, double-click a credential to open the Protocol Parameters dialog box.
	• When you right-click a credential, a menu is displayed. For more information about right-click menu options, see the section describing the Data Flow Probe Setup Window-Details pane in the *HPE Universal CMDB Data Flow Management Guide*.

User interface elements are described below:

UI Element	Description
✳	**Create New Connection Details.** Opens the Protocol Parameters dialog box, enabling you to define credentials for the selected protocol. To determine which protocols require credentials for this activity, go to **Data Flow Management** > **Universal Discovery** > **Zone-Based Discovery** tab > **Activity Jobs** tab. Ensure that you create credentials for all of the protocols in the **Protocol** pane for the activity.
✖	**Remove Connection Details.** Removes the selected credential.
✎	**Edit Connection Details.** Opens the Protocol Parameters dialog box, enabling

UI Element	Description
	you to edit the credentials for the selected protocol.
⬆ ⬇	**Move Entry Up/Move Entry Down.** Enables you to move credentials up or down, enabling you to set the order in which selected credentials are used for the selected protocol. **Note:** Moving credentials affects the value in the **Index** column.
🗏	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
🗏	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
🗏	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
Selected	Enables you to select credentials to use for the activity.
Index	Indicates the order in which the system selects credential instances to make a connection attempt. The lower the index, the higher the priority.
Scope	Indicates the network scope of the Data Flow Probe that uses the selected credential. This value is configured in the Protocol Parameter dialog box, in the **Network Scope** field. For more information, see the section describing the Protocol Parameter dialog box in the *HPE Universal CMDB Data Flow Management Guide*.
User Name	The description of the credential that is configured in the Protocol Parameters dialog box.
LDAP authentication method	The LDAP authentication method of the credential that is configured in the Protocol Parameters dialog box.
User Label	The description of the credential that is configured in the Protocol Parameters dialog box.
Protocol	Indicates the protocol is LDAP or LDAPS.
Port Number	The port number that is configured in the Protocol Parameters dialog box.

Discovery Preferences Page

Enables you to select detailed preferences for the Message Queue Software Configuration Discovery activity.

Important Information	General information about the wizard is available in "Message Queue Software Configuration Discovery Activity" on page 87.
Wizard Map	The "Message Queue Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > **Discovery Preferences Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Run WebSphere Message Queue Discovery	Select the check box to run WebSphere Message Queue discovery. Click the ⊠ button beside **Discovery Options** to display the available options: • **Discover Dynamic Queue** Select to enable discovery of permanent and temporary dynamic queues. • **Discover hosts** Select to enable resolution and discovery of remote servers and MQ objects referenced by the server that is discovered. If this check box is cleared, relationships between MQ objects on different servers cannot be discovered. • **Use sudo command** Select to enable use of the **sudo** command. ○ **Select to customize sudo command** This parameter must be set if the **use_sudo** parameter is set to true. Any entry here is prefixed to the MQ command line interface program. This parameter is typically used to set the MQ user name. For example, if this parameter is set to **sudo -u mqm**, the **runmqsc**

UI Element	Description
	command is invoked as **sudo -u mqm runmqsc**. • **Command timeout** Select to specify the WebSphere command timeout. • **Path to mqver or dspmqver** Path to the **mqver** or **dspmqver** executables. **Note:** Multiple entries must be separated by a semicolon (;).
Run Microsoft Message Queue Discovery by LDAP	Select the check box to run Microsoft Message Queue Discovery by LDAP. Click the ⌅ button beside **Discovery Options** to display the available option: • **Base Domain Name** Select to change the Base Domain Name.
Run Microsoft Message Queue Discovery by NTCMD	Select the check box to run Microsoft Message Queue Discovery by NTCMD.

Schedule Discovery Page

Enables you to define a schedule for the Message Queue Software Configuration Discovery activity.

Important Information	General information about the activity is available in "Message Queue Software Configuration Discovery Activity" on page 87.
Wizard Map	The "Message Queue Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" > **Schedule Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
🕐	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select multiple days. • 📋 **Select All.** Select all the days. • 📋 **Clear Selection.** Clear all the selected days. • 📋 **Invert Selection.** Switch the selection.
<Days of the week> (Sunday - Saturday)	(Appears when you select **Weekly**.) Select the day or days on which the discovery activity should run.
<Schedule options>	• **Once.** Define the task to run only once. • **Interval.** Defines the interval between successive runs. • **Daily.** Run a task on a daily basis. • **Weekly.** Run a task on a weekly basis. • **Monthly.** Run a task on a monthly basis. • **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.

UI Element (A–Z)	Description
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. • **Select All.** Select all the times. • **Clear Selection.** Clear all the selected times. • **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs.

UI Element (A–Z)	Description
	Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** - When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**. - This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations. For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the Message Queue Software Configuration Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes. General information about the activity is available in "Message Queue Software

	Configuration Discovery Activity" on page 87.
Wizard Map	The "Message Queue Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it. **Note:** If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.

Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone tree.
	
	    Note: If you selected **Activate Activity**, the activity is activated upon creation.
	
	• **Edit mode:** Saves the changes to the activity.
	
	    Note: You cannot activate the activity from the wizard in Edit mode.

Chapter 9: SAP Software Configuration Discovery Activity

The SAP Software Configuration Discovery activity maps your SAP applications to help you understand and track changes to your SAP deployment.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone **>** click ✳ **>** select **New Discovery Activity > Software Configuration > SAP**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **SAP Software Configuration Discovery Activity** contains: "Activity Name Page" > "Define Credentials Page" > "SAP Ports Scanning Page" > "SAP Discovery by JCO Page" > "SAP Java Topology by JMX Page" > "SAP Topology by Shell Page" > "Schedule Discovery Page" > "Summary Page"

Activity Name Page

Enables you to configure a name for the SAP Software Configuration Discovery activity.

Important Information	• Enter a unique name for the SAP Software Configuration Discovery activity. • General information about the activity is available in "SAP Software Configuration Discovery Activity" above. **Note:** This screen is not displayed when editing a Basic Software Configuration Discovery activity.
Wizard Map	The "SAP Software Configuration Discovery Activity" contains: **Activity Name Page** > "Define Credentials Page" > "SAP Ports Scanning Page" > "SAP Discovery by JCO Page" > "SAP Java Topology by JMX Page" > "SAP Topology by Shell Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the SAP Software Configuration Discovery activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Define Credentials Page

Enables you to select and configure credentials for protocols that are used for discovery jobs.

Important information	• Configure credentials depending on what must be discovered and which protocols are supported on your site's network. • Credentials for protocols that were configured during Data Flow Probe setup are displayed on this page. For more information, see the section describing setting up the Data Flow Probe in the *HPE Universal CMDB Data Flow Management Guide*. • To see additional fields that are available for protocols, and for more information about field definitions for the Protocol Parameters dialog box, see the section about Supported Protocols in the *HPE UCMDB Discovery and IntegrationsContent Guide - Supported Content* document. • General information about the activity is available in "SAP Software Configuration Discovery Activity" on the previous page.
Wizard map	The "SAP Software Configuration Discovery Activity" contains: "Activity Name Page" > **Define Credentials Page** > "SAP Ports Scanning Page" > "SAP Discovery by JCO Page" > "SAP Java Topology by JMX Page" > "SAP Topology by Shell Page" > "Schedule Discovery Page" > "Summary Page"

Protocol pane

Lists the protocols that are available for this activity.

User interface elements are described below:

UI Element	Description
	Select All. Selects all protocols or selects all credentials for a selected protocol.
	Clear Selections. Clears all selected credentials or clears all selected protocols.
	Invert Selections. All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
	Indicates that a protocol has no credentials.

Credentials pane

Lists the credentials for the selected protocol.

Important information	- To sort the credentials in a column in ascending or descending order, click the column header. - To edit parameters of a credentials, double-click a credential to open the Protocol Parameters dialog box. - When you right-click a credential, a menu is displayed. For more information about right-click menu options, see the section describing the Data Flow Probe Setup Window-Details pane in the *HPE Universal CMDB Data Flow Management Guide*.

User interface elements are described below:

UI Element	Description
	Create New Connection Details. Opens the Protocol Parameters dialog box, enabling you to define credentials for the selected protocol. To determine which protocols require credentials for this activity, go to **Data Flow Management** > **Universal Discovery** > **Zone-Based Discovery** tab > **Activity Jobs** tab. Ensure that you create credentials for all of the protocols in the **Protocol** pane for the activity.
	Remove Connection Details. Removes the selected credential.

UI Element	Description
✏️	**Edit Connection Details.** Opens the Protocol Parameters dialog box, enabling you to edit the credentials for the selected protocol.
⬆️ ⬇️	**Move Entry Up/Move Entry Down.** Enables you to move credentials up or down, enabling you to set the order in which selected credentials are used for the selected protocol. **Note:** Moving credentials affects the value in the **Index** column.
🔲	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
🔲	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
🔲	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
Selected	Enables you to select credentials to use for the activity.
Index	Indicates the order in which the system selects credential instances to make a connection attempt. The lower the index, the higher the priority.
Scope	Indicates the network scope of the Data Flow Probe that uses the selected credential. This value is configured in the Protocol Parameter dialog box, in the **Network Scope** field. For more information, see the section describing the Protocol Parameter dialog box in the *HPE Universal CMDB Data Flow Management Guide*.
User Name	The description of the credential that is configured in the Protocol Parameters dialog box.
User Label	The description of the credential that is configured in the Protocol Parameters dialog box.
Port Number	The port number that is configured in the Protocol Parameters dialog box.

SAP Ports Scanning Page

Enables you to configure the ports to be scanned.

Important Information	General information about the wizard is available in "SAP Software Configuration Discovery Activity" on page 97.
Wizard Map	The "SAP Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > **SAP Port Scanning Page** > "SAP Discovery by JCO Page" > "SAP Java Topology by JMX Page" > "SAP Topology by Shell Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
![add]	**Add port.** Opens the **Chose TCP Ports to Scan** dialog box, enabling you to select ports to be scanned.
![remove]	**Remove Port.** Enables you to remove a selected port from the list.

SAP Discovery by JCO Page

Enables you to select detailed preferences for the SAP Software Configuration Discovery activity using the JCO protocol.

Important Information	General information about the wizard is available in "SAP Software Configuration Discovery Activity" on page 97.
Wizard Map	The "SAP Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "SAP Ports Scanning Page" > **SAP Discovery by JCO Page** > "SAP Java Topology by JMX Page" > "SAP Topology by Shell Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
SAP JCO Drivers	Select the check box and click **Import file...** to locate the appropriate SAP JCo files as follows: **JCo version 3.x** (3.07 and later) • sapjco3.jar

UI Element	Description
	• sapjco3.dll **JCo version 2.x** • sapjco.jar • sapjcorfc.dll • librfc32.dll

Discover SAP ABAP Topology	Select the check box to enable SAP ABAP Topology discovery.
	
	Click the ⊠ button beside **Discovery Options** to display the available options.
	
	• **Discover RFC Connections**
	
	  Select this check box to enable discovery of RFC connections of the SAP system.
	
	• **Discover SAP Server Profiles**
	
	  Select this check box to enable discovery of SAP profiles by querying the SAP database.
	
	• **Report Software Components as configuration file**
	
	  Select this check box to enable reporting of Software Components as a configuration file. If unselected, each Software Component is reported as a separate CI.

Discover SAP Applications	Select the check box to enable SAP Applications discovery.
	
	Click the ⊠ button beside **Discovery Options** to display the available options.
	
	• **SAP application components discovery**
	
	  Select this check box to enable discovery of SAP application components.
	
	• **SAP transactions discovery**
	
	  Select either or both check boxes to enable discovery of active transactions, or all transactions, as required.
	
	• **Discover transaction changes**
	
	  Select this check box to enable discovery of transaction changes. Complete the following to specify the time period for the discovery:
	
	  ○ Transaction changes interval; this is the number of days before the current date

UI Element	Description
	○ Transaction changes start date
	○ Transaction changes start time
	○ Transaction changes end date
	○ Transaction changes end time
Discover SAP Business Layer	Select the check box to enable SAP Business Layer discovery.
Discover SAP Solution Manager	Select the check box to enable SAP Solution Manager Topology discovery.

SAP Java Topology by JMX Page

Enables you to select detailed preferences for the SAP Software Configuration Discovery activity using the JMX protocol.

Important Information	General information about the wizard is available in "SAP Software Configuration Discovery Activity" on page 97.
Wizard Map	The "SAP Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "SAP Ports Scanning Page" > "SAP Discovery by JCO Page" > **SAP Java Topology by JMX Page** > "SAP Topology by Shell Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Discover SAP Java Topology	Select the check box to enable SAP Java Topology discovery. Click the ⬚ button beside **Discovery Options** to display the available options. Select the check box for the versions to be discovered. Click **Import file...** to locate the following files: • **exception.jar** • **logging.jar** • **sapj2eeclient.jar** • **sapxmltoolkit.jar**

SAP Topology by Shell Page

Enables you to select detailed preferences for the SAP Software Configuration Discovery activity using Shell protocols.

Important Information	General information about the wizard is available in "SAP Software Configuration Discovery Activity" on page 97.
Wizard Map	The "SAP Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "SAP Ports Scanning Page" > "SAP Discovery by JCO Page" > "SAP Java Topology by JMX Page" > **SAP Topology Discovery by Shell Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Discover SAP ITS	Select the check box to enable SAP Internet Transaction Server discovery.

Schedule Discovery Page

Enables you to define a schedule for the SAP Software Configuration Discovery activity.

Important Information	General information about the wizard is available in "SAP Software Configuration Discovery Activity" on page 97.
Wizard Map	The "SAP Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "SAP Ports Scanning Page" > "SAP Discovery by JCO Page" > "SAP Java Topology by JMX Page" > "SAP Topology by Shell Page" > **Shell Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select multiple days. • **Select All.** Select all the days. • **Clear Selection.** Clear all the selected days. • **Invert Selection.** Switch the selection.
<Days of the	(Appears when you select **Weekly**.) Select the day or days on which the discovery

UI Element (A–Z)	Description
week> (Sunday - Saturday)	activity should run.
<Schedule options>	• **Once.** Define the task to run only once. • **Interval.** Defines the interval between successive runs. • **Daily.** Run a task on a daily basis. • **Weekly.** Run a task on a weekly basis. • **Monthly.** Run a task on a monthly basis. • **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. • **Select All.** Select all the times. • **Clear Selection.** Clear all the selected times.

UI Element (A–Z)	Description
	• ⊞ **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** • When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**. • This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations.

UI Element (A–Z)	Description
	For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the SAP Software Configuration Discovery activity.

Important Information	General information about the wizard is available in "SAP Software Configuration Discovery Activity" on page 97.
Wizard Map	The "SAP Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "SAP Ports Scanning Page" > "SAP Discovery by JCO Page" > "SAP Java Topology by JMX Page" > "SAP Topology by Shell Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it. **Note:** If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.
Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone tree. **Note:** If you selected **Activate Activity**, the activity is activated upon creation. • **Edit mode:** Saves the changes to the activity. **Note:** You cannot activate the activity from the wizard in Edit mode.

Chapter 10: Virtualization Software Configuration Discovery Activity

The Virtualization Software Configuration Discovery activity discovers virtualization software configuration information to detect and map out what is running in your data center.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone **>** click 🌼 **>** select **New Discovery Activity > Software Configuration > Virtualization**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **Virtualization Software Configuration Discovery Activity** contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Activity Name Page

Enables you to configure a name for the Virtualization Software Configuration Discovery activity.

Important Information	• Enter a unique name for the Virtualization Software Configuration Discovery activity. • General information about the activity is available in "Virtualization Software Configuration Discovery Activity" above. **Note:** This screen is not displayed when editing a Virtualization Software Configuration Discovery activity.
Wizard Map	The "Virtualization Software Configuration Discovery Activity" contains: **Activity Name Page** > "Define Credentials Page" > "Discovery Preferences Page" >"Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the Virtualization Software Configuration activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Define Credentials Page

Enables you to select and configure credentials for protocols that are used for discovery jobs.

Important information	• Configure credentials depending on what must be discovered and which protocols are supported on your site's network. • Credentials for protocols that were configured during Data Flow Probe setup are displayed on this page. For more information, see the section describing setting up the Data Flow Probe in the *HPE Universal CMDB Data Flow Management Guide*. • To see additional fields that are available for protocols, and for more information about field definitions for the Protocol Parameters dialog box, see the section about Supported Protocols in the *HPE UCMDB Discovery and IntegrationsContent Guide - Supported Content* document. • General information about the activity is available in "Virtualization Software Configuration Discovery Activity" on the previous page.
Wizard map	The "Virtualization Software Configuration Discovery Activity" contains: "Activity Name Page" > **Define Credentials Page** > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Protocol pane

Lists the protocols that are available for this activity.

User interface elements are described below:

UI Element	Description
	Select All. Selects all protocols or selects all credentials for a selected protocol.
	Clear Selections. Clears all selected credentials or clears all selected protocols.
	Invert Selections. All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
	Indicates that a protocol has no credentials.

Credentials pane

Lists the credentials for the selected protocol.

Important information	• To sort the credentials in a column in ascending or descending order, click the column header. • To edit parameters of a credentials, double-click a credential to open the Protocol Parameters dialog box. • When you right-click a credential, a menu is displayed. For more information about right-click menu options, see the section describing the Data Flow Probe Setup Window-Details pane in the *HPE Universal CMDB Data Flow Management Guide*.

User interface elements are described below:

UI Element	Description
	Create New Connection Details. Opens the Protocol Parameters dialog box, enabling you to define credentials for the selected protocol. To determine which protocols require credentials for this activity, go to **Data Flow Management** > **Universal Discovery** > **Zone-Based Discovery** tab > **Activity Jobs** tab. Ensure that you create credentials for all of the protocols in the **Protocol** pane for the activity.
	Remove Connection Details. Removes the selected credential.

UI Element	Description
🖉	**Edit Connection Details.** Opens the Protocol Parameters dialog box, enabling you to edit the credentials for the selected protocol.
⬆ ⬇	**Move Entry Up/Move Entry Down.** Enables you to move credentials up or down, enabling you to set the order in which selected credentials are used for the selected protocol. **Note:** Moving credentials affects the value in the **Index** column.
🗐	**Select All.** Selects all protocols or selects all credentials for a selected protocol.
🗐	**Clear Selections.** Clears all selected credentials or clears all selected protocols.
🗐	**Invert Selections.** All credentials or protocols that were selected are deselected, and all credentials or protocols that were not selected are selected.
Selected	Enables you to select credentials to use for the activity.
Index	Indicates the order in which the system selects credential instances to make a connection attempt. The lower the index, the higher the priority.
Trust Store Path	The full path to the Trust Store file containing the trusted certificates.
User Name	The description of the credential that is configured in the Protocol Parameters dialog box.
User Label	The description of the credential that is configured in the Protocol Parameters dialog box.
Protocol	The protocol used to connect to the http server: HTTP or HTTPS. **Default:** HTTP
Port Number	The port number that is configured in the Protocol Parameters dialog box.
Trust Store Password	The password to access the Trust Store file.k

UI Element	Description
Scope	Indicates the network scope of the Data Flow Probe that uses the selected credential. This value is configured in the Protocol Parameter dialog box, in the **Network Scope** field. For more information, see the section describing the Protocol Parameter dialog box in the *HPE Universal CMDB Data Flow Management Guide*.
Use SSL (VMware)	Selects **Yes** or **No** to specify whether to use a Secure Sockets Layer (SSL) protocol to access VMware Infrastructure. **True:** DFM uses the SSL protocol, and the prefix is set to HTTPS. **False:** DFM uses the HTTP protocol.

Discovery Preferences Page

Enables you to select detailed preferences for the Virtualization Software Configuration Discovery activity.

Important Information	General information about the wizard is available in "Virtualization Software Configuration Discovery Activity" on page 111.
Wizard Map	The "Virtualization Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > **Discovery Preferences Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Discover HP nPartitions	Select the check box to run HP nPartitions topology discovery.
Discover Microsoft Hyper-V	Select the check box to run Microsoft Hyper-V topology discovery.
Discover IBM HMC	Select the check box to run IBM HMC topology discovery. Click the ⊠ button beside **Discovery Options** to display the available option: • **Report LPAR name as hostname** 　Select to report the LPAR name as hostname.
Discover Oracle VM Server for SPARC	Select the check box to run Oracle VM Server for SPARC Technology discovery. Click the ⊠ button beside **Discovery Options** to display the available option: • **Match Guest LDOMs domain names as hostnames** 　Select to enable Guest LDOMs to be reported with their hostnames that are set to domain names. This option may aid in hosts reconciliation.
Discover Solaris	Select the check box to run Solaris Zone topology discovery.

UI Element	Description
Zone	Click the ⬚ button beside **Discovery Options** to display the available option: ● **Login via zlogin as connected user** Select to enable the login with **zlogin** connected to the global zone user account. **Default: zlogin** uses the root account.

Discover VMware	Select the check box to run VMware ESX/vMotion topology discovery.
	
	Click the ⬚ button beside **Discovery Options** to display the available options:
	
	● **VMware SDK libraries**
	
	Select the check box and click **Import file...** to locate the appropriate JAR files, as follows:
	
	  ○ **vim.jar**
	
	  ○ **vim25.jar**
	
	● **Report power-down virtual machines**
	
	Select to report power-down virtual machines.
	
	● **vMotion Options**
	
	  ○ **Use event based discovery**
	
	  Select to enable the discovery job to monitor new vMotion events until the discovery stops.
	
	  If this check box is cleared, only vMotion events that happened during last History Hours can be discovered.
	
	  ○ **History Hours**
	
	  Select to specify the time within which discovery checks for untracked vMotion events.
	
	  ○ **Retries number**
	
	  Select to specify the maximum number of times that the discovery attempts to restore the connection.

UI Element	Description
	Default: Zero (0). Zero means that the number of retries is unlimited.
Discover Xen and KVM	Select the check box to run Xen and KVM topology discovery. Click the ⬙ button beside **Discovery Options** to display the available option: • **Virsh path** Path to the virsh management utility.
Discover Citrix Xen	Select the check box to run Citrix Xen topology discovery.

Schedule Discovery Page

Enables you to define a schedule for the Virtualization Software Configuration Discovery activity.

Important Information	General information about the activity is available in "Virtualization Software Configuration Discovery Activity" on page 111.
Wizard Map	The "Virtualization Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" > **Schedule Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
🕔	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.

UI Element (A–Z)	Description
\<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box opens. Choose the required days by selecting the check boxes. You can select multiple days. • ⬚ **Select All.** Select all the days. • ⬚ **Clear Selection.** Clear all the selected days. • ⬚ **Invert Selection.** Switch the selection.
\<Days of the week> (Sunday - Saturday)	(Appears when you select **Weekly**.) Select the day or days on which the discovery activity should run.
\<Schedule options>	• **Once.** Define the task to run only once. • **Interval.** Defines the interval between successive runs. • **Daily.** Run a task on a daily basis. • **Weekly.** Run a task on a weekly basis. • **Monthly.** Run a task on a monthly basis. • **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
\<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**.

UI Element (A–Z)	Description
	Note: This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. • **Select All.** Select all the times. • **Clear Selection.** Clear all the selected times. • **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:**

UI Element (A–Z)	Description
	• When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**. • This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations. For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the Virtualization Software Configuration Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes. General information about the activity is available in "Virtualization Software Configuration Discovery Activity" on page 111.
Wizard Map	The "Virtualization Software Configuration Discovery Activity" contains: "Activity Name Page" > "Define Credentials Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it.

UI Element (A–Z)	Description
	Note: If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.
Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone tree. **Note:** If you selected **Activate Activity**, the activity is activated upon creation. • **Edit mode:** Saves the changes to the activity. **Note:** You cannot activate the activity from the wizard in Edit mode.

Chapter 11: Web Servers Software Configuration Discovery Activity

The Web Servers Software Configuration Discovery activity discovers web servers software configuration information to detect and map out what is running in your data center.

To access	Go to **Data Flow Management > Universal Discovery > Zone-Based Discovery > Management Zones >** select a Management Zone **>** click ⚹ **>** select **New Discovery Activity > Software Configuration > Web Servers**
Important Information	For more information, hold the pointer over a question mark icon.
Wizard Map	The **Web Servers Software Configuration Discovery Activity** contains: "Activity Name Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

Activity Name Page

Enables you to configure a name for the Web Servers Software Configuration Discovery activity.

Important Information	• Enter a unique name for the Web Servers Software Configuration Discovery activity. • General information about the activity is available in "Web Servers Software Configuration Discovery Activity" above. **Note:** This screen is not displayed when editing a Web Servers Software Configuration Discovery activity.
Wizard Map	The "Web Servers Software Configuration Discovery Activity" contains: **Activity Name Page** > "Discovery Preferences Page" > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element (A–Z)	Description
Activity Name	Enter a unique name for the Web Servers Software Configuration activity. **Note:** Names should consist only of alphanumeric characters (a-z, A-Z, 0-9), hyphens (-), and periods (.). Names appear in some reports. Additionally, names may also appear in the **Updated by** attribute on the **CI Properties** page if a CI was updated by a job. Names can be changed at any time, however, the **Job ID** attribute that is associated with the job name does not change.

Discovery Preferences Page

Enables you to select detailed preferences for the Web Servers Software Configuration Discovery activity.

Important Information	General information about the wizard is available in "Web Servers Software Configuration Discovery Activity" on page 123.
Wizard Map	The "Web Servers Software Configuration Discovery Activity" contains: "Activity Name Page" > **Discovery Preferences Page** > "Schedule Discovery Page" > "Summary Page"

User interface elements are described below:

UI Element	Description
Run Apache Discovery	Select the check box and to run Apache discovery. Click the ⊠ button beside **Discovery Options** to display the available option: • **Apache Configuration Files** Select to specify the full path to Apache configuration files, including file names. **Note:** Multiple files must be separated by a semicolon (;).
Run Microsoft IIS Discovery	Select the check box to run Microsoft IIS discovery. Click the ⊠ button beside **Discovery Options** to display the available options: • **Discovery Webservices** Select to discover webservices. • **Check Availability of Web Sites** Select to check whether reported URLs should be verified by HTTP(s). • **Report Legacy Topology** Select to report the legacy IIS topology.

UI Element	Description
	• **Prefer Appcmd** Select to use **AppCmd.exe** to discover IIS. • **Extensions of Webservices files** Select to list the file extensions that detect as web services. **Note:** Wildcards are not supported.

Schedule Discovery Page

Enables you to define a schedule for the Web Servers Software Configuration Discovery activity.

Important Information	General information about the activity is available in "Web Servers Software Configuration Discovery Activity" on page 123.
Wizard Map	The "Web Servers Software Configuration Discovery Activity" contains: "Activity Name Page" > "Discovery Preferences Page" > **Schedule Discovery Page** > "Summary Page"

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Element (A–Z)	Description
Validate Expression	(Appears when you select **Cron**.) Click to validate the Cron expression you entered.
⏲	Click the **Time Templates** icon to open the Time Templates dialog box. Enables you to define a custom schedule to run the discovery activity. For more information, see "Time Templates Dialog Box" in the *HPE Universal CMDB Data Flow Management Guide*.
Allow Discovery to run at	Select the time template that you want to use to schedule the discovery activity.
<Days of month>	(Appears when you select **Monthly**.) Click the button to choose the days of the month on which the discovery activity must run. The Select Days dialog box

UI Element (A–Z)	Description
	opens. Choose the required days by selecting the check boxes. You can select multiple days. • 🗹 **Select All.** Select all the days. • 🗔 **Clear Selection.** Clear all the selected days. • 🗗 **Invert Selection.** Switch the selection.
<Days of the week> (Sunday - Saturday)	(Appears when you select **Weekly**.) Select the day or days on which the discovery activity should run.
<Schedule options>	• **Once.** Define the task to run only once. • **Interval.** Defines the interval between successive runs. • **Daily.** Run a task on a daily basis. • **Weekly.** Run a task on a weekly basis. • **Monthly.** Run a task on a monthly basis. • **Cron.** Enter a Cron expression in the correct format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*.
Cron Expression	(Appears when you select **Cron**.) Enter a Cron expression in the proper format. For descriptions and examples of Cron expressions, see "Cron Expressions" in the *HPE Universal CMDB Modeling Guide*
<Months of the year> (January - December)	(Appears when you select **Monthly**.) Select the month or months in which the discovery activity must run.
End by	(Does not appear when you select **Once**). Select the date and time when the discovery activity must finish running by selecting the **End by** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** This step is optional. If you do not need to specify an ending date, leave the **End by** check box cleared.

UI Element (A–Z)	Description
Invocation hour	(Appears when you select **Daily**, **Weekly**, or **Monthly**.) Select the time to activate the discovery activity. Click the button to open the **Select Hours** dialog box. Choose the required time by selecting the check boxes. You can select multiple times. • ⬛ **Select All.** Select all the times. • ⬛ **Clear Selection.** Clear all the selected times. • ⬛ **Invert Selection.** Switch the selection. **Note:** You can also enter the time manually in the **Invocation hour** box. Separate times by a comma and enter **AM** or **PM** after the hour. The manually entered action times are not restricted to the hour and half hour only: you can assign any hour and minute combination. Use the following format: **HH:MM AM**, for example, **8:15 AM, 11:59 PM**.
Invocation Time	(Displayed when you select **Once**.) Choose the date and time the action should begin running by opening the calendar and choosing a date and time, or accept the default.
Repeat every	(Displayed when you select **Interval**.) Select how often the discovery activity runs. Type a value for the interval between successive runs and choose the required unit of time (minutes, hours, or days). **Note:** After each change, the next time that the discovery activity runs is the current time plus the interval, that is, the discovery activity does not start immediately.
Start at	(Does not appear when you select **Once**). Choose the date and time when the discovery activity must begin running by selecting the **Start at** check box, opening the calendar, selecting the date and time, and clicking **OK**. **Note:** • When selecting the start time, the time zone in the start time is set according to the client machine's location, although it may not match the value selected in **Time Zone**.

UI Element (A–Z)	Description
	• This step is optional. If you do not want to specify a beginning time, leave the **Start at** check box unselected.
Time zone	Select the time zone according to which the Probe must schedule jobs. The default is **<<Data Flow Probe Time Zone>>**: the Probe uses its own system-defined time zone. This enables scheduling to take place at different times in different geographical locations. For all Probes to start working at the same time, select a specific time zone. (This assumes that the Probes' system date/time and time zone are correctly configured.)

Summary Page

Enables you to review all configurations and parameter values before running the Web Servers Software Configuration Discovery activity.

Important Information	Review configurations and decide whether to run the activity or go back and make changes. General information about the activity is available in "Web Servers Software Configuration Discovery Activity" on page 123.
Wizard Map	The "Web Servers Software Configuration Discovery Activity" contains: "Activity Name Page" > "Discovery Preferences Page" > "Schedule Discovery Page" > **Summary Page**

User interface elements are described below:

UI Element (A–Z)	Description
Activate Activity	Activates the activity upon creating it. **Note:** If you do not want to activate the activity at this stage, you can activate it later from the Zone-Based Discovery view.
Finish	• **Creation mode:** Closes the wizard and adds the activity to the Management Zone

UI Element (A–Z)	Description
	tree. **Note:** If you selected **Activate Activity**, the activity is activated upon creation. • **Edit mode:** Saves the changes to the activity. **Note:** You cannot activate the activity from the wizard in Edit mode.

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Feedback on Discovery and Integrations Content Guide - Discovery Activities (Universal CMDB Content Pack 21.00 (CP21))

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