

Citrix SCOM Management Pack for CloudBridge User Guide



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This document provides installation, configuration, and usage instructions for Citrix SCOM Management Pack for CloudBridge.

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Chapter 1: Quick introduction

About CloudBridge Management Pack

Citrix SCOM Management Pack for CloudBridge (**CloudBridge Management Pack**) is an availability and performance management solution that extends end-to-end service monitoring capabilities of Microsoft System Center Operations Manager (**SCOM**) to include the Citrix CloudBridge (**CloudBridge**) infrastructure. It fully integrates topology, health, and performance data into SCOM, providing an end-to-end operations overview across the entire CloudBridge estate and enabling delivery of effective business service management.

Some key benefits of CloudBridge Management Pack are:

- Agentless monitoring architecture
- Intuitive topology discovery of internal CloudBridge components
- Monitoring of key functionalities
- Enhanced infrastructure health
- Quick deployment and simple upgrades
- Functioning across physical and virtual CloudBridge appliances
- Easy identification and resolution of network-specific issues
- Acceleration of problem resolution
- Scaling management responsibility across your infrastructure and organization
- Automation of routine administration to improve service levels, increase efficiencies, and achieve greater control of the IT environment

Topology discovery

CloudBridge Management Pack provides out-of-the-box discovery of the CloudBridge configuration:

- Automatically discovers and visualizes the topology of CloudBridge devices. The discovery and visualization are based on a defined CloudBridge device model. The discovered devices are used as a base for CloudBridge component discovery.
- Maintains CloudBridge topology while you add or remove devices and their components.

Discovered CloudBridge appliance objects are divided into the following six major components:

- **Application**
Lists predefined and custom applications being used to divide the traffic into protocols and applications.
- **Traffic Shaping Policy**
Contains default and custom traffic shaping policies.
- **Service Class**

Holds information about service classes used for mapping applications, IP ranges, incoming Diffserv (DSCP) fields, or VLANs to acceleration and traffic-shaping policies.

- Adapter
Shows information about adapters.
- Interface
Gives details on virtual network interfaces attached to adapters.
- Link
Includes defined WAN and LAN links on the appliance.

Monitoring

CloudBridge Management Pack monitors many components out-of-the-box and is designed to be extendable to meet custom monitoring requirements. Some out-of-the-box monitoring capabilities are:

- Detection of CloudBridge environment health and state.
- CloudBridge appliance availability status check.
- Identification of related to CloudBridge QoS, traffic shaping, optimization and protocol acceleration.

Monitors are classified into the following groups:

- CloudBridge Appliance
 - Operation Status Monitor
 - License Status Monitor
 - ICMP availability
 - SNMP availability
 - SSH availability
 - Average LAN Send Rate Monitor
 - Average WAN Send Rate Monitor
 - CPU Usage Percentage Monitor
 - Current Connected Plugins Percentage Usage Monitor
 - Maximum Non-Accelerated Connections Usage Monitor
 - Minimum Non-Accelerated Connections Usage Monitor
 - System Load Percentage Monitor
- Interface
 - Interface Status Monitor
- Application
 - Dropped Sent Volume Monitor
 - ICA Service Sent Ratio Monitor

- Link:
 - Dropped Sent Volume Monitor
- Service Class
 - Dropped Sent Volume Per Link Usage Monitor
 - Maximum Current Accelerated Connections Usage Monitor
 - Maximum Total Non-Accelerated Connections Usage Monitor
 - Minimum Current Accelerated Connections Usage Monitor
 - Minimum Total Accelerated Connections Usage Monitor
 - WAN Send Bandwidth Savings (%) Monitor
- Traffic Shaping Policy
 - Dropped Sent Volume per Link Usage Monitor

Views

CloudBridge Management Pack provides various out-of-the-box views that present alerts, health state, and performance, and expose tasks.

There are a number of performance collection views:

- Appliance

The Appliance view collects the below metrics.

 - CPU Usage Percentage
 - System Load Percentage
 - LAN Send Rate
 - WAN Send Rate
 - Non-Accelerated Connections
 - Connected Plugins
- Application

The Application view collects the below metrics.

 - Dropped Sent Volume Data
- Link

The Link view collects the below metrics.

 - Dropped Sent Volume Data
- Service Class

The Service Class view collects the below metrics.

 - Current Accelerated Connections
 - Dropped Sent Volume per Link
 - Total Accelerated Connections
 - Total Non-Accelerated Connections
 - WAN Send Bandwidth Savings (%)

- ICA Service

The ICA Service view collects the below metrics.

- ICA Sent Ratio

- Traffic Shaping Policy

The Traffic Shaping Policy view collects the below metrics.

- Dropped Sent Volume per Link

Tasks

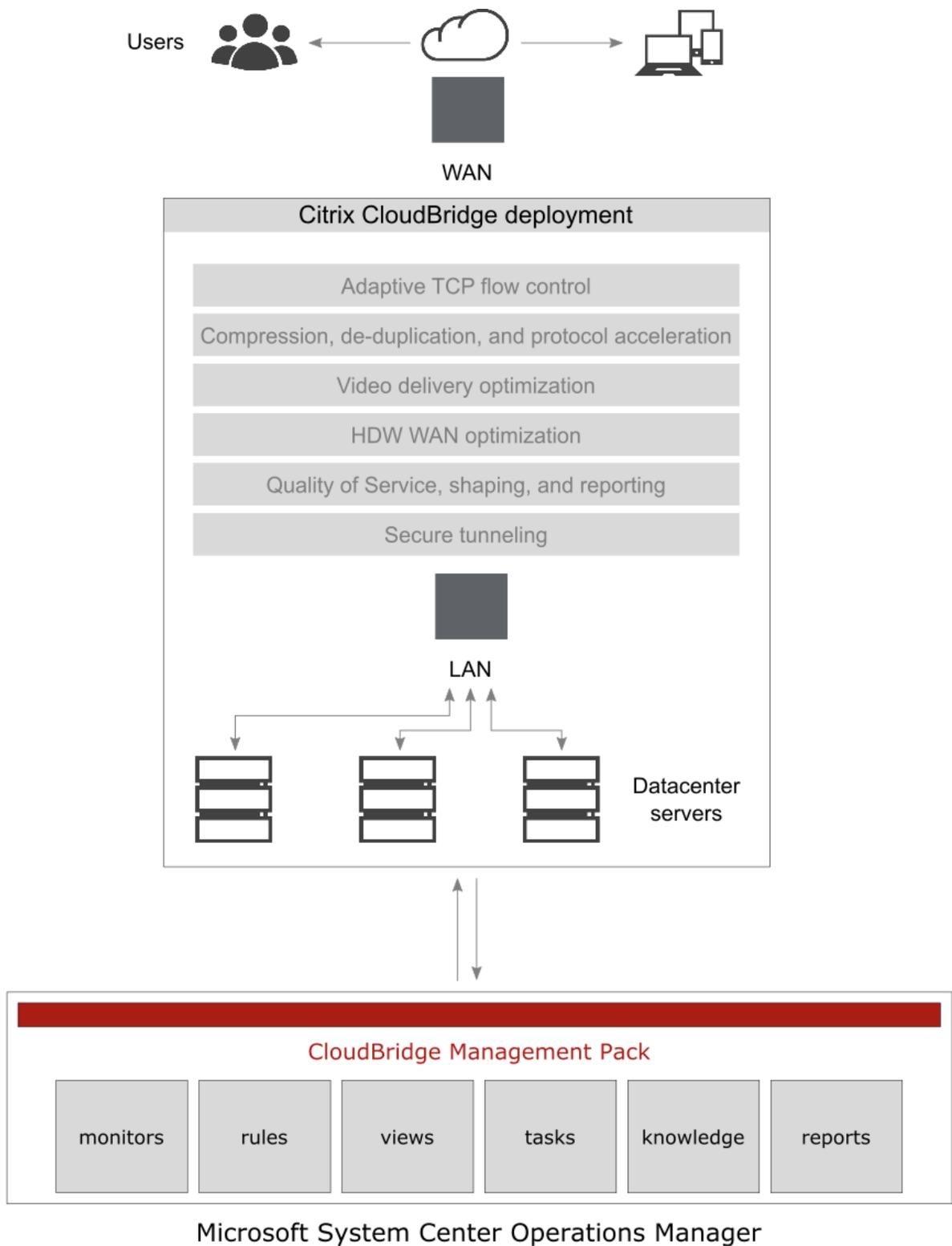
CloudBridge Management Pack provides the following tasks:

- Collect support information for CloudBridge Management Pack Agent

Product architecture

The following diagram shows how CloudBridge Management Pack connects the SCOM platform and the Citrix enterprise infrastructure.

Figure 1.1 A high-level view of the CloudBridge Management Pack architecture



CloudBridge Management Pack has two main parts:

- Server side
The server side of the product contains management packs as well as agent installation packages. When management packs are imported into SCOM, all network devices are targeted and CloudBridge devices are discovered using the SNMP Object Identifier property value. Other discovery and monitoring processes use the agent to communicate with CloudBridge devices.
- Agent side
The agent is designed to act as a proxy and a data collector between SCOM and Citrix CloudBridge environments. The agent uses connections to the CloudBridge appliances and provides the caching mechanism for data. To access the CloudBridge appliances, the agent uses both SNMP and SSH protocols. The necessary credentials for accessing the CloudBridge appliances are sent from SCOM.

Chapter 2: Installation and configuration

This chapter contains instructions that you must follow to install and configure CloudBridge Management Pack. Perform all procedures in the documented order of precedence.

Preparing for the installation

Before installing CloudBridge Management Pack, make sure the following prerequisites are fulfilled:

- Your environment meets the hardware and software requirements.
For software requirements, see the *Citrix SCOM Management Pack for CloudBridge Compatibility Matrix*. For hardware and/or other requirements, see the *Citrix SCOM Management Pack for CloudBridge Release Notes*.
- A SCOM management group is chosen for CloudBridge monitoring. The computer that hosts the SCOM management server of this management group is referred to as **management server computer**.
- Credentials (including the community string) for CloudBridge appliance action account (Citrix CloudBridge Appliance SSH Action Account) are available.
- All CloudBridge devices that are to be monitored are added as network devices to SCOM. For more information, see the [How to Discover Network Devices in Operations Manager](#) webpage.
- CloudBridge is accessible through the SNMP and SSH ports (usually the UDP port 161 and the TCP port 22).
- The default management packs that the included management packs depend on are imported in SCOM:
 - Data Warehouse Library
 - Health Library
 - Network Management Library

- Performance Library
- SNMP Library
- System Center Core Library
- System Library
- Windows Core Library

Note If you accidentally delete any of the listed default management packs, you can import them back from the files in the SCOM installation directory.

Configuring CloudBridge for monitoring by CloudBridge Management Pack

To configure CloudBridge for monitoring by CloudBridge Management Pack, all CloudBridge network devices need to be discovered and monitored as network devices by SCOM. To achieve this, do the following:

1. Log on to CloudBridge using the CloudBridge command-line interface (CLI). For general information on the CloudBridge CLI, see the CloudBridge documentation.
2. To enable SSH connection for the CloudBridge Management Pack user account, run the following command:

```
add user -name <UserName> -password <Password> -privilege viewer
```

Example:

```
add user -name MPCBuser -password Pl1a2s3s4w5o6r7d! -privilege viewer
```

3. To set up SNMP, run the following command for each computer where you plan to install CloudBridge Management Pack Agent:

```
add snmp-manager -community <CommunityString> -ip <IPAddress> -netmask <NetMask>
```

Example:

```
add snmp-manager -community public -ip 192.168.100.100 -netmask 32
```

4. Repeat step 3 for each additional member of the dedicated SCOM resource pool.
5. Discover all CloudBridge devices in SCOM. In the Network Devices Discovery Wizard, choose the discovery server and the resource pool, and select the discovery method. Then create or use an SNMP Run As account. During the process, specify the community string.

For general instructions on how to discover network devices, see the [How to Discover Network Devices in Operations Manager](#) webpage on the Microsoft TechNet website.

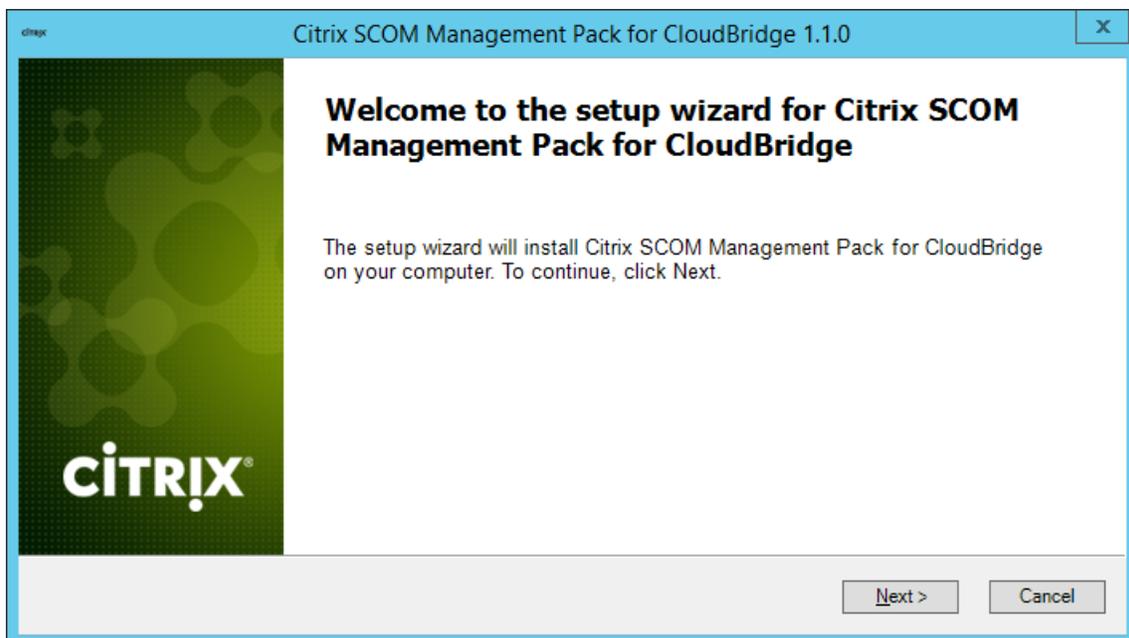
Installing CloudBridge Management Pack on the SCOM management server computer

The server-side part of CloudBridge Management Pack must be installed on the computer that hosts SCOM management server.

To install CloudBridge Management Pack on the SCOM management server computer, do the following:

1. Log on to the management server computer. Use a user account from the local `Administrators` user group that has administrative privileges in SCOM.
2. In Windows Explorer, locate the `Citrix_SCOM_Management_Pack_for_CloudBridge_<Version>.exe` file (where `<Version>` is the current software version), and double-click it to invoke the installation process. Wait for the Setup Wizard to appear.
3. In the Welcome page of the Setup Wizard, click **Next**.

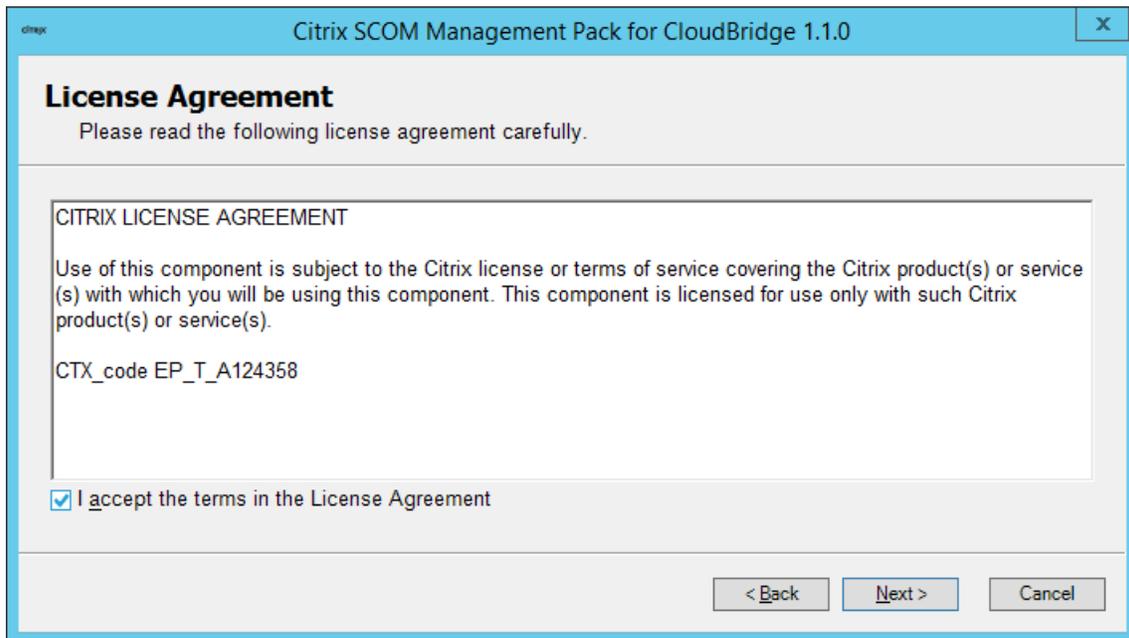
Figure 2.1 Initial Setup Wizard page of CloudBridge Management Pack



4. In the View Relevant Product Configuration page, click **Next**.

5. In the License Agreement page of the Setup Wizard, carefully read the end user license agreement. If you accept the terms of the agreement, click **Next**.

Figure 2.2 The License Agreement page



6. In the Destination Folder page, define the CloudBridge Management Pack installation folder. Citrix recommends that you install CloudBridge Management Pack to the default folder.

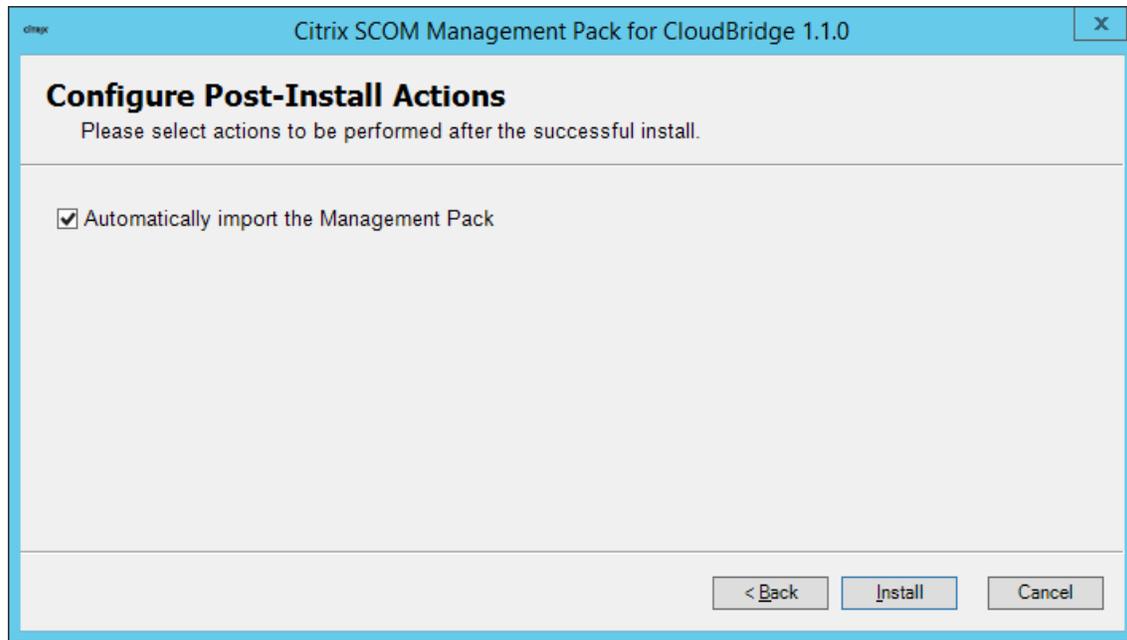
Proceed as follows:

- To install the product to the default folder listed in the Setup Wizard, no special actions are required.
- To install the product to a different folder, follow the substeps:
 - a. Click **Change**.
 - b. In the Browse For Folder dialog box, browse to a desired installation folder, select it, and click **OK**.

Click **Next**.

7. In the Configure Post-Install Actions page of the Setup Wizard, decide whether the Setup Wizard should automatically import the included management packs into SCOM.

Figure 2.3 The Configure Post-Install Actions page



To let the Setup Wizard import the management packs, select the **Automatically import the Management Pack** option. Citrix recommends this choice.

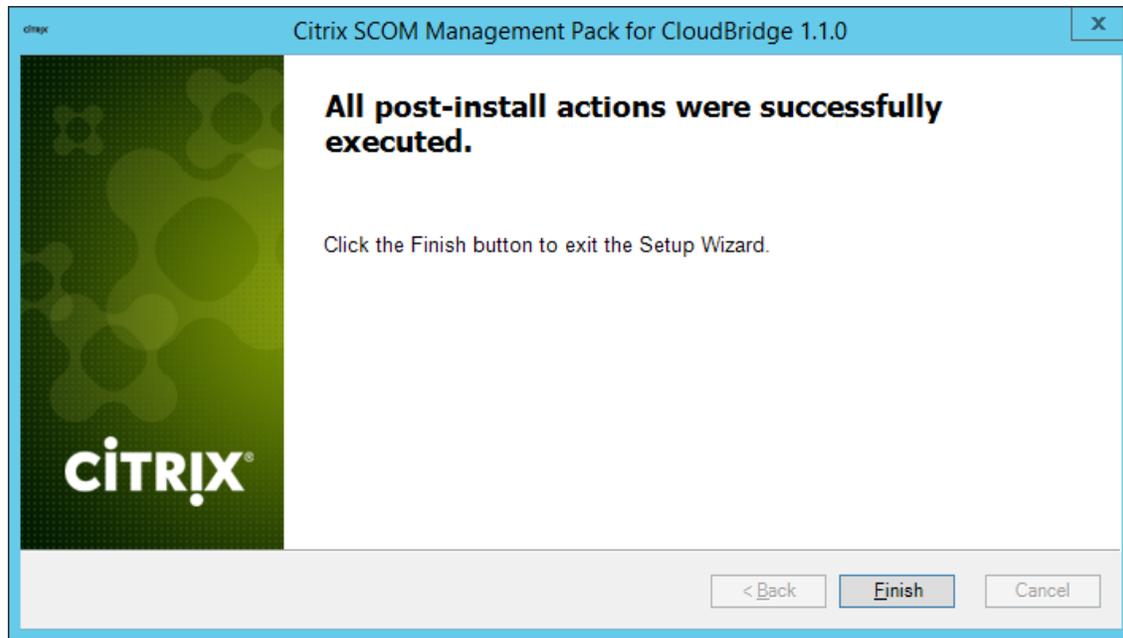
To import the management packs into SCOM manually at a later time, leave the **Automatically import the Management Pack** option unselected. For instructions about how to import or reimport the management packs, see “Manually importing included management packs into SCOM”

8. Click **Install**. The Setup Wizard displays the Installing the product page and starts copying the installation files.
9. After the installation completes, the installation completion page is displayed.

If you let the Setup Wizard to automatically import the management packs, click **Next**. In the opposite case, click **Finish** to close the Setup Wizard.

10. If you let the Setup Wizard to automatically import the management packs, it displays the Executing post-install actions page. Attend the import process.
11. In the post-installation completion page, click **Finish** to close the Setup Wizard.

Figure 2.4 The post-installation completion page



Verifying the installation on the SCOM management server computer

To verify that the CloudBridge Management Pack installation on the management server computer is correct, do the following:

1. Log on to the management server computer.
2. Go to **Start > Control Panel**, click **Programs**, and then click **Programs and Features**.
3. Check for the presence of the following entry in the Name column:

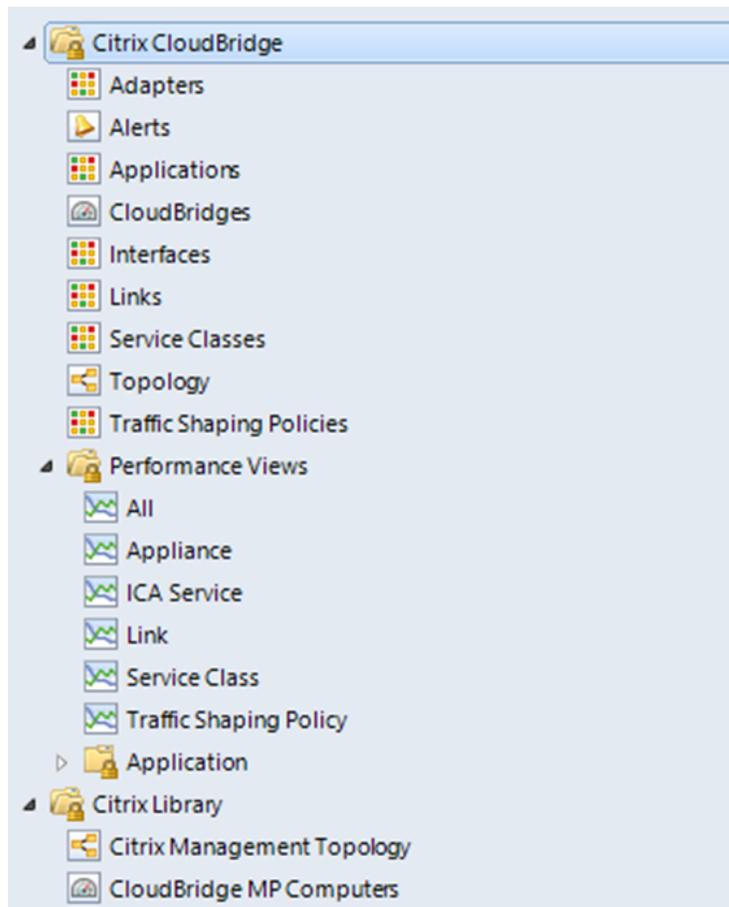
Citrix SCOM Management Pack for CloudBridge

4. Check if there is the `CitrixMPShare` shared folder on the computer and whether it points to the `%ProgramData%\Citrix\CitrixMPShare` location.

The shared folder is vital for communication between the management server and the agent node during installation of the agent.

5. Launch the SCOM Operations console.
6. In the Monitoring view, expand the items in the left pane until they match the following figures (combined).

Figure 2.5 Elements of CloudBridge Management Pack, as seen in the SCOM Operations console



Configuring access to the shared folder for agent installation

Note: Steps of this procedure must be followed only once on a SCOM management server computer. In case you previously installed the following Citrix Management Pack product on the same computer, you do *not* need to repeat the steps:

- NetScaler Management Pack
-

To configure access to the shared folder for agent installation, do the following:

1. Log on to the SCOM management server computer. Use a user account from the local Administrators user group.
2. Choose a local user account (local to the computer with the shared folder) or a domain user account that will have access to the shared folder.

Important: Citrix recommends creating a new, dedicated user account that you will use only for deployment of the Management Pack agent to managed computers.

3. Using an operating system administrative tool, add the user account to the local `CitrixMPShareUsers` user group.

To check whether access to the shared folder is enabled for the chosen user account, run the following command by using this user account:

```
net use \\<ManagementServerHostName>\CitrixMPShare \
/user:<DomainName>\<UserName>
```

In the above instance, `<ManagementServerHostName>` is the host name of the management server computer. If the command reports no errors, the access is enabled.

Installing CloudBridge Management Pack on the SCOM resource pool members

Note: Resource pools are a feature introduced in SCOM 2012. A resource pool is a collection of management servers used to distribute work amongst themselves and take over work from a failed member. CloudBridge Management Pack Agent must reside on all members of a resource pool.

To install the product on the members of a resource pool, do the following:

1. Log on to the management server computer.
2. Launch the SCOM Operations console.
3. In the **Administration** view, expand **Device Management > Network Management**, and then click **Network Devices**.
4. Identify discovered CloudBridge network devices and the corresponding resource pool names.
5. For the identified resource pools, find out their members.
6. Log on to a member of the resource pool. Use a user account from the local `Administrators` user group.
7. Copy the `MPCBAgent.exe` file from the `\CitrixMPShare\CloudBridge MP` shared folder on the management server computer to a location on the pool member.
8. In Windows Explorer, locate the `MPCBAgent.exe` file and double-click it to invoke the installation process.

9. Follow instructions of the Setup Wizard.
10. Repeat steps 6 to 9 for each additional resource pool member.

Configuring agent nodes to act as SCOM proxies

Each agent node where CloudBridge is installed must be configured to act as a SCOM proxy computer. This configuration enables the agent to relay or forward information from or about other computers or network devices to the management server.

To configure an agent-managed computer to act as a proxy, do the following:

1. Log on to the management server computer.
2. Launch the SCOM Operations console.
3. In the **Administration** view, expand **Device Management**, and then click **Agent Managed** or **Management Server** (depending on the agent node type).
4. Right-click the host name of the CloudBridge computer (agent-managed), and select **Properties**.
5. Click the **Security** tab.
6. Select the **Allow this agent to act as proxy and discover managed objects on other computers** option.
7. Click **OK**.

Verifying the installation on the SCOM resource pool members

To verify that the CloudBridge Management Pack installation on a SCOM resource pool member is correct, do the following:

1. Log on to the SCOM resource pool member.
2. Go to **Start > Control Panel**, click **Programs**, and then click **Programs and Features**.
3. Check for the presence of the following entry in the Name column:

`Citrix SCOM Management Pack Agent for CloudBridge`
4. Go to **Start > Administrative Tools** and double-click **Services**.

5. In the Name column of the Services window, locate the Citrix MPCB Agent service, and make sure that its status is to Started.

Configuring the CloudBridge Appliance action account in SCOM

To configure Run As account in SCOM, do the following:

1. Log on to the SCOM management server computer. Use a user account from the local Administrators user group.
2. Launch the SCOM Operations console.
3. In the **Administration** view, in the left pane, expand **Run As Configuration**, and then click **Accounts**.
4. In the Tasks pane, expand **Actions**, and then click **Create Run As Account**.
5. In the Create Run As Account Wizard window, click **Next**.
6. In the General Properties page, in the **Run As account type** drop-down menu, select **Basic Authentication** or **Simple Authentication**.
7. In the **Display name** text box, type a name that the SCOM Operations console will use to refer to the newly created SCOM user account. Click **Next**.
8. In the Credentials page, type user name, password, and domain of the user account that you used in “Configuring CloudBridge for monitoring by CloudBridge Management Pack”. Click **Next**.
9. In the Distribution Security page, select the **More secure** option.
10. Click **Create** to save the configuration data of the new account.
11. Click **Close** to close the wizard.

To assign the configured Run As account to CloudBridge devices, do the following:

1. Log on to the SCOM management server computer. Use a user account from the local Administrators user group.
2. Launch the SCOM Operations console.
3. In the **Administration** view, in the left pane, expand **Run As Configuration**, and then click **Profiles**.

4. In the middle pane, in the Name column, double-click **Citrix CloudBridge Appliance SSH Action Account**.
5. In the Run As Profile Wizard window, click **Next** and then click **Next** again.
6. In the Run As Accounts page, click **Add**.
7. In the Add a Run as Account dialog box, from the Run As account drop-down list, select the display name of the newly created Run As account.
8. Select the **A selected class, group, or object** option (more secure).
9. Click **Select** and then select **Object**.
10. In the Object Search dialog box, in the Look for drop-down list, select **Node** and then click **Search**.
11. In the Available items list, select the CloudBridge network device, and then click **Add**.
12. Click **OK** to close the dialog box.
13. Click **OK** to close the Add a Run As Account dialog box.
14. Click **Save** to save the changes.
15. Click **Close** to close the Run As Profile Wizard window.
16. Distribute the Run As account to the appropriate agent-managed computers. Do the following:
 - a. In the Administration view, double-click the user account.
 - b. In the Run As Account Properties dialog box, click the **Distribution** tab.
 - c. Click **Add**.
 - d. In the Computer Search dialog box, search for and add the corresponding resource pool. Click **OK**.
 - e. In the Run As Account Properties dialog box, click **Apply** and then click **OK**.

Note: After saving the updated Run As profile, it may take up to 10 minutes for the configuration to get distributed to all specified computers.

Chapter 3: Uninstallation

This chapter contains instructions that you must follow to effectively uninstall CloudBridge Management Pack. Perform all procedures in the documented order of precedence.

Removing dependent management packs (customizations)

To remove the customizations that you made to the management packs included in CloudBridge Management Pack, do the following:

1. Log on to the management server computer.
2. Launch the SCOM Operations console.
3. In the Administration view, click **Management Packs**.
4. In the middle pane, locate the management packs that depend on the management packs included in CloudBridge Management Pack.
5. For each such dependent management pack, follow the steps:
 - a. Right-click it and then click **Delete**.
 - b. On the message stating that deleting the management pack might affect the scoping of some user roles, click **Yes**.

Removing included management packs

To remove the management packs included in CloudBridge Management Pack, do the following:

1. Log on to the management server computer.
2. Launch the SCOM Operations console.
3. In the Administration view, click **Management Packs**.
4. Perform the following substeps to remove references to Citrix CloudBridge Component Library from the `Microsoft.SystemCenter.SecureReferenceOverride` management pack:
 - a. Export the `Microsoft.SystemCenter.SecureReferenceOverride` management pack.
 - b. Make a copy of the file you exported the management pack to.

- c. Edit the original file you exported the management pack to and remove all dependencies to the `Citrix CloudBridge Component Library` management pack.
 - d. Import back the altered `Microsoft.SystemCenter.SecureReferenceOverride` management pack from the modified file.
5. In the middle pane, right-click **Citrix CloudBridge Monitoring Library**.
6. On the message stating that deleting the management pack might affect the scoping of some user roles, click **Yes**.
7. Repeat steps 5 and 6 with the following management packs (in the presented order of precedence):
 - **Citrix CloudBridge Discovery Library**
 - **Citrix CloudBridge Component Library**
 - **Citrix CloudBridge Device Library**
8. Check if other Citrix SCOM Management Pack products are installed on the management server computer. If none of them is installed, repeat steps 5 and 6 with **Citrix Management Pack Library**.

Uninstalling CloudBridge Management Pack from the agent-managed computers

To uninstall CloudBridge Management Pack from an agent-managed computer, do the following:

1. Log on to the agent-managed computer with a user account from the local `Administrators` user group.
2. Make sure no other users are logged on to the computer.
3. Go to **Start > Control Panel**, click **Programs**, and then click **Programs and Features**.
4. Right-click **Citrix SCOM Management Pack Agent for CloudBridge** and select **Uninstall**.

Important: If a warning informs you about other logged on users, the program might not uninstall completely.

5. In the Programs and Features dialog box, click **Yes** to confirm uninstallation.

Uninstalling the product from the SCOM management server computer

To uninstall CloudBridge Management Pack from the SCOM management server computer, do the following:

1. Log on to the management server computer. Use a user account from the local `Administrators` user group that has administrative privileges in SCOM.
2. Make sure no other users are logged on to the computer.
3. Go to **Start > Control Panel**, click **Programs**, and then click **Programs and Features**.
4. Right-click **Citrix SCOM Management Pack for CloudBridge** and select **Uninstall**. Wait for the Setup Wizard to appear.

Important: If a warning informs you about other logged on users, the program might not uninstall completely.

5. In the Welcome page of the Setup Wizard, click **Uninstall**.
6. In the Uninstalling the product page, the Setup Wizard reports the uninstallation progress.
7. In the Completion page of the Setup Wizard, click **Finish**.
8. Check if other Citrix SCOM Management Pack products are installed on the management server computer. If none of them is installed, follow the steps:
 - a. Stop sharing the `CitrixMPShare` shared folder.
 - b. Delete the `%ProgramData%\Citrix\CitrixMPShare` folder.
 - c. Using an operating system administrative tool, delete the local `CitrixMPShareUsers` user group.

Chapter 4: Usage

Optional configuration

Tuning thresholds for performance monitors and rules

Some monitors and rules have default thresholds that might need additional tuning to suit your environment. You should evaluate monitors and rules to determine whether the default thresholds are

appropriate for your environment. If a default threshold is not appropriate for your environment, you should baseline the relevant performance counters, and then adjust the threshold by overriding them.

In the *Citrix SCOM Management Pack for CloudBridge Reference Guide*, which you can find in the `Citrix_MPCB_ReferenceGuide.html` file, you can find details about the following items:

- Discoveries
- Monitors
- Roll-up Monitors
- Rules
- Tasks
- Scripts
- Enabled and disabled items by default

Discovering objects

For general information about discovering objects in SCOM, see the [Object Discoveries in Operations Manager 2007](#) webpage on the Microsoft TechNet website.

The following table lists the object types that CloudBridge Management Pack discovers in the managed environment.

Table 4.1 Discovered CloudBridge object types

Object type	Description
 Adapter	An Adapter object.
 Application	An Application object.
 Application Group	An Application Group object (as defined on CloudBridge appliance).
 CloudBridge Appliance	The Root object for topology of the CloudBridge appliance.

	CloudBridge Appliance Group	A group of CloudBridge appliances.
	Group	A Group for related objects.
	Interface	An Interface object.
	Link	A Link object.
	Service Class	A Service Class object.
	Traffic Shaping Policy	A Traffic Shaping Policy object.

Manually importing included management packs into SCOM

For general instructions about how to import management packs into SCOM, see the [How to Import an Operations Manager Management Pack](#) webpage on the Microsoft TechNet website.

To import the sealed management packs for CloudBridge manually, do the following:

1. Log on to the management server computer.
2. Launch the SCOM Operations console.
3. In the Administration view, click **Management Packs**.
4. Make sure all required default management packs are present in the list in the middle pane. For a list of requirements, see “Preparing for the installation”.
5. In the Tasks pane, expand **Actions**, and then click **Import Management Packs**.
6. In the Import Management Packs dialog box, click **Add**, and then select **Add from disk**.
7. In the Online Catalog Connection, click **No**.

8. In the Select Management Packs to import dialog box, browse to the `%ProgramFiles(x86)%\ComTrade\CloudBridge MP\ManagementPacks` folder, select the following management pack files, and then click **Open**.

- Comtrade.Citrix.Library.mp
- Comtrade.Citrix.CloudBridge.Device.mp
- Comtrade.Citrix.CloudBridge.Library.mp
- Comtrade.Citrix.CloudBridge.Monitoring.mp
- Comtrade.Citrix.CloudBridge.Discovery.mp

9. Click **Install**.

Customizing sealed management packs

Similarly to customizing the default SCOM management pack, you can customize the sealed management packs that CloudBridge Management pack provides. For details, see the Microsoft TechNet website:

- For general information about customization of management packs, see the [Customizing Management Packs](#) webpage.
- For instructions on how to customize a management pack, see the [Create a New Management Pack for Customizations](#) webpage.

Chapter 5: Support

General support resources

Citrix® offers a variety of resources for support with your Citrix environment, including the following:

- The Knowledge Center is a self-service, Web-based technical support database that contains thousands of technical solutions, including access to the latest hotfixes, service packs, and security bulletins.
- Technical Support Programs for both software support and appliance maintenance are available at a variety of support levels.
- The Subscription Advantage program is a one-year membership that gives you an easy way to stay current with the latest product version upgrades and enhancements.
- Citrix Education provides official training and certification programs on virtually all Citrix products and technologies.

For more information about Citrix services and support, see the [Citrix Support Services and Resources](#) website.

You can also participate in and follow technical discussions offered by the experts on various Citrix products at the [Welcome to the Citrix Community](#), [Citrix Discussions](#), and [Citrix Services](#) websites.

Contacting Citrix Customer Service

To contact Citrix Customer Service, see the [Contact Support](#) website.