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CONTENTS

Introduction to the User Agent

Version 2.5 of the user agent work in conjunction with version 6.4 or later of the Firepower System managed devices to gather user data. The user agent is also essential to implementing user access control.

A user agent monitors up to five Microsoft Active Directory servers and reports logins and logoffs authenticated by Active Directory. The Firepower System integrates these records with the information it collects using traffic-based detection on managed devices.

Caution The user agent is reaching its end of support period. Firepower Management Center version 6.6 is the last version with which you can enable the user agent. The user agent cannot be enabled in Firepower Management Center 6.7 and upgrades to 6.7 will warn you to disable the user agent before upgrading.

You must migrate to the Cisco Identity Services Engine/Passive Identity Connector (ISE/ISE-PIC) before you upgrade to FMC version 6.7.

For more information, see End of FMC Support for the User Agent, page 1-6.

Note Version 2.5 of the user agent works only with the Firepower Management Center version 6.4 or later. If you have issues with the user agent and your version of the Firepower Management Center, you can replace the version 2.5 user agent with an earlier user agent version as discussed in Troubleshoot the User Agent, page 2-34.

About the User Agent

This section discusses the role of the user agent in implementing user discovery on the Firepower System. For a more detailed discussion of all concepts related to user discovery, network discovery, and identity sources, see the configuration guide for your system.

For more information, see the following sections:

- User Agent Fundamentals, page 1-2
- Deploy Multiple User Agents, page 1-5
- Legacy Agent Support, page 1-5
- About the User Agent, ISE, and Access Control in Version 6.x, page 1-6

User Agent Fundamentals

The Firepower System can obtain both user identity and user activity information from your organization's Active Directory servers. The user agent enables you to monitor users when users authenticate with Microsoft Active Directory servers.

Note To perform user control, your organization *must* use Microsoft Active Directory. The Firepower System uses user agents that monitor Active Directory servers to associate users with IP addresses, which is what allows access control rules to trigger.

Installing and using the user agent enables you to perform user control; the agent associates a user name with one or more IP addresses, and this information can trigger access control rules with user conditions.

A complete user agent configuration for user control includes the following:

- A computer with the agent installed.
- A connection between a Management Center and the user agent computer.
- A connection between each Management Center to the monitored Active Directory servers.
- This version of the user agent is supported by Firepower Management Center 6.2.3 and later.

For more information about user control, see the configuration guide for your system.

You can install the user agent on any Microsoft Windows Vista, Microsoft Windows 7, Microsoft Windows 8, Microsoft Windows Server 2008, or Microsoft Windows Server 2012 computer with TCP/IP access to the Microsoft Active Directory servers to monitor. You can also install the agent on an Active Directory server running one of the supported operating systems; however, doing so is less secure.

Note If you install the user agent on Windows Server 2003 or an older operating system, the user agent cannot collect real time statistics from an Active Directory computer.

The Management Center connection not only enables you to retrieve metadata for the users whose logins and logoffs were detected by user agents, but also is used to specify the users and groups you want to use in access control rules. If the agent is configured to exclude specific user names, login data for those user names are not reported to the Management Center.

Agent Monitoring, Polling, and Reporting

Each user agent can monitor authoritative logins using encrypted traffic by either regularly scheduled polling or real time monitoring.

The following are among the events the user agent reports to the Management Center:

- **User Login**: A user logs in to a computer with an IP address not associated with the user name the last time the user was seen.

  In other words, suppose user name `james.harvey` logs in to IP address 192.0.2.100 on Monday. On Tuesday, `james.harvey` logs in to IP address 192.0.2.105. This login triggers a User Login event in the Management Center.

  User Login events occur whether the user logs in directly to a workstation or uses Remote Desktop.

- **User Logoff**: Occurs when a user logs out of an IP address. User Logoff events are reported to the management center at a configurable interval, not immediately after a user logs off of a computer.

- **New User Identity**: One-time event that occurs the first time a user name is associated with an IP address.
- **Delete User Identity**: Occurs after a Management Center administrator deletes a user identity.

Combining logoff data with login data develops a more complete view of the users logged into the network.

Polling an Active Directory server enables an agent to retrieve batches of user activity data at the defined polling interval. Real time monitoring transmits user activity data to the agent as soon as the Active Directory server receives the data.

You can configure the agent to exclude reporting any logins or logoffs associated with a specific username or IP address. This can be useful, for example, to exclude repeated logins to the following:

- Shared servers, such as file shares and print servers
- The user agent computer
- The Active Directory server
- Logins into computers for troubleshooting purposes

You can configure an agent to monitor up to five Active Directory servers and to send encrypted data on to as many as five Management Centers.

If you are using version 6.2.3 or later to perform access control, the logins reported by user agents associate users with IP addresses, which in turn allows access control rules with user conditions to trigger.

Note If multiple users are logged into a host using remote sessions, the agent might not detect logins from that host properly. See Enable Idle Session Timeouts, page 2-5 for more information on how to prevent this.

Table 1-1 Polling and Monitoring Notes

Concept	Notes
Login detection	The agent reports user logins to hosts with IPv6 addresses to Firepower Management Center running Version 6.2.3 or later. The agent reports non authoritative user logins and NetBIOS logins to Firepower Management Center running Version 6.2.3 or later. To detect logins to an Active Directory server, you must configure the Active Directory server connection with the server IP address. See Configure User Agent Active Directory Server Connections, page 2-23 for more information.
Logoff detection	The agent reports detected logoffs to Firepower Management Center version 6.2.3 or later. Logoffs might not be immediately detected. The timestamp associated with a logoff is the time the agent detected the user was no longer mapped to the host IP address, which might not correspond with the time the user logged off of the host.
Real Time data retrieval	The Active Directory server must run Windows Server 2008 or Windows Server 2012. The user agent computer must run Windows 7, Windows 8, Windows 10, or a Windows Server version more recent than Server 2003.

User Agent Login Data

The user agent monitors users as they log in to the network or when accounts authenticate against Active Directory credentials for other reasons. The user agent detects interactive user logins to a host, Remote Desktop logins, file-share authentication, and computer account logins.

User agents report *authoritative* user logins. Authoritative login data (for example, a remote desktop login or an interactive login to a host by a user) causes the current user mapped to the host IP address to change to the user from the new login.

Network discovery traffic-based detection reports *non authoritative* user logins. Non-authoritative logins either do not change the current user or change the current user only if the user was also non-authoritative.

Note, however, the following caveats:

- If the agent detects a login for file-share authentication, the agent reports a user login for the host, but does not change the current user on the host.
- If the agent detects a computer account login to a host, the agent generates a NetBIOS Name Change discovery event and the host profile reflects any change to the NetBIOS name.
- If the agent detects a login from an excluded user name, the agent does not report a login to the Management Center.

For all logins, the agent sends the following information to the Management Center:

- The user's LDAP user name

Note The Management Center might not correctly display user names with Unicode characters.

- The time of the login or other authentication
- The IP address of the user's host, and the link-local address if the agent reports an IPv6 address for a computer account login

Note If a user uses a Linux computer to log in using Remote Desktop to a Windows computer, after the agent detects the login, it reports the Windows computer's IP address, not the Linux computer's IP address, to the Management Center.

The Management Center records login and logoff information in the user activity database and user data in the user database. When a user agent reports user data from a user login or logoff, the reported user is checked against the list of users in the users database. If the reported user matches an existing user reported by an agent, the reported data is assigned to the user. Reported users that do not match existing users cause a new user to be created.

Even though the user activity associated with an excluded user name is not reported, related user activity might still be reported. If the agent detects a user login to a computer, then the agent detects a second user login, and you have excluded the user name associated with the second user login from reporting, the agent reports a logoff for the original user. However, no login for the second user is reported. As a result, no user is mapped to the IP address, even though the excluded user is logged into the host.

Note the following limitations on user names detected by the agent:

- User names ending with a dollar sign character are not reported to any other versions of Management Centers.
- Management Center display of user names containing Unicode characters might have limitations.

The total number of detected users the Management Center can store depends on the following:

- In Version 6.x, your Management Center model

After you reach the user limit, in most cases the system stops adding new users to the database. To add new users, you must either manually delete old or inactive users from the database, or delete all users from the database.

Deploy Multiple User Agents

If you have more than one Active Directory server per domain, you can consider installing more than one user agent. Active Directory servers share authentication information but not their security logs, which is where the user agent gathers some of its information.

Therefore, if there is more than one Active Directory server in your domain, you can either:

- Install one user agent that communicates with more than one Active Directory server.

  One user agent can communicate with up to five Active Directory servers.
- Install more than one user agent, each of which communicates with a different Active Directory server or domain controller.

  We recommend this type of deployment in the following circumstances:

  - Active Directory servers are geographically dispersed; we recommend installing user agents on computers that are geographically proximate to the Active Directory server (or on the Active Directory server computer itself, although this is less secure).
  - Active Directory servers are heavily loaded with traffic.

Note You must configure each user agent to communicate with the fully qualified hostname or IP address of the domain controller. In a multi-domain system, it’s common for each domain controller to have a different IP address or hostname.

Legacy Agent Support

Version 1.0 (legacy) user agents installed on Active Directory servers can continue to send user login data from the Active Directory server to a single Management Center. Deployment requirements and detection capabilities of legacy agents are unchanged.

You must install legacy agents on the Active Directory server to connect to exactly one Management Center. Note, however, that the User Agent Status Monitor health module does not support legacy agents and should not be enabled on Management Centers with legacy agents connected.

You should plan to upgrade your deployment to use Version 2.5 of the user agent as soon as possible in preparation for future releases when support for legacy agents will be phased out.

About the User Agent, ISE, and Access Control in Version 6.x

Version 6.0 introduced support for the Cisco Identity Services Engine (ISE), an alternative to the user agent. The user agent and ISE are passive identity sources that gather data for user access control. To perform user control in Version 6.x, you must configure an identity realm for your monitored Active Directory servers on the Management Center connected to the agent or ISE device. For more information about realms, identity sources, and ISE/ISE-PIC, see the configuration guide for your system.

End of FMC Support for the User Agent

Firepower Management Center version 6.6 is the last version with which you can enable the user agent. The user agent cannot be enabled in Firepower Management Center 6.7 and upgrades to 6.7 will warn you to disable the user agent before upgrading.

We strongly recommend you stop using the user agent and switch to using the Cisco Identity Services Engine/Passive Identity Connector (ISE/ISE-PIC) as soon as possible.

You'll benefit from the following features, which are not available in the user agent:

- Support for Microsoft Active Directory up to version 2016
- Gathers authentication data from up to 10 Microsoft Active Directory domain controllers
- Gathers Active Directory authentication data from switches supporting Kerberos SPAN
- Supports passive/active redundancy
- You can upgrade from the ISE-PIC to ISE, adding the Passive Identity Connector node to an existing Cisco ISE cluster.
- Supports KVM, VMware, and Hyper-V
- Tailored to fit your organization with support for 3,000 and 300,000 sessions, depending on licensing

You are eligible for a free ISE-PIC license if you have a current support contract for any of the following:

- Any FMC hardware model
- Virtual FMC v25
- Virtual FMC v300

For the preceding models, request part number `L-FMC-ISE-PIC=`.

If you have FMCv2 and FMCv10, you must use the standard ISE-PIC part numbers.

For more information, see End-of-Life and End-of-Support for the Cisco Firepower User Agent.

Fixed Issues in This Release

The following issues were fixed in this release:

Caveat ID Number	Description
CSCvo61952	User agent version 2.4 can communicate with ASA with FirePOWER Services devices after upgrading to version 6.3.
CSCvo24540	User agent version 2.4 has upgraded its Microsoft SQL Server Compact Edition support to address vulnerabilities.
CSCvo08211	Version 2.5 of the user agent enables you to set a password for authenticating the user agent with the Firepower Management System. To use the default password, no action is required. To set a password, you must do all of the following: • Use the `configure user-agent` command on the Firepower Management Center (not a managed device) to create a password. For more information, see the chapter on the Firepower Management Center CLI Reference in the *Firepower Management Center Configuration Guide*. • Set the same password in the user agent and restart the user agent service. For more information, see Change the User Agent Password, page 2-27.

CHAPTER 2

The User Agent Configuration Process

To use Version 2.5 of the user agent to collect user login data from up to five Microsoft Active Directory servers and send it to Management Centers, you must install it, connect it to each Management Center and Microsoft Active Directory server, and configure general settings. For more information, see the following sections:

- Set Up a User Agent, page 2-1
- Management Center Configurations, page 2-3
- Configure the Active Directory Server, page 2-4
- Configure the User Agent Computers, page 2-6
- Install the User Agent, page 2-20
- Configure the User Agent, page 2-22
- Troubleshoot the User Agent, page 2-34
- Replace the Version 2.4 or Later User Agent with Version 2.3, page 2-41

Set Up a User Agent

Setting up a user agent is a multi-step configuration.

To set up a user agent:

Step 1 Configure each Management Center to do the following:

- Allow agent connections from the IP address of the server where you plan to install the agent.
- Configure and enable the Active Directory object or realm. See Configure a Version 6.2.3 or Later Management Center to Connect to User Agents, page 2-3.

Step 2 Configure the Active Directory server to log events for the user agent to communicate to the Management Center. For more information, see Configure the Active Directory Server, page 2-4.

Step 3 Configure each computer on the domain to allow Windows Management Instrumentation (WMI) through the firewall for the domain. For more information, see Configure Domain Computers, page 2-6.

Step 4 Install the prerequisite programs on the computer where you will install the agent. Set up the computer's TCP/IP access to the Active Directory server. For more information, see Prepare the Computer for User Agent Installation, page 2-6.

Step 5 If you have a previous user agent installation, optionally back up the agent database to retain configuration settings. For more information, see Back Up User Agent Configurations, page 2-19.

Step 6 Configure permissions necessary to allow the agent to connect to an Active Directory server. For more information, see:

- Give Limited Privileges to a Domain User (Summary), page 2-10
- Give Privileges to a Local User, page 2-9

Step 7 Install the agent on the computer.

- For more information, see Install the User Agent, page 2-20.
- To optionally install more than one user agent, see Deploy Multiple User Agents, page 1-5.

Step 8 Configure connections to one or more Microsoft Active Directory servers.

Step 9 (Optional.) Configure a polling interval and maximum poll length for the agent. For more information, see Configure User Agent Active Directory Server Connections, page 2-23.

Step 10 Make sure you have an available DNS server to resolve the user agent's host before you set up the user agent identity source on the FMC.

Failure to set up DNS properly prevents the FMC from connecting to a user agent using its host name.

Step 11 Configure connections to up to five Management Centers. For more information, see Configure User Agent Management Center Connections, page 2-26.

Step 12 (Optional.) Configure a list of user names and IP addresses to exclude from polling for login and logoff data. For more information, see:

- Configure User Agent Excluded Username Settings, page 2-27
- Configure User Agent Excluded Addresses Settings, page 2-29

Step 13 (Optional.) Configure the agent logging settings. For more information, see Configure User Agent Logging Settings, page 2-30.

Step 14 (Optional.) Configure the agent name, start and stop the service, and view the service's current status. For more information, see Configure General User Agent Settings, page 2-32.

Step 15 Click **Save** to save the user agent configuration.

⚠ **Caution** Do *not* modify the user agent maintenance settings unless Cisco TAC directs you to do so.

Management Center Configurations

This section discusses how to prepare the Management Center to receive user data from the user agent.

Note Version 2.4 of the user agent works only with the Firepower Management Center version 6.2.3 or later. If you have issues with the user agent and your version of the Firepower Management Center, you can replace the version 2.4 user agent with the version 2.3 user agent as discussed in Troubleshoot the User Agent, page 2-34.

Configure a Version 6.2.3 or Later Management Center to Connect to User Agents

To use Version 2.5 of the user agent to send login data to your Version 6.2.3 or later Management Centers, you must configure all of the following:

- Configure each Management Center to allow connections from the agents you plan to connect to your servers. That connection allows the agent to establish a secure connection with the Management Center, over which it can send data.

  For more information about establishing this connection, see Configuring a User Agent Connection in the Version 6.x *Firepower Management Center Configuration Guide*.

- To implement user access control, you must configure and enable a connection between the Management Center and at least one of your organization's Microsoft Active Directory servers. In Version 6.x, this is called a *realm*.

  Realms contain connection settings and authentication filter settings for servers. The connection's user download settings specify the users and groups you can use in access control rules. For more information about this configuration, see Creating a Realm in the Version 6.x *Firepower Management Center Configuration Guide*.

Configure the Active Directory Server

This section discusses how to verify that the Active Directory security logs are enabled so the Active Directory server can record login data to these logs.

Configure the Active Directory Server for Logging

To verify the Active Directory server is logging login data:

Step 1 On the Active Directory server, click **Start > [All Programs] > Administrative Tools > Event Viewer**.

Step 2 Click **Windows Logs > Security**.

If logging is enabled, the Security log is displayed. If logging is disabled, see How to configure Active Directory and LDS diagnostic event logging on MSDN for information on enabling security logging.

Step 3 Allow WMI through the firewall on the Active Directory server. If the Active Directory server is running Windows Server 2008 or Windows Server 2012, see Setting up a Remote WMI Connection on MSDN or more information.

To enable auditing of logon/logoff events on Windows 2012 Server:

Step 1 Click **Start > Administrative Tools > Group Policy Management**.

Step 2 In the navigation pane, expand **Forest: *YourForestName***, expand **Domains** > ***YourDomainName*** > **Group Policy Objects**.

Step 3 Right-click **Default Domain Policy** and click **Edit**.

Step 4 Browse to **Computer Configuration > Policies > Windows Settings > Security Settings > Advanced Audit Policy Configuration > Audit Policies > Logon/Logoff.**

Step 5 In the right pane, double-click **Audit Logoff**.

Step 6 In the Edit Logoff Properties dialog box, check **Configure the following audit events** and **Success**.

Step 7 Click **OK**.

Step 8 Repeat the same task for **Audit Logon**.

Note The user agent does not report logoff events identified by Windows Security Log event 4634. The user agent uses a remote Windows Management Instrumentation (WMI) call to query domain computers for logoffs.

Enable Idle Session Timeouts

This section discusses how to optionally enable idle session timeouts in group policy. This helps prevent the agent from detecting and reporting extraneous logins due to multiple sessions on a host.

Terminal Services (Windows Server versions up to 2008) allows multiple users to log into a server at the same time. Enabling idle session timeouts helps reduce the instances of multiple sessions logged into a server.

Remote Desktop Services (Windows Server versions 2012 and later) allows one user at a time to remotely log into a workstation. However, if the user disconnects from the Remote Desktop session instead of logging out, the session remains active. Without user input, the active session eventually idles.

If another user logs into the workstation using Remote Desktop Services while one session is idle, it's possible that two logins are reported to the Management Center. Enabling idle session timeouts causes those sessions to terminate after the defined idle timeout period, which helps prevent multiple remote sessions on a host.

Citrix sessions function similarly to Remote Desktop Services sessions. Multiple Citrix user sessions can be running on a computer at once. Enabling idle session timeouts helps prevent multiple Citrix sessions on a host, reducing extraneous login reporting.

Note that depending on the configured session timeout, there might still be situations where multiple sessions are logged into a computer.

Enable Terminal Services Session Timeout

This section applies to Windows Server versions up to 2008.

To enable Terminal Services session timeout, update the group policy settings for idle Terminal Services session timeout and disconnected Terminal Services session timeout for Windows Server 2008 or Windows Server 2012, as discussed in Configure Timeout and Reconnection Settings for Terminal Services Sessions on Microsoft TechNet.

The paths in the Group Policy Object manager are:

```
Computer Configuration\Administrative Templates\Windows Components\Terminal
Services\Terminal Server\Session Time Limits
User Configuration\Administrative Templates\Windows Components\Terminal Services\Terminal
Server\Session Time Limits
```

Set session timeouts shorter than the user agent's logoff check frequency so idle and disconnected sessions have a chance to time out before the next logoff check. If you have a mandatory idle session or disconnected session timeout, set the user agent's logoff check frequency *longer than* the session timeout. For more information on configuring the logoff check frequency, see Configure General User Agent Settings, page 2-32.

When you're done, continue with Configure the User Agent Computers, page 2-6.

Enable Remote Desktop Session Timeout

This section applies to Windows Server versions 2012 and later.

To enable Remote Desktop session timeout, update the group policy settings for idle remote session timeout and disconnected session timeout. See Session Time Limits on Microsoft TechNet for more information on enabling the session timeouts.

Set Remote Desktop timeouts *shorter than* the user agent's logoff check frequency so idle and disconnected sessions have a chance to time out before the next logoff check. If you have a mandatory idle session or disconnected session timeout, set the user agent's logoff check frequency *longer than* the Remote Desktop timeout. For more information on configuring the logoff check frequency, see Configure General User Agent Settings, page 2-32.

The path in the Group Policy Object editor is:

```
User Configuration\Policies\Administrative Templates\Windows Components\Remote Desktop
Services\Remote Desktop Session Host\Session Time Limits
```

When you're done, continue with Configure the User Agent Computers, page 2-6.

Enable Citrix Session Timeout

To enable Citrix session timeout, consult Citrix's documentation at http://support.citrix.com/

Configure Domain Computers

To enable the user agent to send logoff events to the Management Center, you must allow WMI traffic through the firewall on every computer that connects to the domain.

You have the following options:

- Use the Windows firewall to allow WMI for the domain.
- Configure firewall policies using Group Policy Object (GPO) as discussed in a resource such as Windows Firewall with Advanced Security Deployment Guide on Microsoft TechNet.

Configure the User Agent Computers

After you have prepared the Management Center and the Active Directory server, prepare the computers on which you will install and configure the agent.

Note For the user agent to provide visibility for logins and logoffs for all computers in your Active Directory domain, you must configure the user agent on every domain controller. For example, if your Active Directory domain has five domain controllers—each installed on a different host—you must install and configure the user agent software five times, one on each domain controller.

Prepare the Computer for User Agent Installation

You can install the user agent on a Windows computer that meets the requirements discussed in this section.

Computer Configurations

The computer can be any of the following:

- (Recommended.) A computer on a trusted network that can access the Active Directory server. This computer should be available only to network administrators.

We recommend this installation method because it’s the most secure.

- The Active Directory server.

Prerequisites for Installing the User Agent

The Windows computer must meet the following prerequisites:

- The computer is running Windows Vista, Windows 7, Windows 8, Windows Server 2008, or Windows Server 2012. For security reasons, we recommend you install the user agent on a domain computer and *not* on the Active Directory server computer.
- The computer has Microsoft .NET Framework Version 4.0 Client Profile and Microsoft SQL Server Compact (SQL CE) Version 4.0 installed.
  - The Microsoft .NET Framework Version 4.0 Client Profile redistributable package is available from the Microsoft download site (`dotNetFx40_Client_x86_x64.exe`).
  - SQL Server Compact 4 is available from the Microsoft download site

Note If you do not have the .NET Framework, when you start the agent executable file (`setup.exe`), it prompts you to download it. See Install the User Agent, page 2-20 for more information.

- Create a user to run the user agent as discussed in Create a User for the User Agent, page 2-9.
- The computer has TCP/IP access to the Active Directory servers you want to monitor, and uses the same version of the Internet Protocol as the Active Directory servers. If the agent is monitoring the Active Directory servers real time, the computer's TCP/IP access must be on at all times to retrieve login data.

Note If you install the user agent on Windows Server 2003 or an older operating system, the user agent cannot collect real time statistics from an Active Directory computer.

- The computer has TCP/IP access to the Management Centers where you want to report data and an IPv4 address.
- The computer has an IPv6 address, to detect logoffs from hosts with IPv6 addresses, or an IPv4 address, to detect logoffs from hosts with IPv4 addresses.
- The computer does not have a legacy agent or Version 2.x agent already installed. Because these agents do not automatically uninstall, to uninstall an existing agent, use **Add/Remove Programs** in the Windows Control Panel.

Caution If you have a previous version of the user agent installed, you must back up the database to retain configuration settings.

Continue with Create a User for the User Agent, page 2-9.

Create a User for the User Agent

To be able to run the user agent with the minimum necessary permissions, you must create a user account for the user agent:

- If you're upgrading an older version of the user agent, this step isn't necessary.

  In that case, see Back Up User Agent Configurations, page 2-19.
- To run the user agent on a computer separate from the Active Directory server, the user must be a domain user.
- To run the user agent on the Active Directory server, the user should be a local account.

To create a user:

Step 1 Log in to the Active Directory server as a member of the Domain Admins group.

Step 2 To run the user agent on the Active Directory server, create a local user account. (This account must be in the Domain Admins group but the user does not need to be in the Administrators group.)

Skip the remaining steps in this section and continue with Give the User Privileges, page 2-9.

Step 3 To create a domain user so you can run the user agent on a separate computer, click **Start** > **Active Directory Users and Computers**.

Step 4 In the left pane, expand the domain and folder in which to add the user.

Step 5 Right-click the folder in which to add the user.

Step 6 From the pop-up menu, click **New** > **User**.

Step 7 Follow the prompts on your screen to create the domain user and to give the user a strong password.

⚠ **Caution** For security reasons, make sure this user account is known only to network administrators.

Give the User Privileges

This section discusses the following possibilities:

- Adding a local user to the Domain Admins group on the Active Directory server.

  This method is easy but it's not recommended because it's less secure. See Give Privileges to a Local User, page 2-9.
- Giving a domain user minimal privileges to run the user agent. See Give Limited Privileges to a Domain User (Summary), page 2-10.

Give Privileges to a Local User

To run the user agent on the Active Directory server, you must add the user to the Domain Admins group. To make the user agent easier to install, you can optionally add it to the Administrators group as well.

Give Limited Privileges to a Domain User (Summary)

This section provides a summary of the tasks required to give a domain user minimal privileges to run the user agent. For an example, see Give Limited Privileges to a Domain User (Step-by-Step Example), page 2-10.

To give a domain user limited privileges:

Step 1 Log in to the Active Directory server as a member of the Domain Admins group.

Step 2 Add the user agent user to the following groups:

- **Distributed COM Users**
- **Event Log Readers**

Step 3 Use the Windows Management Instrumentation (WMI) Control console to give the user the following permissions to the `Root\CIMV2` node as discussed on Microsoft TechNet:

- **Execute Methods**
- **Enable Account**
- **Remote Enable**
- **Read Security**

Step 4 Enable the user agent to use real time processing of the Active Directory server.

- Create a Group Policy Object (GPO) security policy for the Windows firewall rule to allow inbound network traffic to Remote Procedure Call (RPC) Endpoint Mapper service as discussed on Microsoft TechNet.
- Create a GPO security policy for the Windows firewall rule to allow inbound traffic on random RPC ports as discussed on Microsoft TechNet.

For more information about real time processing, see Configure User Agent Active Directory Server Connections, page 2-23.

Step 5 Update your Group Policy Object (GPO) policies using the `gupdate /force` command or an equivalent method.

Give Limited Privileges to a Domain User (Step-by-Step Example)

This section provides a step-by-step example of giving a domain user minimal privileges to run the user agent.

To follow the procedure in this section, we assume your system uses:

- Windows Server 2012
- User agent user name is `limited.ua`
- Domain name is `sesame.example.com`
- User agent connects to one Active Directory server and one Firepower Management Center
- User agent processes events from the Active Directory server in real time

Give the User Windows Management Instrumentation (WMI) Permissions

This section discusses how to give the domain user WMI privileges to the `Root > CIMV2` node on the Active Directory server so the user can retrieve logoff events from domain computers.

To give a domain user WMI permissions:

Step 1 Log in to the Active Directory server as a member of the Domain Admins group.

Step 2 Add the user agent user to the following groups:

- **Distributed COM Users**
- **Event Log Readers**

Step 3 Click **Start** and enter `wmimgmt.msc`.

Step 4 Right-click **Console Root > WMI Control (Local)** and click **Properties**.

Step 5 In the WMI Control (Local) Properties dialog box, click the **Security** tab.

Step 6 Click **Root** > **CIMV2**.

Step 7 Click **Security**.

Step 8 In the Security for ROOT\CIMV2 dialog box, click **Add**.

Step 9 In the **Enter object names to select** field, enter `limited.ua` and click **Check Names**.

Windows locates the user name and displays it in the field.

Step 10 Click **OK**.

Step 11 Give the user the following permissions:

- **Execute Methods**
- **Enable Account**
- **Remote Enable**
- **Read Security**

Step 12 In the Security for Root\CIMV2 dialog box, click **OK**.

Step 13 In the WMI Control Properties dialog box, click **OK**.

Test WMI Permissions

After giving the user agent user WMI permissions on the Active Directory server, you should test the permissions from the computer on which you will install the user agent.

To test WMI permissions:

Step 1 Log in to the domain computer on which you'll install the user agent.

Step 2 In the search field, enter `wbemtest`. (In some versions of Windows, you must click **Start** first.)

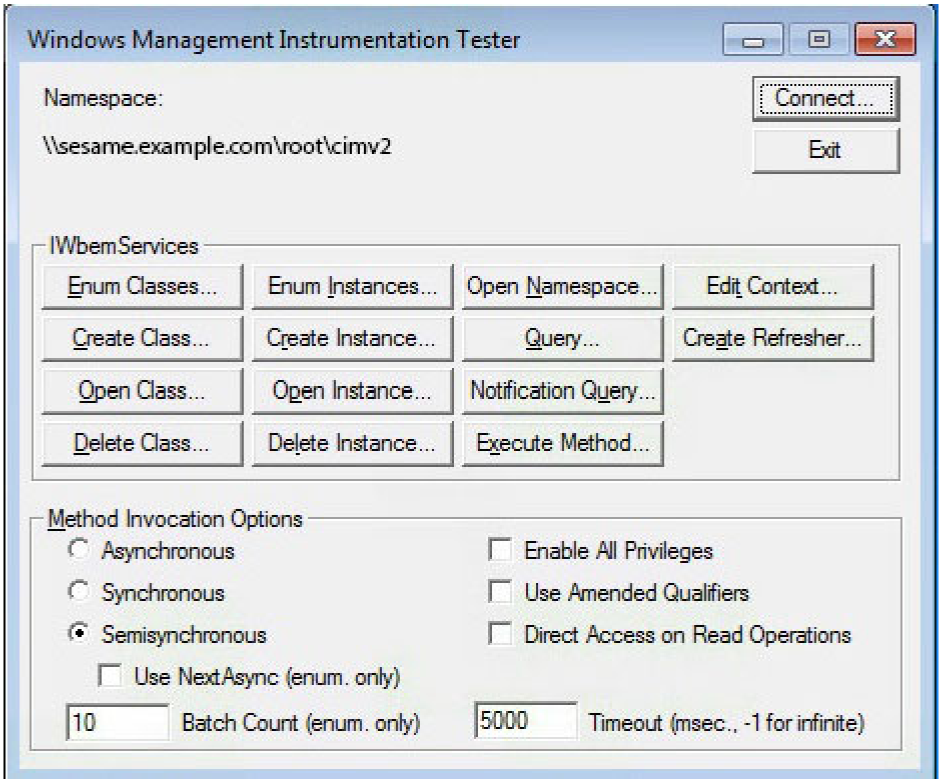
Step 3 In the Windows Management Instrumentation Tester dialog box, click **Connect**.

Step 4 In the Connect dialog box, enter the following information:

- **Namespace** field: Enter the name of the Active Directory server and path using the format: `\\`*`namespace`*`\root\cimv2`. In this example, enter `\\sesame.example.com\root\cimv2`
- **Credentials** field: Enter the user name in the format *`domain`*`\`*`username`* in the **User** field and the user's password in the **Password** field. In this example, the user name is `sesame\limited.ua`
- There is typically no need to change the other options in this dialog box.

Step 5 Click **Connect**.

If the connection is successful, the Windows Management Instrumentation Tester dialog box is displayed as follows.



Namespace:

\\sesame.example.com\root\cimv2

○ Asynchronous

○ Synchronous

● Semisynchronous

□ Use NextAsync (enum. only)

□ Enable All Privileges

□ Use Amended Qualifiers

□ Direct Access on Read Operations

10 Batch Count (enum. only)

5000 Timeout (msec., -1 for infinite)

If errors are displayed, try the following:

- `The RPC server is unavailable` indicates either a bad namespace or the Active Directory server is inaccessible (network problems, server is down, and so on).
- `Access is denied` indicates a bad user name or password.

Step 6 If the test is successful, click **Query**.

Step 7 In the Query dialog box, enter the following:

```
select * from Win32_NTLogEvent where Logfile = 'Security' and (EventCode=672 or
EventCode=4768 or EventCode=538 or EventCode=4364 or EventCode=528 or EventCode=4624 or
EventCode=4634) and TimeGenerated > "date-code"
```

date-code is a Microsoft time and date code in the format

`YYYYMMDDHHMMSS.fractionalSecond-utc_timezone_offset`

For example, to query from May 1, 2017 at midnight in the US Central time zone (UTC - 6 hours), enter the following:

```
select * from Win32_NTLogEvent where Logfile = 'Security' and (EventCode=672 or
EventCode=4768 or EventCode=538 or EventCode=4364 or EventCode=528 or EventCode=4624 or
EventCode=4634) and TimeGenerated > "20170501000000.000000-600"
```

Step 8 From the **Query Type** list, click **WQL**.

Step 9 Click **Apply**.

The query is displayed in a new dialog box.

If the errors `Invalid class` or `Invalid query` are displayed, check the command syntax and try again. If no results are displayed, check your date code.

Step 10 When you're finished viewing the logs, click **Close**.

Step 11 In the Windows Management Instrumentation Tester dialog box, click **Exit**.

Allow the User Agent to Access Distributed Component Object Management (DCOM)

This section discusses how to allow DCOM access so the user agent can remotely access objects on the Active Directory server.

To give the user DCOM access:

Step 1 Log in to the Active Directory server as member of the Domain Admins group.

Step 2 Click **Start** > [**Run**], and enter `dcomcnfg`, then press Enter.

Step 3 In the Component Services window, click **Component Services** > **Computers**.

Step 4 Right-click **My Computer** and click **Properties**.

Step 5 In the My Computer Properties dialog box, click the **COM Security** tab.

Step 6 Under Launch and Activation Permissions, click **Edit Limits**.

Step 7 In the Launch and Activation Permissions dialog box, click **Add**.

Step 8 In the **Enter the object names to select** field, enter `limited.ua` and click **Check Names**.

Step 9 If the name matches, click **OK**.

Step 10 Grant the user the **Remote Launch** and **Remote Activation** permissions.

Step 11 In the Launch and Activation Permissions dialog box, click **OK**.

Step 12 In the My Computer Properties dialog box, click **OK**.

To update Group Object Policy to allow access to the Active Directory security log:

Step 1 Click **Start > [All Programs] > Administrative Tools > Group Policy Management.**

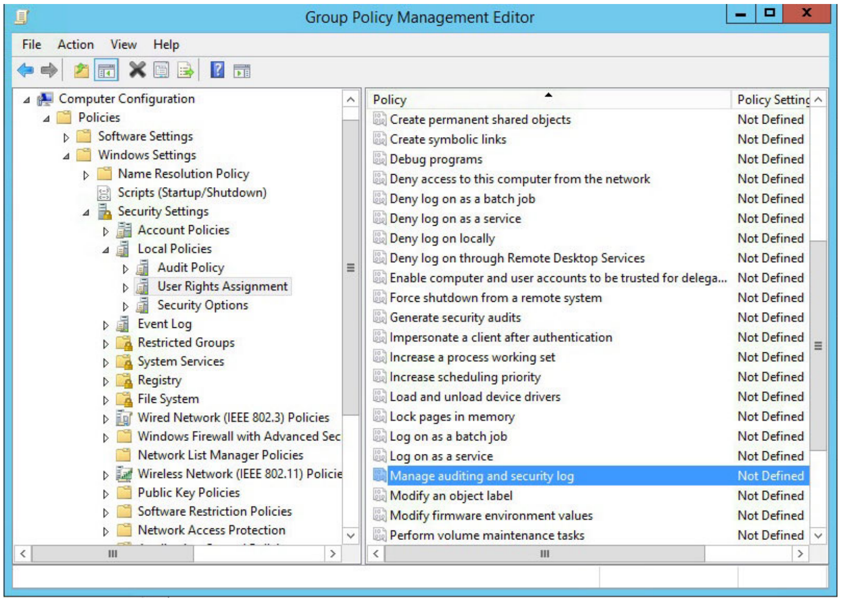
Step 2 In the navigation pane, expand **Forest:** ***YourForestName***, expand **Domains** > ***YourDomainName*** > **Group Policy Objects**.

Step 3 Right-click **Default Domain Policy** and click **Edit**.

Step 4 Browse to **Computer Configuration > Policies > Windows Settings > Security Settings > Local Policies > User Rights Assignment.**

Step 5 In the right pane, double-click **Manage auditing and security log**.

The following figure shows an example.



- Computer Configuration
  - Policies
    - Software Settings
    - Windows Settings
      - Name Resolution Policy
      - Scripts (Startup/Shutdown)
      - Security Settings
        - Account Policies
        - Local Policies
          - Audit Policy
          - User Rights Assignment
          - Security Options
        - Event Log
        - Restricted Groups
        - System Services
        - Registry
        - File System
        - Wired Network (IEEE 802.3) Policies
        - Windows Firewall with Advanced Sec
        - Network List Manager Policies
        - Wireless Network (IEEE 802.11) Policie
        - Public Key Policies
        - Software Restriction Policies
        - Network Access Protection

Policy	Policy Setting
Create permanent shared objects	Not Defined
Create symbolic links	Not Defined
Debug programs	Not Defined
Deny access to this computer from the network	Not Defined
Deny log on as a batch job	Not Defined
Deny log on as a service	Not Defined
Deny log on locally	Not Defined
Deny log on through Remote Desktop Services	Not Defined
Enable computer and user accounts to be trusted for delega...	Not Defined
Force shutdown from a remote system	Not Defined
Generate security audits	Not Defined
Impersonate a client after authentication	Not Defined
Increase a process working set	Not Defined
Increase scheduling priority	Not Defined
Load and unload device drivers	Not Defined
Lock pages in memory	Not Defined
Log on as a batch job	Not Defined
Log on as a service	Not Defined
Manage auditing and security log	Not Defined
Modify an object label	Not Defined
Modify firmware environment values	Not Defined
Perform volume maintenance tasks	Not Defined

Step 6 Check **Define these policy settings**.

Step 7 Click **Add User or Group**.

Step 8 In the User and group names field, either enter the user agent user name or click **Browse** to locate it.

Step 9 In the Manage auditing and security log Properties dialog box, click **OK**.

Create Group Policy Object Rules for the Windows Firewall

This section is required for the user agent to use real time event processing for the Active Directory server. For more information about real time event processing, see Configure User Agent Active Directory Server Connections, page 2-23.

To allow inbound remote procedure call (RPC) network traffic, use the Windows Firewall with Advanced Security node in Group Policy Management to create two firewall rules:

- The first rule allows incoming traffic to the RPC Endpoint Mapper service, which responds with a dynamically assigned port number that the client must use to communicate with the service.
- The second rule allows network traffic that is sent to the dynamically assigned port number.

Using the two rules helps to protect your computer by allowing network traffic only from computers that have received RPC dynamic port redirection and to only those port numbers assigned by the RPC Endpoint Mapper.

Perform the tasks discussed in the following procedures on every Active Directory server to which the user agent requires access.

To create a GPO firewall rule to allow RPC traffic:

Step 1 If you haven't done so already, log in to your Active Directory server as a member of the Domain Admins group.

Step 2 Choose **Start** > **Administrative Tools**.

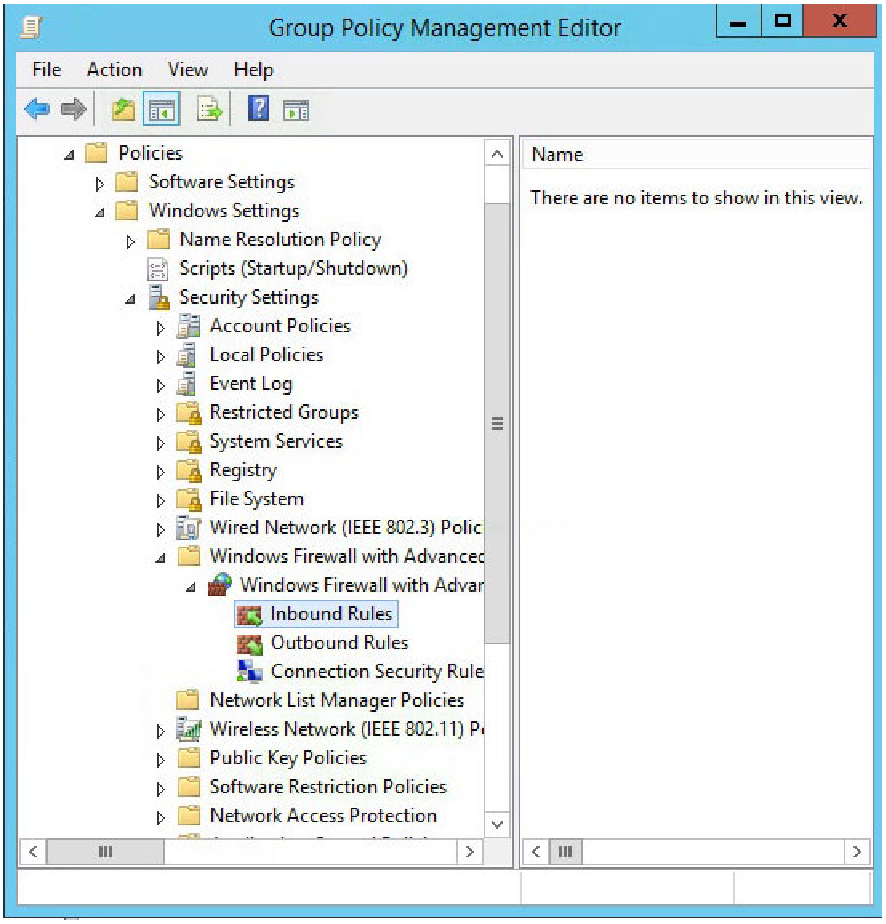
Step 3 In the Administrative Tools window, double-click **Group Policy Management**.

Step 4 In the navigation pane, expand **Forest:** ***YourForestName***, expand **Domains**, > ***YourDomainName*** > **Group Policy Objects**, right-click the GPO you want to modify, and then click **Edit**.

Typically, you should edit the **Default Domain Policy**.

Step 5 In the left pane, expand **Computer Configuration** > **Policies** > **Windows Settings** > **Security Settings** > **Windows Firewall with Advanced Security** > **Windows Firewall with Advanced Security**.

The following figure shows an example.



There are no items to show in this view.

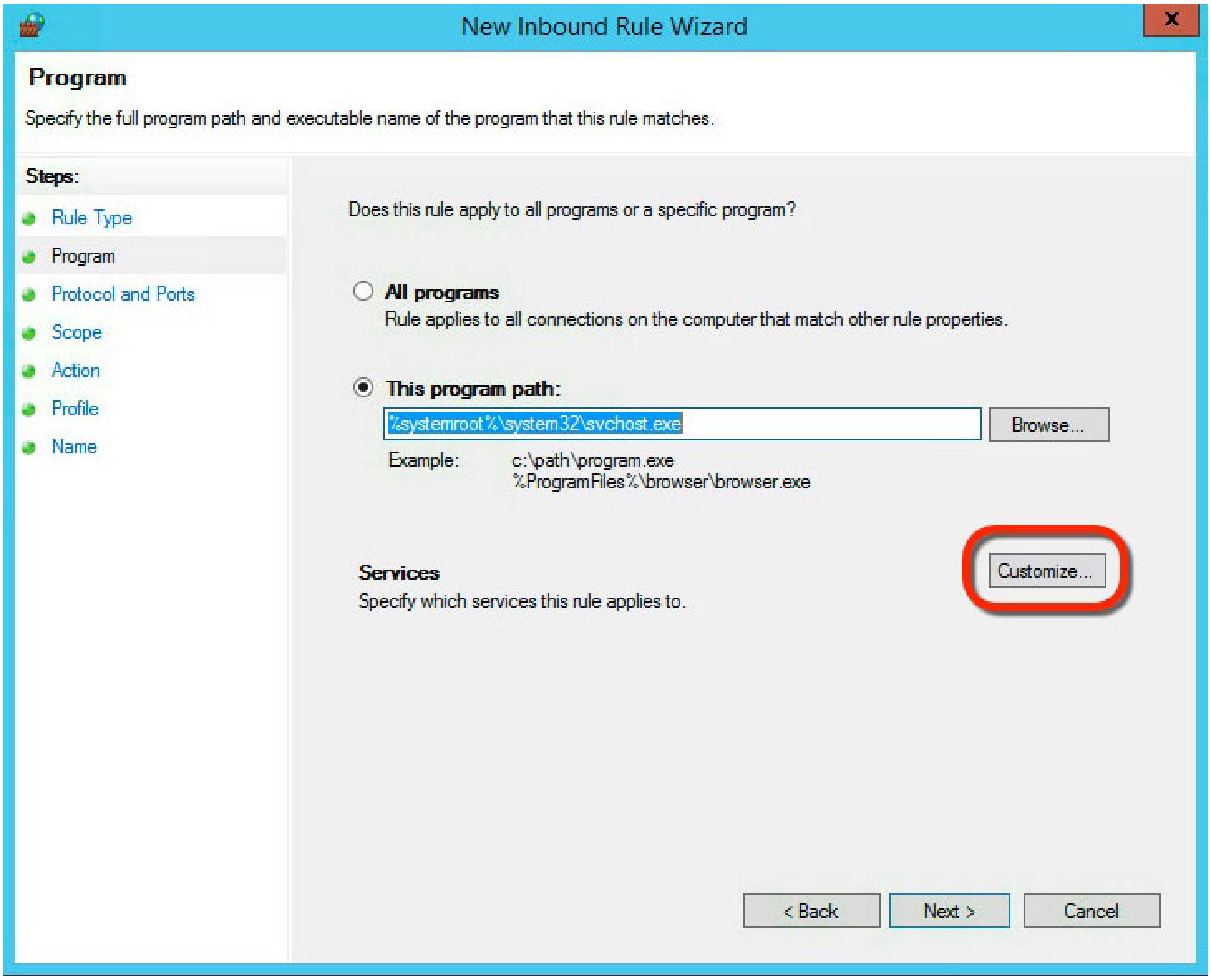
Step 6 Right-click **Inbound Rules** and click **New Rule**.

Step 7 In the New Inbound Rule Wizard dialog box, click **Custom** and click **Next**.

Step 8 Click **This program path**, and then enter `%systemroot%\system32\svchost.exe`

Step 9 Next to Services, click **Customize**.

The following figure shows an example.



New Inbound Rule Wizard

Program

Specify the full program path and executable name of the program that this rule matches.

Does this rule apply to all programs or a specific program?

○ **All programs**
Rule applies to all connections on the computer that match other rule properties.

● **This program path:**
%systemroot%\system32\svchost.exe

Example: c:\path\program.exe
%ProgramFiles%\browser\browser.exe

Services
Specify which services this rule applies to.

Step 10 In the Customize Service Settings dialog box, click **Apply to this service**, select **Remote Procedure Call (RPC)** with a short name of **RpcSs**, and click **OK**.

Step 11 Click **Next**. You are required to confirm the action.

Step 12 On the Protocol and Ports dialog box, for **Protocol type**, click **TCP**.

Step 13 For **Local port**, choose **RPC Endpoint Mapper**, and then click **Next**.

Step 14 On the Scope page, in the **Which remote IP addresses does this rule apply to?** section, choose **These IP addresses**, click **Add**, and enter the user agent computer’s IP address.

Step 15 Click **Next**.

Step 16 On the Action page, select **Allow the connection**, and then click **Next**.

Step 17 On the Profiles page, check only **Domain** and click **Next**.

Step 18 On the Name page, enter a name to identify this rule and click **Finish**.

To create a GPO rule to allow dynamically-mapped ports:

Step 1 Complete steps 1 through 4 in Create Group Policy Object Rules for the Windows Firewall, page 2-15.

Step 2 In the New Inbound Rule Wizard dialog box, click **Custom** and click **Next**.

Step 3 Click **This program path**, and then enter `%systemroot%\system32\svchost.exe`

Step 4 Next to Services, click **Customize**.

Step 5 In the Customize Service Settings dialog box, click **Apply to this service**, select **Windows Event Log** with a short name of **EventLog**, and click **OK**.

Step 6 Click **Next**. You are required to confirm the action.

Step 7 On the Protocol and Ports dialog box, for **Protocol type**, click **TCP**.

Step 8 For Local port, click **RPC Dynamic Ports**, and then click **Next**.

Step 9 On the Scope page, click **These IP addresses**, click **Add**, and enter the user agent computer’s IP address.

Step 10 Click **Next**.

Step 11 On the Action page, click **Allow the connection** and click **Next**.

Step 12 On the Profiles page, check only **Domain** and click **Next**.

Step 13 On the Name page, enter a name to identify this rule and click **Finish**.

To apply the GPO policies:

Step 1 Apply the new GPO policies using the command `gpupdate /force` or an equivalent method.

For more information about applying GPO policies, see the following references:

- GPO Policy for Beginners on Microsoft TechNet
- Policy Processing on Microsoft TechNet

Note You must run the `gpupdate /force` command using elevated permissions. Either log in to the Active Directory server as Administrator or run the command prompt as administrator. (Right-click the command prompt shortcut and click **Run as Administrator**.)

Back Up User Agent Configurations

If you have an earlier version of the user agent installed, installing a newer version of the user agent removes your existing configuration. To preserve these configuration settings, back up the database before installing the newer version of the user agent.

Note If you have Version 2.2 or later of the user agent installed, you do not need to back up the database. Configuration settings are automatically imported when you install a newer version of the user agent. Continue with Install the User Agent, page 2-20.

To retain your configuration settings:

Step 1 On the computer where you installed the agent, click **Start > Programs > Cisco > Configure Cisco Firepower User Agent for Active Directory**.

Step 2 Click the stop button (■) to stop the agent service.

Step 3 Locate `CiscoUserAgent.sdf` on the computer where the agent is installed, and copy the file locally.

Note If you are updating from Version 2.2 or before, locate and copy `SourcefireUserAgent.sdf`. Make copy of the file and rename the copy to `CiscoUserAgent.sdf`.

Step 4 Uninstall the Cisco User Agent using the Control Panel's **Add/Remove Programs** option. Remove the agent.

Step 5 Install the latest version of the user agent. See Install the User Agent, page 2-20 for more information.

Step 6 On the computer where the agent is installed, select **Start > Programs > Cisco > Configure Cisco Firepower User Agent for Active Directory**.

Step 7 Click the stop button (■) to stop the agent service.

Step 8 Locate `CiscoUserAgent.sdf` on the computer where the latest version of the agent is installed. Replace the current file with the local backup made from the previous version of the agent.

Step 9 On the computer where the latest version of the agent is installed, select **Start > Programs > Cisco > Configure Cisco Firepower User Agent for Active Directory**.

Step 10 Click ▶ to start the service.

Continue with Install the User Agent, page 2-20.

Install the User Agent

After you configure permissions to connect to the Active Directory server, and after you configure idle remote session timeouts, install the agent.

Caution If you have a previous version of the user agent installed, to retain configuration settings, you must complete a backup of the database before installation. For more information, see Back Up User Agent Configurations, page 2-19.

By default, the agent runs as a service using the **Local System** account. If the Windows computer where the agent is running is connected to the network, the service continues to poll and send user data even if a user is not actively logged in to the computer.

For each agent, you can configure connections to one or more Active Directory servers and up to five Management Centers. Before you add a Management Center connection, make sure you add the agent to the Management Center configuration. For more information, see:

- Configure a Version 6.2.3 or Later Management Center to Connect to User Agents, page 2-3

For more information about deploying more than one user agent, see Deploy Multiple User Agents, page 1-5.

In a high availability configuration, add both Management Centers to the agent to enable update of user login data to both the primary and the secondary so the data remains current on both.

To install the user agent:

Step 1 Log in as the user you created in Create a User for the User Agent, page 2-9 to the Windows computer on which to install the user agent:

- If you are upgrading an older version of the user agent, log in to the same computer.
- (Recommended.) To install the user agent on a computer separate from the Active Directory server, log in to that computer.
- To install the user agent on the Active Directory server, log in to the Active directory server as a member of the Domain Admins group, and, optionally the Administrators group.

Step 2 Download the User Agent setup file (`Cisco_Firepower_User_Agent_for_Active_Directory_2.5-148.zip`) from the Support Site.

Note Download the compressed archive containing the user agent setup files directly from the Support Site. Do not transfer the file over email because it might become corrupted.

Step 3 Right-click the `.zip` file and choose **Extract All**.

Step 4 Choose a folder in which to extract the files.

The agent requires 3 MB free on the hard drive for installation. We recommend you allocate 4 GB on the hard drive for the agent local database.

Step 5 In the folder to which you extracted the files, double-click `setup.exe`.

Note Double-click `setup.exe` and *not* `setup.msi`. `setup.msi` does not check for prerequisite software before installing the user agent, which could result in errors installing or running the agent.

Tip If you are using an account that is not a member of the Administrators group and do not have permissions to install new applications on the Windows computer, you must elevate to a user that does belong to the Administrators group to have the appropriate permissions to start the installation. To access the escalation option, right click the `setup.exe` file and click **Run As**. Select an appropriate user and supply the password for that user.

Step 6 You must accept the license agreements to continue the installation.

Step 7 If you do not have the Microsoft .NET Framework Version 4.0 Client Profile and SQL Server Compact 4.0 on the Windows computer where you install the agent, you are prompted to download the appropriate files. Download and install the files.

Step 8 Follow the prompts in the wizard to install the agent.

If User Account Control is enabled on the computer, you must answer **Yes** to every prompt requesting permission to make changes.

Step 9 To begin configuring the agent, see Configure the User Agent, page 2-22.

Configure the User Agent

After the agent is installed, you can configure it to receive data from Active Directory servers, report the information to Management Centers, exclude specific user names and IP addresses from the reporting, and log status messages to a local event log or the Windows application log.

To configure the agent:

Access: Any

Step 1 On the computer where you installed the agent, select **Start > All Programs > Cisco > Configure Cisco Firepower User Agent for Active Directory**.

The following table describes the actions you can take when configuring the agent and where to configure them.

Table 2-1 User Agent Configuration Actions

To...	You can...
Change the agent name, change the logoff check frequency, start and stop the service, and set a scheduling priority	Click the **General** tab. See Configure General User Agent Settings, page 2-32 for more information.
Add, modify, or remove Active Directory servers, enable real time Active Directory server data retrieval, and modify the Active Directory server polling interval and maximum poll length	Click the **Active Directory Servers** tab. See Configure User Agent Active Directory Server Connections, page 2-23 for more information.
Add or remove Management Centers or change the Management Center password	Click the **Firepower Management Centers** tab. See Configure User Agent Management Center Connections, page 2-26 for more information.
Add, modify, or remove user names excluded from reporting	Click the **Excluded Usernames** tab. See Configure User Agent Excluded Username Settings, page 2-27 for more information.
Add, modify, or remove IP addresses excluded from reporting	Click the **Excluded Addresses** tab. See Configure User Agent Excluded Addresses Settings, page 2-29 for more information.
View, export, and clear the event log, log to Windows application logs, and modify how long messages should be kept	Click the **Logs** tab. See Configure User Agent Logging Settings, page 2-30 for more information.
Perform troubleshooting and maintenance tasks, as directed by Cisco TAC	Click the **Logs** tab, enable **Show Debug Messages in Log**, then select the **Maintenance** tab. See Configure User Agent Maintenance Settings, page 2-33 for more information.
Save changes to the agent settings	Click **Save**. A message is displayed informing you when you have unsaved changes.
Close the agent without saving changes to the agent settings	Click **Cancel**.

Configure User Agent Active Directory Server Connections

You can add connections to one or more Active Directory servers from a user agent, and configure the following:

- Whether the agent retrieves login and logoff data real time or polls the Active Directory servers at regular intervals for data.
- How often the agent polls for user activity data, or attempts to establish or re-establish a real time connection with an Active Directory server if the connection is lost.
- What IP address the agent reports for logins to the Active Directory server itself.
- How much login and logoff data the agent retrieves when it establishes or re-establishes a connection with an Active Directory server.

When a user agent is configured to retrieve data real time and real time monitoring is unavailable, the agent instead attempts to poll the Active Directory servers for data until real time monitoring is again available.

Tip If your user agent retrieves significant amounts of user activity, We recommend configuring polling instead of real time data retrieval. In a high-activity environment, configure a `1 minute` polling interval and no more than a `10 minute` maximum polling length.

Note that real time monitoring requires an Active Directory server running Windows Server 2008 or later.

Note If you install the user agent on Windows Server 2003 or an older operating system, the user agent cannot collect real time statistics from an Active Directory computer.

From the user agent, you can view the current Active Directory server polling status at the time the tab is selected, the last login reported to the agent, and the last time the agent polled an Active Directory server.

You can also view whether the agent is polling an Active Directory server in real time, and the real time data retrieval status at the time the tab is selected. See the following table for more information on server statuses.

Table 2-2 Active Directory Server Statuses

Active Directory Server Status	Polling Availability	Real Time Availability
`available`	The server is available for polling.	The server is available for real time data retrieval.
`unavailable`	The server is not available for polling.	The server is not available for real time data retrieval, or the server is configured for polling.

Table 2-2 Active Directory Server Statuses (continued)

Active Directory Server Status	Polling Availability	Real Time Availability
`pending`	The server configuration is added, but communication hasn't started yet.	It takes some time after you add and save a server configuration for it to start communicating with the user agent. If the `pending` status persists, check communication between the user agent and the server.
`unknown`	The agent has started and a status is not yet available, or the agent has not yet checked the Active Directory server.	The agent has started and a status is not yet available, or the agent has not yet checked the Active Directory server.

Note You should not connect more than one user agent to the same Active Directory domain controller because the user agent reports extraneous logins as each detects the other's connections. If you do, configure each user agent to exclude the IP address of every other host running an agent that is polling the same Active Directory server and the user name the agent uses to log in. For more information, see Configure User Agent Excluded Addresses Settings, page 2-29.

To configure Active Directory server connections:

Step 1 If necessary, log in to the computer on which the user agent is installed.

Step 2 Click **Start** > [**All**] **Programs** > **Cisco** > **Configure Cisco Firepower Agent for Active Directory**.

Step 3 Click the **Active Directory Servers** tab.

Step 4 You have the following options:

- To add a new connection to a server, click **Add**.
- To modify an existing connection, double-click the server name.
- To remove an existing connection, click the server name and click **Remove**.

Step 5 In the **Server Name/IP Address** field, enter the Active Directory server or domain controller's fully qualified server name or IP address. To detect logins to the Active Directory server, enter the IP address.

If the agent is installed on an Active Directory server, to add the server where you installed the agent, enter `localhost` as the server name. You have the option to add a user name and password. If you omit that information, you cannot detect logoffs for users authenticating to the Active Directory server. You can poll the server regardless of whether you enter a user name and password.

Note If your Active Directory system has multiple domain controllers, enter the host name or IP address of the domain controller with which you want the user agent to communicate. (Active Directory domain controllers don't share their security logs so you must have a separate user agent connection to each controller.) In a distributed or heavily trafficked system, you can optionally install more than one user agent as discussed in Deploy Multiple User Agents, page 1-5.

Step 6 In the **Authorized User** and **Password** fields, enter a user name and password with rights to query for user login and logoff data on the Active Directory server.

To authenticate using a proxy, enter a fully qualified user name.

By default, the domain for the account you used to log into the computer where you installed the agent auto populates the **Domain** field.

Note If your user password contains 65 or more characters, you cannot configure new server connections. To regain this functionality, shorten your password.

Step 7 In the **Domain** field, enter the name of the Active Directory domain.

Step 8 To detect logins to the Active Directory server, select an IP address from the **Local Login IP Address** field. The agent automatically populates this field with all IP addresses associated with the server specified in the **Server Name/IP Address** field.

If the **Server Name/IP Address** field is blank or contains `localhost`, this field is populated with all IP addresses associated with the local host.

Step 9 Check **Process real time events** to enable the user agent to retrieve login events from this Active Directory server real time.

Step 10 Click **Add** to add a new server or click **Save** to save changes to an existing server.

The server connection definition is displayed in the list of Active Directory servers. If you have more than one server connection configured, you can sort on **Host**, **Last Reported**, **Polling Status**, **Last Polled**, **Real Time Status**, or **Real Time** by clicking the respective column headers.

Note If the user agent cannot connect to the Active Directory server at configuration time, you cannot add the server. Check that the agent has TCP/IP access to the server, that the credentials you used can connect, and that you correctly configured the connection to the Active Directory server. See Configure the Active Directory Server, page 2-4 for more information.

Step 11 (Optional.) Change the interval at which the agent automatically polls the Active Directory server for user login data, select a time from the **Active Directory Server Polling Interval** list.

After you save the settings, the next poll occurs after the selected number of minutes elapse, and recurs at that interval. If a poll takes longer than the selected interval, the next poll starts in the next interval after the poll ends.

If real time event processing is enabled for an Active Directory server, and the user agent loses connectivity with the server, the agent keeps attempting polls until it receives a response and real time data retrieval is available. After the connection is established, real time data retrieval resumes.

Step 12 (Optional.) Change the maximum time span polled when the agent first establishes or reestablishes a connection to poll an Active Directory server for user login data, select a time from the **Active Directory Server Max Poll Length** list.

Note The user agent does not allow saving a configuration that would skip user activity data in each poll. Therefore, you cannot save a value in the **Active Directory Server Max Poll Length** list less than the value selected from the **Active Directory Server Polling Interval** list.

Step 13 To save and apply configuration changes to the agent, click **Save**.

Step 14 You have the following options:

- To add or remove Management Center connections, select the **Firepower Management Centers** tab. For more information, see Configure User Agent Management Center Connections, page 2-26.

  You must add at least one Management Center to the agent to report user login and logoff data.
- To configure the agent, you can take any of the actions described in Table 2-1 on page 2-22.

Configure User Agent Management Center Connections

You can send Active Directory user data to up to five Management Centers from a user agent. From the agent, you can also view the Management Center status at the time the tab is selected (`available`, `unavailable`, or `unknown` when the agent first starts) and the last login reported by the agent.

Before you add a connection, make sure you add the user agent to the Management Center configuration. For more information, see Configure a Version 6.2.3 or Later Management Center to Connect to User Agents, page 2-3.

In a high availability configuration, add both Management Centers to the agent to enable update of user login and logoff data to both the primary and the secondary so the data remains current on both.

To configure Management Center connections:

Access: Any

Step 1 If necessary, log in to the computer on which the user agent is installed.

Step 2 Click **Start** > [**All**] **Programs** > **Cisco** > **Configure Cisco Firepower Agent for Active Directory**.

Step 3 Click the **Firepower Management Centers** tab.

Step 4 In the **Server Name/IP Address** field, enter the hostname or IP address of the Management Center you want to add.

Step 5 In the **Password** field, enter the password you configured for the user agent to log in to the Firepower Management Center. If you did not configure a password, leave the field blank. For more information about configuring a password, see the chapter on the Firepower Management Center CLI Reference in the *Firepower Management Center Configuration Guide*.

To change the user agent password, see Change the User Agent Password, page 2-27.

Step 6 Click **Add**.

The Management Center connection configuration is added. You cannot add a hostname or IP address more than once. You should not add a Management Center by both hostname and IP address. If the Management Center has more than one network adapter, you should not add it multiple times using different IP addresses.

If you have more than one Management Center connection configured, you can sort on **Host**, **Status**, or **Last Reported** by clicking the respective column headers.

Note If the user agent cannot connect to a Management Center at configuration time, it cannot add that Management Center. Check that the agent has TCP/IP access to the Management Center.

Step 7 To save and apply configuration changes to the agent, click **Save**. The updated settings are applied to the agent.

Step 8 You have the following options:

- (Optional.) Add or remove user names to or from the excluded user name list, select the **Excluded Usernames** tab. For more information, see Configure User Agent Excluded Username Settings, page 2-27.
- (Optional.) Add or remove IP addresses to the excluded IP address list, select the **Excluded Addresses** tab. For more information, see Configure User Agent Excluded Addresses Settings, page 2-29.
- (Optional.) View the log message and configure logging, choose the **Logs** tab. For more information, see Configure User Agent Logging Settings, page 2-30.
- (Optional.) Configure general agent settings, click the **General** tab. For more information, see Configure General User Agent Settings, page 2-32.
- To configure the agent, you can take any of the actions described in Table 2-1 on page 2-22.

Change the User Agent Password

You can change the user agent password using user agent 2.5 or later and Firepower Management Center 6.5 or later.

If you changed the user agent password, either from the default or from another password, you must do the following:

Step 1 If necessary, log in to the computer on which the user agent is installed.

Step 2 Click **Start** > [**All**] **Programs** > **Cisco** > **Configure Cisco Firepower Agent for Active Directory**.

Step 3 Click the **Firepower Management Centers** tab.

Step 4 Remove the Firepower Management Center from the user agent.

Step 5 Add the Firepower Management Center with the password you set on the FMC. See the preceding section for more information.

Step 6 Restart the user agent service. See Configure General User Agent Settings, page 2-32.

Configure User Agent Excluded Username Settings

You can define up to 500 user names to be excluded when polling for login or logoff events. If the agent retrieves a login or logoff event by an excluded user name, the agent does not report the event to the Management Center.

Login and logoff events for a user name that are reported before the exclusion are not affected. If you remove a user name from the excluded user name list, future login and logoff events for that user name are reported to the Management Center.

You can choose whether to exclude all logins and logoffs by a user from all domains, or from specific domains. You can also export and import lists of user names and domains, stored in comma-separated value files. Note that if you exclude a user already reported to the Management Center, the user is never unmapped from the host unless the host is purged from the database.

For example, if you installed the user agent on a computer separate from the Active Directory server, you can use this option to exclude the user agent user from logging to the Management Center.

To configure excluded user names:

Step 1 If necessary, log in to the computer on which the user agent is installed.

Step 2 Click **Start** > [**All**] **Programs** > **Cisco** > **Configure Cisco Firepower Agent for Active Directory**.Select the **Excluded Usernames** tab.

Step 3 In the next available row, enter a user name you want to exclude in the **Username** column.

Excluded user names cannot include the dollar sign character (`$`) or the quotation mark character (`"`).

Step 4 Enter the domain associated with the user name in the **Domain** column.

You can define only one domain per row. If you do not specify a domain, the user name in every domain is excluded.

Step 5 Repeat steps 3 and 4 to add additional user names. If you have more than one excluded user name configured, you can sort on **Username** or **Domain** by clicking the respective column headers.

Step 6 To remove a row, you have the following options:

- Highlight the row and press the Delete key.
- Place your pointer at the end of the user name and press the Backspace key until it is deleted.

The row is removed.

To remove multiple rows, press Control+click to select multiple rows and press Delete.

Step 7 To export the list of user names and domains to a comma-separated value file, click **Export List**. Select a file path to save the file.

The file is saved. By default, the file is named `Cisco_user_agent_excluded_users.csv`.

Step 8 To import a list of user names and domains from a comma-separated value file, click **Import List**. Select a file to upload.

The existing user names are cleared, and the user names in the file are loaded. You cannot upload a file that contains duplicate user names. If there are any syntax errors in the file, you cannot upload the file.

Entries in the comma-separated value file must be in the following format:

```
"username","domain"
```

A domain value is optional, but quotes are required as a placeholder.

Step 9 Click **Save** to save and apply configuration changes to the agent.

Step 10 You have the following options:

- To add or remove IP addresses to the excluded IP address list, select the **Excluded Addresses** tab. For more information, see Configure User Agent Excluded Addresses Settings, page 2-29.
- To configure the agent, you can take any of the actions described in Table 2-1 on page 2-22.

Configure User Agent Excluded Addresses Settings

You can configure up to 100 IPv4 and IPv6 addresses to be excluded when polling for login events. If the user agent retrieves a login or logoff event that contains an excluded IP address, the agent does not report the event to the Management Center.

Login and logoff events from an IP address that are reported before the exclusion are not affected. If you remove an IP address from the excluded address list, future login and logoff events for that address are reported to the Management Center.

For example, if you installed the user agent on a computer separate from the Active Directory server, you can use this option to exclude the user agent user from logging to the Management Center.

Note If you use both the user agent and TS Agent in the same network, you should exclude the TS Agent's IP address to prevent non-critical errors from being logged to the Firepower Management Center. When both the TS Agent and user agent detect the same user logging in, non-critical errors are written to the logs.

To configure excluded IP addresses:

Step 1 If necessary, log in to the computer on which the user agent is installed.

Step 2 Click **Start** > [**All**] **Programs** > **Cisco** > **Configure Cisco Firepower Agent for Active Directory**.Select the **Excluded Addresses** tab.

Step 3 In the next available row, enter an IP address you want to exclude in the **Address** column. Repeat this to add additional IP addresses.

If you have more than one excluded IP address configured, you can sort on **Address** by clicking the respective column headers.

If you enter an invalid IP address, an exclamation mark icon (❗) is displayed in the row header. You cannot enter another address without fixing the invalid address.

Step 4 To remove an IP address, highlight the row and press the Delete key.

The IP address is removed. To remove multiple rows, Control+click to select multiple rows and press the Delete key.

Step 5 To export the list of IP addresses to a comma-separated value file, click **Export List**. Select a file path to save the file.

The file is saved. By default, the file is named `Cisco_user_agent_excluded_addresses.csv`.

Step 6 To import a list of IP addresses from a comma-separated value file, click **Import List**. Select a file to upload.

The existing IP addresses are cleared, and the IP addresses in the file are loaded. You cannot upload a file that contains duplicate IP addresses. If there are any syntax errors in the file, you cannot upload the file.

Step 7 Click **Save** to save and apply configuration changes to the agent.

Step 8 You have the following options:

- To view the log message and configure logging, select the **Logs** tab. For more information, see Configure User Agent Logging Settings, page 2-30.
- To configure the agent, you can take any of the actions described in Table 2-1 on page 2-22.

Configure User Agent Logging Settings

You can view up to 250 status messages logged by the agent in the **Logs** tab. The agent logs status messages to the local event log for the following events when they occur:

- The agent successfully polls data from an Active Directory server
- The agent fails to connect to an Active Directory server
- The agent fails to retrieve data from the Active Directory server
- The agent successfully connects to a Management Center
- The agent fails to connect to a Management Center

The agent logs each status message with a timestamp and the severity level. The following table describes the possible severity levels by increasing severity.

Table 2-3 User Agent Logging Severity Levels

Level	Color	Description
Debug	gray	The event is logged for debugging purposes. These messages are not displayed by default.
Information	green	The event is consistent with normal agent operation.
Warning	yellow	The event is unexpected, but does not necessarily disrupt normal agent operation.
Error	red	The event is unexpected, and normal agent operation is disrupted.

The agent can log status messages to Windows application logs in addition to the local event log. The agent can also export the local event log contents to a comma-separated value file.

You can configure whether status messages are stored, how long they are stored, and you can clear the event log of all status messages. You can also configure maintenance options, such as viewing debug status messages and accessing the **Maintenance** tab.

Note Debug status messages are stored for seven days before being removed from the event log. Configuring how long status messages are stored and clearing the event log does not affect debug status message storage.

To configure user agent logging settings:

Step 1 If necessary, log in to the computer on which the user agent is installed.

Step 2 Click **Start** > [**All**] **Programs** > **Cisco** > **Configure Cisco Firepower Agent for Active Directory**.

Step 3 Click the **Logs** tab.

Step 4 If directed to do so by Cisco TAC, select **Show Debug Messages in Log** to view debug status messages in the event log and enable the **Maintenance** tab page.

Note Select this option only if Cisco TAC directs you to do so.

Step 5 Select **Log Messages to Windows Application Log** to log non debug status messages to both the Windows application logs and to the local event logs.

To view the Windows application logs, open the Windows Event Viewer.

Step 6 Select a time period from the **Message Cache Size** drop-down list to configure how long status messages are saved before they are automatically deleted from the local event log.

Status messages, once logged to the local event log, are saved for the time period selected in the **Message Cache Size** drop-down list, then deleted.

Note The **Message Cache Size** setting affects only the local event log, not the Windows application logs, even if you select **Log Messages to Windows Application Log**.

Step 7 Click **Refresh** to view new status messages logged since the last refresh.

If new status messages have been logged since the last refresh, a message is displayed stating there are new status messages available. If the refresh results in more than 250 messages, the oldest status messages are removed from the **Logs** tab page. To view more than 250 messages, export the logs. See step 8 for more information.

Step 8 Click **Export Logs** to export the local event log contents to a comma-separated value file.

The comma-separated value file contains all event log status messages and debug messages.

Step 9 Click **Clear Event Log** to remove all non-debug status messages from the local event log.

The local event is cleared, except for a status message stating the agent removed the messages.

Step 10 To save and apply configuration changes to the agent, click **Save**.

Step 11 You have the following options:

- To configure general agent settings, select the **General** tab. For more information, see Configure General User Agent Settings, page 2-32.
- To configure the agent, you can take any of the actions described in Table 2-1 on page 2-22.

Configure General User Agent Settings

The General tab contains basic user agent configuration. You can change the agent name reported to the Management Center when the agent reports login data. You can also start and stop the agent service, change the logoff check frequency, and view the current service status.

To configure general User Agent settings:

Step 1 On the computer where you installed the agent, select **Start > Programs > Cisco > Configure Cisco Firepower User Agent for Active Directory**.

Step 2 Click start (▶) to start the agent service.

Step 3 Click stop (■) to stop the agent service.

Step 4 (Optional.) Modify the **Agent Name** for the agent, which defaults to `Cisco FUAfAD`. You can enter letters, numbers, underscores (_), and dashes (-).

Step 5 (Optional.) Change the frequency the agent checks for logoff data, select a time period from the **Logout Check Frequency** list. Select **0** to disable checking for logoff data.

Step 6 (Optional.) Change the agent scheduling priority, choose a level from the **Priority** list. Choose `High` only if your agent monitors and retrieves significant amounts of user activity and it is affecting performance.

Step 7 To save settings, click **Save**.

Step 8 To configure the agent, you can take any of the actions described in Table 2-1 on page 2-22.

Configure User Agent Maintenance Settings

In addition to configuration settings, the agent stores user-to-IP-address mapping information, the local event log, and reporting state information in the SQL CE database. The agent Maintenance tab allows you to clear portions of the database for maintenance purposes. You can clear cached user-to-IP-address mapping information and local event log information. You can also clear the reporting state cache, which forces a manual polling of the configured Active Directory servers.

Caution Do *not* change any settings on the Maintenance tab page unless Support directs you to do so.

To configure user agent maintenance settings:

Step 1 On the computer where you installed the agent, select **Start > Programs > Cisco > Configure Cisco Firepower User Agent for Active Directory**.

Step 2 Click the **Logs** tab.

Step 3 Click **Show Debug Messages in Log** to enable the **Maintenance** tab.

Step 4 Click the **Maintenance** tab.

Step 5 Click **Clear user mapping data cache** to clear all stored user-to-IP-address mapping data.

The agent deletes all stored user-to-IP-address mapping data from the local agent database. Stored user-to-IP-address mapping data in the Management Center database is not affected by clearing the local agent database.

Step 6 Click **Clear logon event log cache** to clear all stored login event data.

Step 7 Click **Clear reporting state cache** to clear data related to the last time the agent reported login and logoff information to the configured Management Centers.

The agent deletes all information related to the last time it reported login and logoff information to the configured Management Centers. At the start of the next polling interval, the agent manually polls all configured Active Directory Servers, retrieving information within the time span defined in the **Active Directory Server Max Poll Length** field. See Configure User Agent Active Directory Server Connections, page 2-23 for more information.

Step 8 Select a level of logging granularity from the **Debug Log Level** list to configure how detailed the logged debug messages are.

Step 9 To configure the agent, you can take any of the actions described in Table 2-1 on page 2-22.

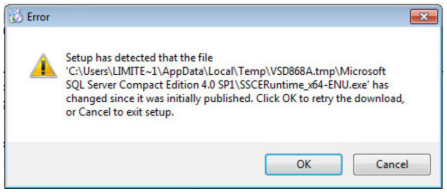
Troubleshoot the User Agent

The following sections discuss solutions to issues you might encounter using the user agent:

- Can't Install the User Agent, page 2-34
- Can't Connect to a Management Center, page 2-34
- User Agent Unresponsive, page 2-37
- User Agent Doesn't Show Every Login, page 2-38
- User Agent Silently Fails to Connect to Active Directory, page 2-38
- User Agent Isn't Processing Real Time Events, page 2-38
- User Agent Doesn't Show User Logoff Events, page 2-39
- User Agent and TS Agent in Same Network, page 2-39
- Error 1001: Cannot start service AgentService, page 2-39
- Install Error System.IO.FileNotFoundException, page 2-40

Can't Install the User Agent

When you install the user agent, an error related to Microsoft SQL Server Compact Edition might be displayed:



Setup has detected that the file 'C:\Users\LIMITE~1\AppData\Local\Temp\VSD868A.tmp\Microsoft SQL Server Compact Edition 4.0 SP1\SSCERuntime_x64-ENU.exe' has changed since it was initially published. Click OK to retry the download, or Cancel to exit setup.

The text of the error is similar to the following:

```
SSCERuntime_x64-ENU,exe has changed since it was initially published. Click OK to
retry the download, or click Cancel to exit setup
```

To resolve the issue:

Step 1 Click **Cancel** to exit setup.

Step 2 Download and install Microsoft SQL Server Compact Edition 4.0 (SP1 x64 bit) from the Microsoft site.

Step 3 Run setup again as discussed in Install the User Agent, page 2-20, making sure to run `setup.msi` and *not* `setup.exe`.

Can't Connect to a Management Center

This section discusses the following issues that might prevent the user agent from connecting to the Firepower Management Center:

- User Agent not an Identity Source, page 2-35
- Incorrect Windows Ciphers, page 2-35

- DNS Server Not Available, page 2-37

User Agent not an Identity Source

In the user agent's **Firepower Management Centers** tab page, if the status of a Management Center is `unavailable`, make sure you added the user agent as an identity source in the Management Center. For more information about user agent configuration, see the *Configuration Guide*.

To verify the user agent identity source in a version 6.X Management Center:

Step 1 Log in to the Management Center as an administrator.

Step 2 Click **System** > **Integration**.

Step 3 Click the **Identity Sources** tab.

Step 4 Click **User Agent**.

Step 5 Verify a user agent is defined and verify its IP address. If you make any changes, click **Save**.

Step 6 Check the status of the Management Center again in the user agent's **Firepower Management Centers** tab page.

If the Management Center is configured properly and you still can't connect, try the following:

- Double-check the Management Center's hostname or IP address you've configured in the user agent.
- If you're accessing the Management Center by hostname, use the `nslookup` *`hostname`* command to verify the hostname resolves to an IP address.
- If you're accessing the Management Center by IP address, use the `ping` *`ip-address`* command to verify it is reachable by the user agent computer.

Incorrect Windows Ciphers

If the Windows machine on which the user agent is installed does not have the appropriate ciphers installed, you observe the following symptoms:

- The user agent shows the Firepower Management Center as `unavailable` in the user agent's **Firepower Management Centers** tab page.
- The Firepower Management Center can download users and groups from the Active Directory domain controller.

This situation applies to you *only* if you restricted the ciphers on the Windows machine, which is relatively uncommon.

To view the list of available ciphers:

Step 1 Log in to the user agent machine.

Step 2 At a command prompt, enter `gpedit.msc`, and then press Enter.

Step 3 Click **Computer Configuration** > **Administrative Templates** > **Network** > **SSL Configuration Settings**.

Step 4 Under SSL Configuration Settings, select **SSL Cipher Suite Order**.

Step 5 Set the cipher list to include one or more of the ciphers shown in the following section.

Ciphers Supported by the Firepower Management Center

The Firepower Management Center supports the following ciphers for connecting with the user agent. The ciphers are shown in OpenSSL format. Windows ciphers are usually listed in RFC format. To translate the cipher names, see the RFC mapping list on the `https://testssl.sh` site.

Caution Use caution when deciding which ciphers to select because not all ciphers are secure. For information about secure ciphers, consult a resource such as the Open Web Application Security Project (OWASP). For example, you can refer to their TLS Cipher String Cheat Sheet.

Supported ciphers:

```
AES256-GCM-SHA384

AES256-SHA

AES256-SHA256

CAMELLIA256-SHA

DES-CBC3-SHA

ECDH-ECDSA-AES256-GCM-SHA384

ECDH-ECDSA-AES256-SHA

ECDH-ECDSA-AES256-SHA384

ECDH-ECDSA-DES-CBC3-SHA

ECDH-RSA-AES256-GCM-SHA384

ECDH-RSA-AES256-SHA

ECDH-RSA-AES256-SHA384

ECDH-RSA-DES-CBC3-SHA

ECDHE-ECDSA-AES128-GCM-SHA256

ECDHE-ECDSA-AES128-SHA

ECDHE-ECDSA-AES128-SHA256

ECDHE-ECDSA-AES256-GCM-SHA384

ECDHE-ECDSA-AES256-SHA

ECDHE-ECDSA-AES256-SHA384

ECDHE-ECDSA-DES-CBC3-SHA

ECDHE-RSA-AES128-GCM-SHA256

ECDHE-RSA-AES128-SHA

ECDHE-RSA-AES128-SHA256

ECDHE-RSA-AES256-GCM-SHA384

ECDHE-RSA-AES256-SHA

ECDHE-RSA-AES256-SHA384

ECDHE-RSA-DES-CBC3-SHA

EDH-DSS-DES-CBC3-SHA

EDH-RSA-DES-CBC3-SHA

PSK-3DES-EDE-CBC-SHA

PSK-AES256-CBC-SHA

SRP-DSS-3DES-EDE-CBC-SHA
```

```
SRP-DSS-AES-128-CBC-SHA
SRP-DSS-AES-256-CBC-SHA
SRP-RSA-3DES-EDE-CBC-SHA
SRP-RSA-AES-128-CBC-SHA
SRP-RSA-AES-256-CBC-SHA
```

DNS Server Not Available

If you configured the user agent identity source with a host name, there must be an available DNS server to resolve that host name for the FMC to connect to it. Check the host name and check whether or not the FMC can resolve the host name and try again.

User Agent Unresponsive

If you suspect you aren't getting data from the user agent, you can do any of the following:

- Log in to the user agent computer and check its status; for more information, see Configure General User Agent Settings, page 2-32.
- Set up a user agent health policy to monitor its status on the Management Center as discussed in the procedure that follows.

  A user agent health policy informs you when the Management Center doesn't receive a heartbeat from the user agent. For more information, see the configuration guide.

To set up a user agent health policy in a 6.X Management Center:

Step 1 Log in to the Management Center as a user with Administrator or Maintenance User privileges.

Step 2 Click **System** > **Health** > **Policy**.

Step 3 Click **Create Policy**.

Step 4 On the Create Policy page, enter the following information:

- **Copy Policy** list: Choose any policy, such as **Default Health Policy**.
- **New Policy Name** field: Enter a name to identify this policy.
- **New Policy Description** field: Enter an optional policy description.

  The new policy is displayed.

Step 5 Click ✎ (edit).

Step 6 In the left column, click **User Agent Status Monitor**.

Step 7 In the right column, click **On**.

Step 8 At the bottom of the page, click **Save Policy and Exit**.

Step 9 Click ✓ (apply) next to the name of the policy.

Step 10 Follow the prompts on your screen to apply the policy to managed devices.

Step 11 To monitor user agents at any time, click **Health** > **Monitor** or watch the Management Center's ❗(monitor) icon for messages.

A message similar to the following is displayed if the user agent heartbeat isn't detected by a managed device:

```
Some user agents are not up-to-date
```

User Agent Doesn't Show Every Login

The user agent tracks user names per IP address. If the same user logs in to the same IP address multiple times, you'll see only one User Login event in the Management Center for that user.

In the following scenario, you'll see multiple User Login events for a user:

- The user logs in from different IP addresses (for example, desktop and phone).
- User `patricia.nolan` logs in from the following IP addresses in this sequence:
  - 192.0.2.102
  - 192.0.2.210
  - 192.0.2.102

  It doesn't matter if `patricia.nolan` logs out from any of the IP addresses; the Management Center reports at least two User Login events, one for each unique IP address. (In other words, the Management Center doesn't report the last login because it's from the same IP address as the first.)

User Agent Silently Fails to Connect to Active Directory

If you enter the wrong user name or password for an Active Directory server, or if the user agent software doesn't have sufficient privileges to the Active Directory server, the connection silently fails. The only way to verify this is the case is to look at user agent logs (**Logs** tab page).

For more information, see:

- User agent permissions, see Give the User Privileges, page 2-9
- User agent logs, see Configure User Agent Logging Settings, page 2-30

User Agent Isn't Processing Real Time Events

To be able to process real time events from the Active Directory server, the user agent requires Remote Procedure Call (RPC) access to the Active Directory server. If the status of real time processing is displayed as `unknown` or `unavailable` in the user agent's **Active Directory Servers** tab page for an extended period of time, look for errors in the user agent log and try the other suggestions discussed in this section.

To troubleshoot real time processing issues:

Step 1 If necessary, log in to the computer where the user agent is installed.

Step 2 Click **Start > Programs > Cisco > Configure Cisco Firepower User Agent for Active Directory**

Step 3 Click the **Logs** tab.

Step 4 Check **Show debug messages in log**.

Step 5 Observe the log messages or click **Export logs** to export log messages to a file.

Step 6 Look for messages like the following:

```
"error","[2317] - Unable to attach event listener to host or IP address. Check firewall
settings on AD server. RPC server is unavailable
```

The preceding message indicates a configuration issue with the Active Directory Server's firewall. Review the instructions in Allow the User Agent to Access Distributed Component Object Management (DCOM), page 2-14 and try again.

To isolate the firewall as the issue, optionally disable the Active Directory Server's firewall for a few minutes and see if the user agent can process real time events.

Step 7 Try deleting the Active Directory Server configuration in the user agent and adding it back.

User Agent Doesn't Show User Logoff Events

If you don't see any User Logoff events in the Management Center, make sure you allowed WMI through the firewall on all domain computers. For more information, see Configure Domain Computers, page 2-6.

User Agent and TS Agent in Same Network

If you use both the Terminal Services (TS) Agent and the user agent, you can avoid non-critical errors in the logs by excluding the TS Agent IP address from the user agent. If the same user is detected by both the TS Agent and the user agent, non-critical errors are written to logs.

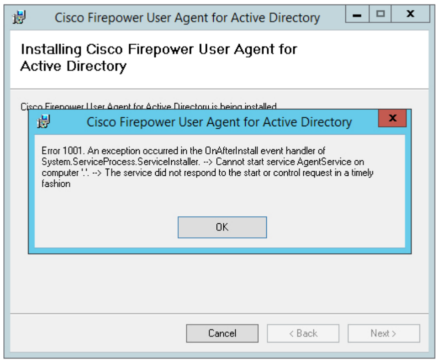
For more information, see Configure User Agent Excluded Addresses Settings, page 2-29.

Error 1001: Cannot start service AgentService

This error is displayed if you try to use the version 2.3 user agent after installing the version 2.4 user agent. The error means that the version 2.4 user agent database cannot be accessed by the version 2.3 user agent.

To resolve the issue, see Troubleshoot the User Agent, page 2-34.

The following figure shows the error.



Cisco Firepower User Agent for Active Directory

Installing Cisco Firepower User Agent for
Active Directory

Cisco Firepower User Agent for Active Directory is being installed

Cisco Firepower User Agent for Active Directory

Error 1001. An exception occurred in the OnAfterInstall event handler of System.ServiceProcess.ServiceInstaller. --> Cannot start service AgentService on computer '.'. --> The service did not respond to the start or control request in a timely fashion

Install Error System.IO.FileNotFoundException

If you install the user agent with setup.msi instead of setup.exe, user agent will not start because not all dependencies are installed. You can observe the error in any of the following ways:

- When the application fails to start, if you expand the error message, `System.IO.FileNotFoundException` is displayed
- The Windows Event Viewer, Application log, displays errors related to the user agent

To resolve the errors:

Step 1 Use the Windows Control Panel to uninstall the user agent.

Step 2 Install the user agent again using `setup.exe`.

Replace the Version 2.4 or Later User Agent with Version 2.3

If issues prevent you from using user agent version 2.4 or later, you can revert to version 2.3 using a manual replacement method discussed in this section.

Note This procedure removes the user agent configuration. After installing the version 2.3 user agent, you must configure the user agent again.

To replace version 2.4 with version 2.3:

Step 1 Use the Programs and Features application in the Windows Control Panel to uninstall the user agent.

Step 2 Manually delete the following files from `C:\`:

- `CiscoUserAgent.sdf`
- `UserAgentEncryptionBytes.bin`

Step 3 Install the User Agent version 2.3 (`Cisco_Firepower_User_Agent_for_Active_Directory_2.3-10.zip`).