

KACE Privilege Manager for Windows 4.3

Administrator Guide



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Legend

 **CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

 **IMPORTANT, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

Privilege Manager for Windows Administrator Guide

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About this guide

Welcome to the KACE Privilege Manager for Windows Administrator Guide. This guide instructs system administrators on how to use Privilege Manager. Inside you will find in-depth instructions on how to prepare your environment for least privileged use, maintain a least privileged environment, run reports, and interface with Microsoft tools.

For more information, refer to these additional resources:

For system administrators:

- **Privilege Manager Quick Start Guide:** Learn about the Privilege Manager system requirements and how to set up the console, server, and client. Also read an overview of the product's key features and the wizards that will help you use them.
- **Privilege Manager for Windows Console:** Find more information on the **Getting Started** screen under the **Additional Resources** tab.

For end users with the Privilege Manager client service installed on their computers:

- **Privilege Manager for Windows User Guide:** Learn the basics of using Privilege Manager for Windows, including how to use self-service elevation, instant elevation, and view rules.

What is Privilege Manager?

Editions

Components

Giving users administrator rights creates security risks but must be weighed against constant help desk calls for basic operations like updating Adobe Reader, Java, or simply changing the time zone on desktops.

Privilege Manager lets you grant selected privileges to users so they can update their own computers, reducing help desk calls while maintaining a secure network. By automating user privilege settings, Privilege Manager keeps users working; this enables you to focus on higher priority tasks, for exceptional resource and time savings.

As a system administrator, you can use Privilege Manager to elevate and manage user rights quickly and precisely with validation logic targeting technology. Use privilege elevation rules from the community, or create your own rules and allow administrator-level access to specific applications. You can also enable your end users to request elevated privileges for specific applications through self-service and instant elevation.

Editions

Privilege Manager is available in the following editions:

- *Privilege Manager Community*: This edition is free and does not require a license. You can collaborate, brainstorm new elevation rules, share rules with other users, and provide bug reports and enhancement requests to Quest Software.
- *Privilege Manager Professional*: This edition requires a paid license and includes additional security, discovery, and reporting capabilities, as well as technical support from Quest Software.
- *Privilege Manager Professional Evaluation*: This edition is the free 30-day trial period for Privilege Manager Professional. If you do not buy a license after 30 days, the software will revert to the lesser-featured Community edition. You won't have the Professional features, but you can keep the Community edition just for trying Privilege Manager.

When reverting back to the Community edition, you will need to re-save all computer-based Group Policy object (GPO) rules as user-based. Computer-based rules will no longer work on the client-side once the trial expires.

Components

There are three software components included with Privilege Manager: the console, server and client.

Console

The Privilege Manager console, installed via `PAConsole_Pro.msi`, is a management application. It is installed on a domain computer (server/workstation) and is used to create and manage rules within the Group Policy. Any user who has permission to edit a GPO can use the console to set privileges.

Server

The Privilege Manager server, installed via the console, is a service which has several functions. It can deploy the client, collect and report on data, and discover and process applications that require elevated privileges.

Client

The Privilege Manager client, installed via `PAClient.msi`, is a service that runs on each client computer. It applies the rules created in the console by monitoring processes as they are launched on the client and elevates or lowers the privileges for processes that are configured to be monitored. This is done by injecting an administrative token into the process or revoking it.

Microsoft Active Directory and Group Policy are used to distribute Privilege Manager rules to client computers.

Privilege Manager can modify privileges only for a standard user account, not a guest account. Elevated privileges can be revoked even if the user is a local admin.

Installing Privilege Manager

System requirements

Installing the console

Configuring the server

Installing the client

Upgrading

Uninstalling

To complete the Privilege Manager installation, you will need to install the console, configure the server, and install the client. Then you can start using Privilege Manager based on your Windows rights within the Group Policy Management Console. If you do not have enough rights on an object, a message will tell you that access is denied.

System requirements

Please refer to the Privilege Manager for Windows Quick Start Guide for the list of System Requirements.

Installing the console


The console must be installed on a computer that is joined to the domain and run under a user account that has the rights to change at least one GPO. The console displays GPOs based on the security context of the user that is logged on.

Using the console Windows Installer file

Please refer to the Privilege Manager for Windows Quick Start Guide for instructions on using the console Windows Installer file.

Opening the console

To start the Privilege Manager console on the host:

1. Go to **Start > All Programs > Quest > Privilege Manager > Privilege Manager**, or
2. Select the  Privilege Manager shortcut icon on the **Start** menu.

Applying a license

You can apply a license upon initial start-up or later. Otherwise, if your trial has expired, you'll only be able to access the Community edition.

To apply a license when you start the console for the first time:

1. A window will display asking you to apply a license.
2. Click **Yes** if you are going to apply a Privilege Manager Professional or Professional Evaluation license. Browse to the license file and click **Open**.
Or,
3. Click **No** to access the Privilege Manager Community Edition that does not require a license.

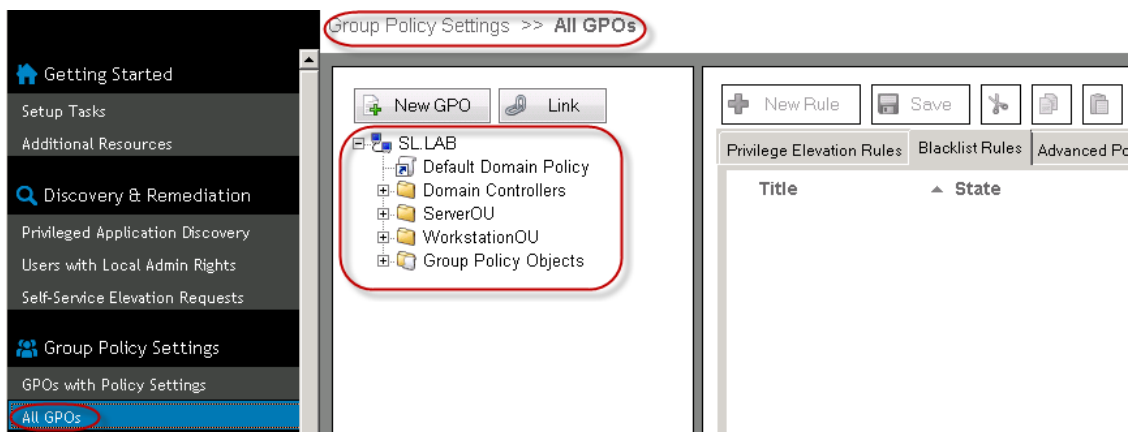
To apply a license in the console after initial start-up:

1. Click **Help > About** in the menu.
2. Click the **Licenses** tab.
3. Click the **Apply License File** button.
4. Highlight the product name and click the **Update License** button.
5. Browse to the license file and click **Open** and then **OK**.
6. If you are upgrading, you may need to follow the additional steps detailed in the [Upgrading](#) section.

Viewing GPOs

To view the GPOs that you have access to:

1. Switch from the **Setup Tasks > Getting Started** window to the **Group Policy Settings > All GPOs** window.
2. You will see the GPOs you have access to:



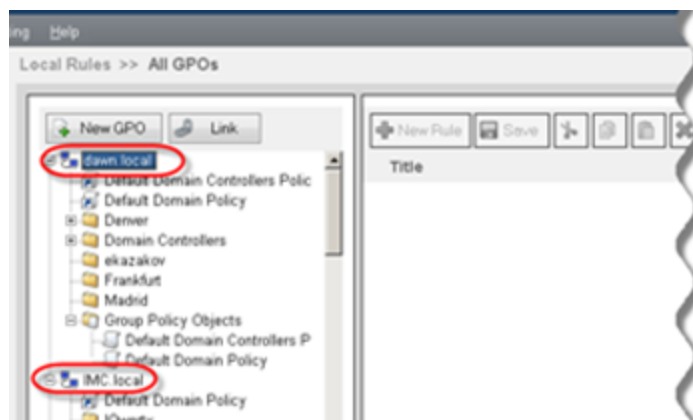
i Note: If you do not see the domain tree when the Group Policy Settings section is selected, check that the default domain is selected in the **Setup Tasks > Select Target Domains** window.

Selecting target domains


The Privilege Manager console is initially configured to allow you to manage the privilege elevation settings for the domain to which the local computer belongs. In addition, the console also allows you to manage other domains in your forest.

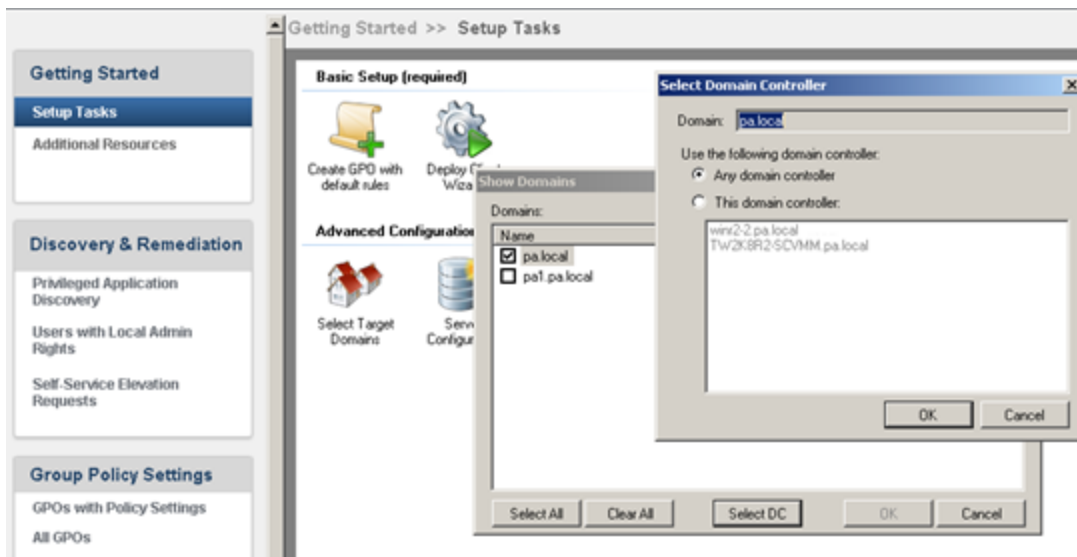
For Windows Privilege Manager to work across multiple domains within a single forest, the appropriate domain permissions must be configured and an Enterprise Admin Active Directory account must be used with the Privilege Manager console.

i **NOTE:** The recommendation for multiple domains in a single forest is for each domain within the forest to host a completely separate installation of Privilege Manager.



To customize the number of your forest's domains available in the Group Policy Settings pane:

1. In the **Getting Started** section of the navigation pane, select **Setup Tasks** and then click  **Select Target Domains** in the right pane.
2. In the window that will open, check/uncheck the domain names as desired.



3. (Optional) Click the **Select DC** button to open the **Select Domain Controller** dialog. Specify the exact domain controller that the console will communicate with.

The list of the domains and GPOs will change accordingly.

NOTE: You can create the GPO rules only on a domain where you have write permissions for the GPOs.

Configuring the server

Available only in Privilege Manager Professional and Professional Evaluation editions.

After installing the console, a server must be configured. Configuring the server will set up the back-end services needed to automatically deploy the client, as well as enable reporting, discovery and remediation.

Using the Server Configuration Wizard

Please refer to the Privilege Manager for Windows Quick Start Guide for instructions on using the Server Configuration Wizard.

Modifying the server

You must configure the settings for the server on the console where it was installed. However, any administrator with the rights to a specific GPO can update its data collection settings. Also, the administrator running the console can view reports of data collected by any server by selecting **Browse** and the preferred server from the **Privilege Manager Server Configuration** screen (under **Setup Tasks > Configure a Server**).

If you need to change the reporting database settings, i.e., connect to another instance, modify the authentication parameters, or set up a new data collection service:

1. Use the **Privilege Manager Server Configuration** screen to remove the server.
2. Restart the wizard to reinstall the service and set the SQL database settings.

Removing the server

If you do not want to use a server, you can clear its settings and/or remove it from a host computer:

1. Open the **Privilege Manager Server Configuration** screen (under **Setup Tasks > Configure a Server**).
2. Select **Clear the server name** to clear the settings which the console uses to connect to reporting information. The locally running server will not be stopped or disabled. This will not uninstall the server.
3. Click **Remove the Privilege Manager Server from this computer** to uninstall the server from the local computer. When you remove the server:
 - a. You will stop the web data collection service;
 - b. The shared folder with the client file will not be shared anymore; and
 - c. The database will not receive data sent by the corresponding clients until a new server is installed, provided that it is installed within the network timeout parameters.

To remove a server running remotely:

1. Connect to the computer that hosts the server.
2. Remove the server via the **Privilege Manager Server Configuration** screen.

i Note: If a domain administrator or the administrator of a nested organizational unit (OU) uninstalls the server, they may render the reporting function unavailable on other console computers or computers downstream from the parent OU. Also, if you have reinstalled the server, reports will generate starting from the last installation.

Installing the client

Once the console is installed, you can deploy clients to the computers on your domain in one of the following ways:

- **Client Deployment Settings Wizard:** Deploy or uninstall clients on your computers in one pass. *Available only in Privilege Manager Professional and Professional Evaluation editions.*
- **Client Windows Installer file:** Use `PAClient.msi` to install the client locally on a computer (administrative privileges are required).
- **Microsoft Group Policy Management Console:** Use login scripts or other software deployment techniques for mass-deployment.

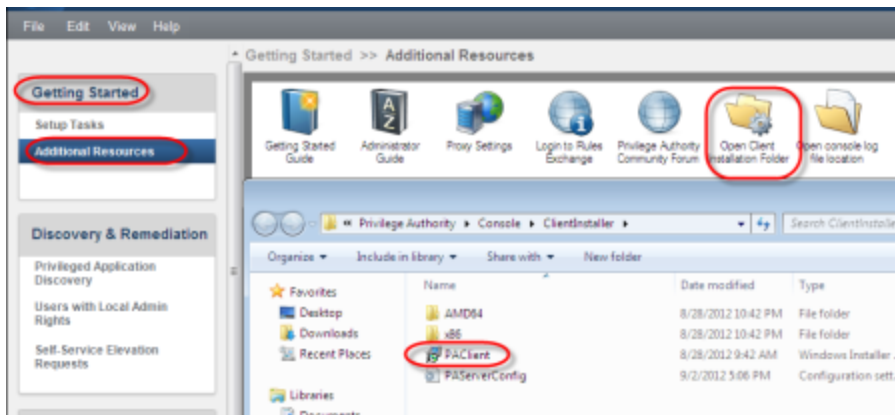
Using the Client Deployment Settings Wizard

Please refer to the Privilege Manager for Windows Quick Start Guide for instructions on using the Client Deployment Settings Wizard.

Using the client Windows Installer file

To use the client Windows Installer file to install the client locally on a computer:

1. To locate the client MSI setup file, open the console.
2. Click **Additional Resources** > **Open Client Installation Folder**. The client file will display in a browser window.



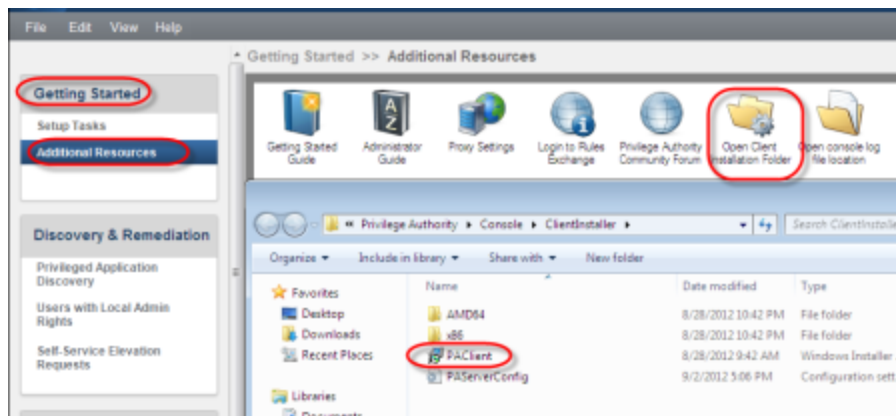
3. Check that the client has been successfully deployed onto the computer. Ensure that:
 - a. The `CSEHost.exe` process is running;
 - b. The client record is shown in the Add/Remove Programs tool; and
 - c. The Privilege Manager icon and the right-click menu are available in the system tray on the client computer.

New GPO rules created via Privilege Manager will be applied to client computers following a group policy update.

Using the Group Policy Management Console

To install clients on your domain via the Microsoft Group Policy Management Console (GPMC):

1. Copy the `PAClient.msi` file to a network share that can be read by all users. Or, just share the file folder (a share with the `PAClient.msi` file is configured automatically upon server configuration).
 - a. To locate the client MSI setup file, open the console.
 - b. Click **Additional Resources** > **Open Client Installation Folder**. The client file will display in the browser window.



2. Right-click on **Group Policy Objects** and select **New** from the pop-up menu to open the Group Policy Management Console on the server to create a new GPO.
3. Enter a name for the new GPO and click **OK**.
4. Right-click on the new GPO and select **Edit** to open it.
5. In the Group Policy Management Editor, select **Computer Configuration** > (in Windows Server 2008) **Policies** > **Software Settings** > **Software installation**. In the right pane, right-click on the new GPO, and select **New** > **Package**.
 - a. If the client distribution GPO is computer-based (defined under **Computer Configuration**), enable the “**Always wait for the network at computer startup and logon**” policy (located in **Computer Configuration** > (in Windows Server 2008) **Policies** > **Administrative Templates** > **System** > **Logon**). Otherwise, the client will install after the second reboot of the client computer.
 - b. If the client distribution GPO is user-based (defined under **User Configuration**), then the client will install after the first logon.
6. In the dialog box that will open, browse to the `PAClient.msi` file on the network share where it was copied to.
 - a. Use the **File name** field to specify the client location in the Universal Naming Convention (UNC) format:


```
\\computername\sharename\filename.msi
```
 - b. Click **Open**.
7. Select **Assigned** in the **Deploy Software** dialog.
8. Assign the new GPO to a domain or OU.
 - a. To assign it to a domain, right-click on the domain in GPMC and select **Link an Existing GPO**.
 - b. Select the GPO in the dialog box and click **OK**.

9. Check that the client has been successfully deployed onto the computer. Ensure that:
 - a. The `CSEHost.exe` process is running;
 - b. The client record is shown in the Add/Remove Programs tool; and
 - c. The Privilege Manager icon and the right-click menu are available in the system tray on the client computer.


New GPO rules created via Privilege Manager will be applied to client computers following a group policy update.

Upgrading

Privilege Manager components are only compatible with other components of the same version. Upgrading ensures that all of the GPO rules and reporting configurations you created with earlier versions will still be available.

To upgrade prior versions:

1. Run the Privilege Manager setup file (`PAConsole_Pro.msi`) and follow the **Privilege Manager Console Windows Installer**.
 - a. If a message displays, **Some files that need to be updated are currently in use**, click **OK**.
 - b. Once you complete the upgrade, exit the installer.
2. Open the console and if necessary, apply a license. For more information, see [Opening the console](#) on page 10 and [Applying a license](#) on page 10.
3. If an error message notifies you that the ScriptLogic PA Reporting Service has the wrong, manual, startup type, either:
 - a. Go to the Windows Services console and set the ScriptLogic PA Reporting Service to start automatically, or
 - b. Click **OK** in the message window to reset the service to start automatically. If the restart fails, click **NO**, and then restart the Privilege Manager for Windows console.

 Note: The automatic server upgrade may be unavailable if the ScriptLogic PA Reporting Service is not running.
4. If the console detects that the server component is installed on a remote computer, it will instruct you to launch on the remote computer.

5. If a message prompts you to upgrade your server and database (installed locally with the reporting functionality of some prior Privilege Manager versions):
 - a. Click **OK** and follow the **Privilege Manager Server Configuration Wizard** to:
 - i. Install missing SQL Server components from the Internet;
 - ii. Back up your database; and
 - iii. Configure a shared folder for client mass deployment.
 - b. Click **Finish** to save the results and exit the wizard.
 - c. If a message displays that the Privilege Manager Host Service that needs to be updated is currently in use, click **OK** to ignore the message.
 - d. To upgrade later, open the **Privilege Manager Server Configuration Wizard** and confirm that you are running the upgrade process before you configure the server.
 - e. Until you have upgraded the server and database, you will have problems installing the server locally.
 - f. For more information, see [Configuring the server](#) on page 12.
6. Re-configure your client data collection settings, if necessary.
 - a. Select a GPO from the **Group Policy Settings** section.
 - b. Switch to the **Advanced Policy Settings** tab.
 - c. Double-click **Client Data Collection Settings** to configure settings using the **Client Data Collection Settings Wizard**. For more information, see [Configuring client data collection](#) on page 18.
7. After you upgrade, **By Digital Certificate** rules will be saved as **By Path to the Executable** rules.
8. To upgrade clients, install the newer version over the older one. For more information, see [Installing the client](#) on page 13.

Uninstalling

You must have administrative privileges to uninstall the console and client from a local computer.

To uninstall Privilege Manager components:

1. Use the Windows Control Panel tool. The uninstaller will completely remove all of the data.
2. Once Privilege Manager for Windows is removed, its rules will no longer apply.

For more information, see [Removing the server](#) on page 13.

Configuring client data collection

Using the Client Data Collection Settings Wizard

Available only in Privilege Manager Professional and Professional Evaluation editions.

Run the **Client Data Collection Settings Wizard** so that you can compile reports, support discovery, and launch on-demand features.

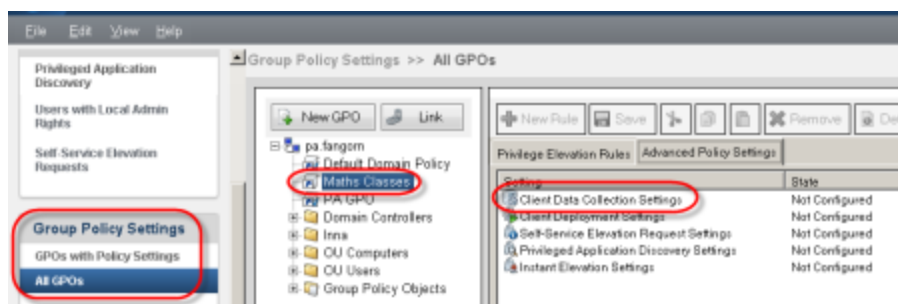
Using the Client Data Collection Settings Wizard

Client data collection settings will only apply on computers running a client.

Before configuring client data collection settings, you must configure a server on your domain. For more information, see [Configuring the server](#) on page 12.

To use the Client Data Collection Settings Wizard to set up, modify, or discard settings:

1. Open the wizard:
 - a. Open the **Client Data Collection Settings Wizard** from the Setup Tasks section. It will always show the default settings, or
 - b. Double-click **Client Data Collection Settings** on the Advanced Policy Settings tab of the target GPO. The changes made within the wizard will be saved here.



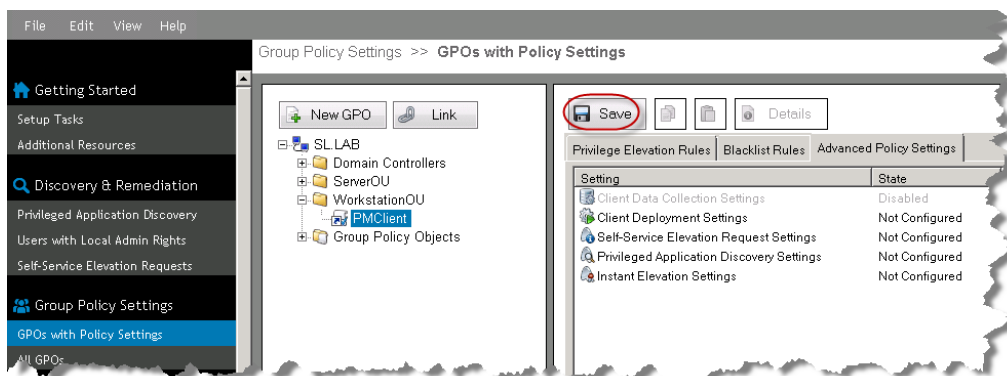
2. Enable the Client Data Collection Settings on the **State** tab.
 - a. Choose **Enabled**, otherwise the settings won't apply to the selected GPO.
 - b. Choose **Not Configured** to enable child GPOs to inherit settings from their parent.
3. Define the server on the **Settings** tab. This server will receive data from the clients of the target GPO.
 - a. Click the **Browse** button to locate a server via Active Directory.
 - b. Use the **Test** button to test the selected server's connection to the **ScriptLogic PA Reporting Service**. If the test fails, check to see if there are network or firewall problems.
 - c. Click the **Clear the server name** link if you want to configure another server. The displayed service will not be uninstalled.

i Note: To prevent data transfer issues between the server and linked clients, check that the port you have selected is open for incoming connections on the server. Port 8003 is the default port for server installation.

4. Use the **Advanced Settings** on the **Settings** tab to set these data transfer parameters:
 - **Maximum Sleep Time (in seconds)** sets the stagger time period within which every client will send its data to the data collection service. This value is set to **60 seconds** by default.
 - **Send Retries** defines the number of retries that are made if an attempt to connect to the web service fails. This number is set to **1** by default.
 - **Network Timeout (in seconds)** sets how many seconds a client should wait to stop sending data if it does not reach the target. This value is set to **600 seconds** by default.
 - **Maximum Records Per Transaction** indicates how many portions of cached data the client sends. This value is set to **0** by default, which indicates an unlimited number. To reduce the load on the server side, you can increase the value to 1 or 2. This may be useful on large networks where each client computer generates many records and a client may not be able to connect to the data collection service because it is too busy processing data collection transactions.
5. Click **Next** to use validation logic to target the settings to specific client computers or user accounts within the GPO, or click **Finish** to save your settings and quit.

If an error message indicates that the target GPO has not been selected:

 - a. Click **OK** to close the message window.
 - b. Open the **GPO** tab and select the desired GPO.
6. Click **Save** on the GPO toolbar to save the new settings.



Adjust the parameters with which clients will send their data to the **ScriptLogic PA Reporting** data collection web service to your specific needs. The web service supports collecting data from a significant number of clients running concurrently.

Configuring instant elevation

Using the Instant Elevation Wizard

Available only in Privilege Manager Professional and Professional Evaluation editions.

To grant on-demand administrative privileges to a group of trusted users and audit their actions, use the **Instant Elevation Wizard**.

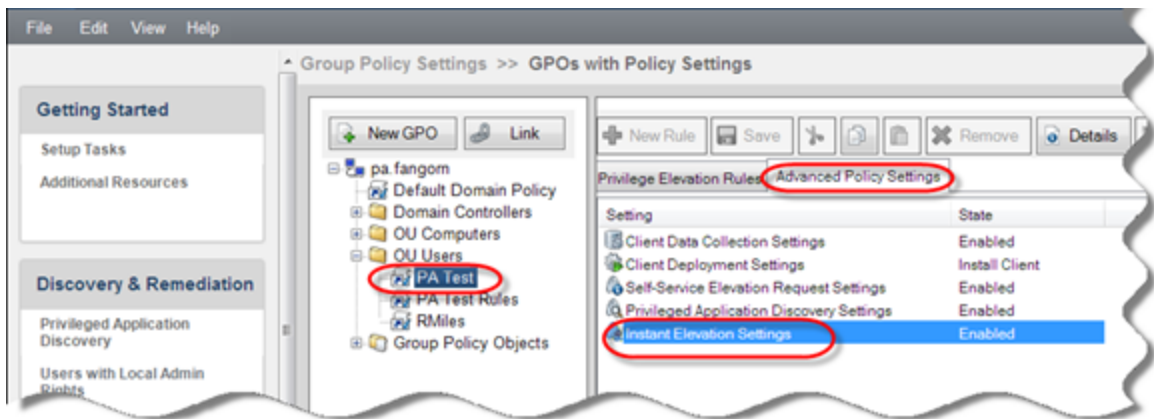
Using the Instant Elevation Wizard

Before you configure instant elevation settings, ensure the following components are set up:

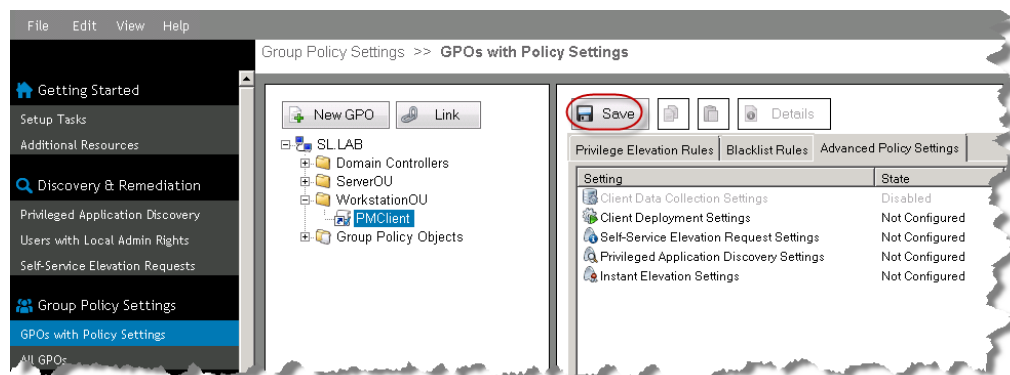
1. The client is running on the computers you want to apply the settings to;
2. The server is configured and running with the port that you have selected allowed for incoming data (the default port is 8003); and
3. Client data collection settings are enabled for the selected GPO.


To use the Instant Elevation Wizard to set up, modify, or discard privileges:

1. Open the wizard:
 - a. Open the **Instant Elevation Wizard** from the Setup Tasks section. It will always show the default settings, or
 - b. Double-click **Instant Elevation Settings** on the Advanced Policy Settings tab of the target GPO. The changes made within the wizard will be saved here.

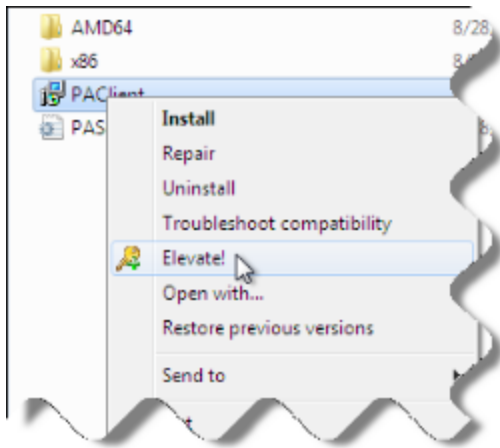


2. Enable the Instant Elevation Settings on the **State** tab.
 - a. Choose **Enabled**, otherwise the settings won't apply to the selected GPO.
 - b. Choose **Not Configured** to enable child GPOs to inherit settings from their parent.
3. Use the **Groups** tab to alter the settings. By default, users of the target GPO will automatically inherit the administrator's settings (BUILTIN\Administrators).
4. Complete the advanced options in the **Privileges** and **Integrity** tabs.
5. Click **Next** to use validation logic to target the settings to specific client computers or user accounts within the GPO, or click **Finish** to save your settings and quit.
 If an error message indicates that the target GPO has not been selected:
 - a. Click **OK** to close the message window.
 - b. Open the **GPO** tab and select the desired GPO.
6. Click **Save** on the GPO toolbar to save the new settings.



7. Users can click the  **Elevate!** button to launch privileged applications without interruptions. The button is available on the context menu of Windows Explorer objects that require elevated privileges to start-up, including: .bat, .cmd, .exe, .js, .lnk, .msc, .msi, .msp, .pl, .ps1 or .vbs (.lnk is for

shortcuts).



8. Run an Instant Elevation Report to view the processes that have been launched. For more information, see [Instant Elevation Report](#) on page 71.

Configuring self-service elevation

[Using the Self-Service Elevation Request Settings Wizard](#)

[Selecting how users access the request form](#)

[Customizing self-service request email messages](#)

[Using self-service notifications](#)

[Using the Self-Service Elevation Request Processing Wizard](#)

[Using the Console Email Configuration screen](#)

Available only in Privilege Manager Professional and Professional Evaluation editions.

To enable users to request permissions to use privileged applications, use the **Self-Service Elevation Request Settings Wizard**. Whenever a user attempts to run an application which requires administrative permissions for which they do not have rights, they will be asked if they would like to send a request to their administrator for permission to run it.

You can select how users access the request form and set up self-service notifications to email you, the help desk, and your manager of each request. Then, you can process the request within the **Self-Service Elevation Requests** section of the console and email your decision to the user, using the **Console Email Configuration** screen.

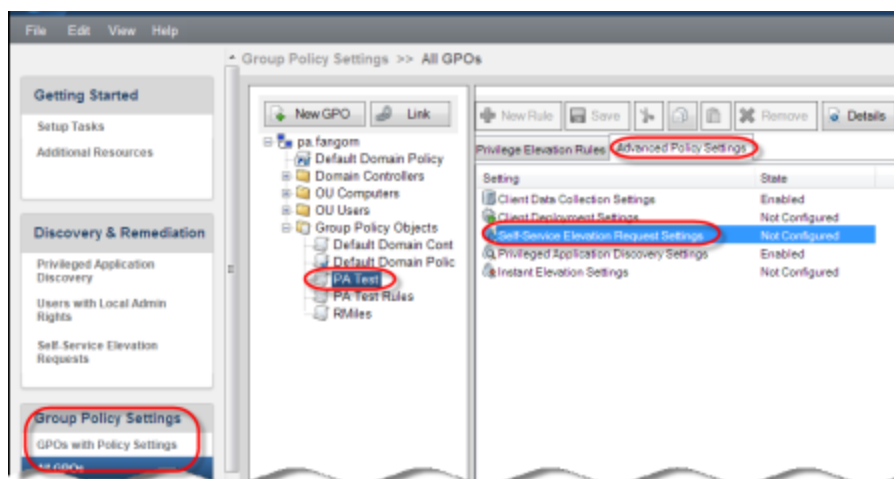
Using the Self-Service Elevation Request Settings Wizard

Before you configure self-service elevation request settings, ensure the following components are set up:

1. The client is running on the computers you want to apply the settings to;
2. The server is configured and running with the port that you have selected allowed for incoming data (the default port is 8003); and
3. Client data collection settings are enabled for the selected GPO.

To use the Self-Service Elevation Request Settings Wizard to set up, modify, or discard privileges:

1. Open the wizard:
 - a. Open the **Self-Service Elevation Request Settings Wizard** from the Setup Tasks section. It will always show the default settings, or
 - b. Double-click **Self-Service Elevation Request Settings** on the Advanced Policy Settings tab of the target GPO. The changes made within the wizard will be saved here.



2. Enable the Self-Service Elevation Requests Settings on the **State** tab.
 - a. Choose **Enabled**, otherwise the settings won't apply to the selected GPO.
 - b. Choose **Not Configured** to enable child GPOs to inherit settings from their parent.
 3. Use the **Settings** tab for [Selecting how users access the request form](#).
 4. Click **Next** to use validation logic to target the settings to specific client computers or user accounts within the GPO, or click **Finish** to save your settings and quit.
- If an error message indicates that the target GPO has not been selected:
- a. Click **OK** to close the message window.
 - b. Open the **GPO** tab and select the desired GPO.
5. Click **Next** to use the Filters tab to filter out Self-Service Request data according to different application specific criteria.

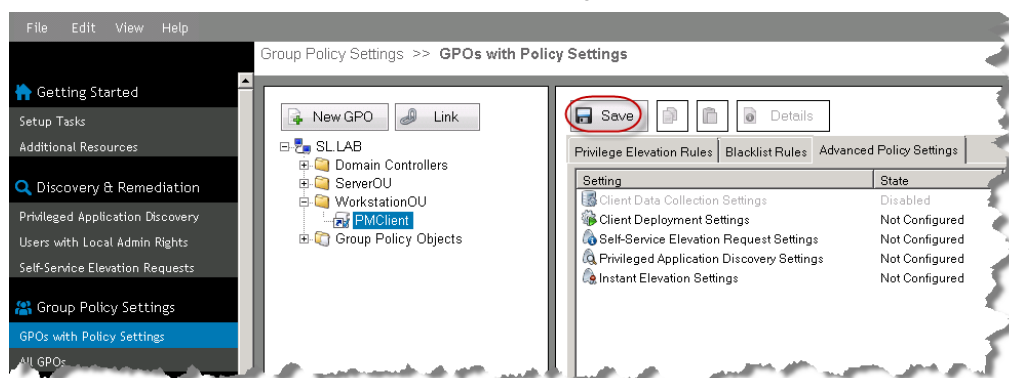
On the Filters tab, select the checkbox to enable application filters.

Enter filter criteria in at least one of the available boxes (Executable path contains, Product name contains, Publisher name contains, and File description contains).

An application only needs to meet a single filter criteria in order for its Self-Service Request data to be filtered out. A comma delimiter can be used to enter multiple criteria in each filter box.

NOTE: The Privilege Manager client will not transmit any Self-Service Request data for any application that meets at least one of the existing filter criteria.

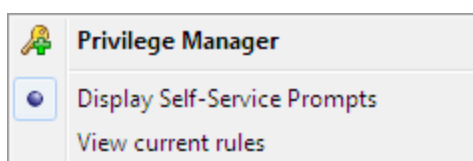
- Click **Save** on the GPO toolbar to save the new settings.




Selecting how users access the request form

Use the **Settings** tab of the **Self-Service Elevation Request Settings Wizard** to select how end users access the request form and set up email confirmation and notification settings. You can combine the following options:

OPTION	ACTION
<p>Automatically ask users if they would like to request that a privilege elevation rule be created whenever they attempt to launch applications which require privilege elevation to run.</p> <p><i>This option is enabled by default.</i></p>	<p>Once a user closes the User Account Control (UAC) window, a Self-Service Elevation Request Prompt will display.</p> <p>i Note: Not all applications which display UAC windows will automatically pop up a Self-Service Elevation Request Form. You can allow the user to manually submit self-service requests by enabling the "Add a Windows explorer shell" option described below. Windows Installer files (.msi) will not automatically trigger Self-Service Prompts, so the Self-Service Elevation Request Form will need to be manually triggered by users.</p>
<p>Allow users to hide or disable these prompts.</p> <p><i>This option is enabled by default.</i></p>	<ul style="list-style-type: none"> Users can select whether the request form will display in the future by checking the In the future, don't show me this when I try to run applications that need approval checkbox. A user on a client computer can re-enable/disable the prompt using the Display Self-Service Prompts icon on the context menu of the system tray.

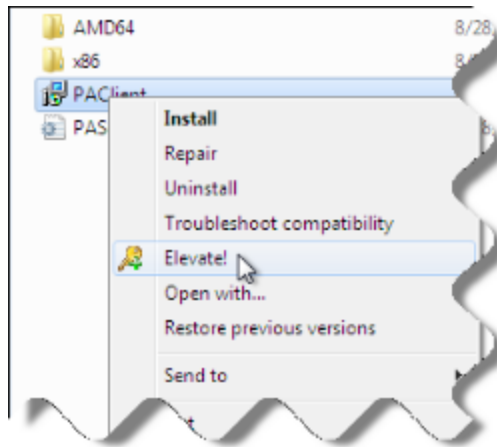



- i** Note: This setting does not affect the Self-Service Elevation Request Form launched with the  Elevate! button. It only affects the request forms displayed automatically.

Add a Windows explorer shell extension allowing the user to right-click on a program or shortcut in order to request that a privilege elevation rule be created for that program.

This option is enabled by default.

- Users can click the  **Elevate!** button to launch privileged applications without interruptions. The button is available on the context menu of Windows Explorer objects that require elevated privileges to start-up, including: .bat, .cmd, .exe, .js, .lnk, .msc, .msi, .msp, .pl, .ps1 or .vbs (.lnk is for shortcuts).



- Users can click the  **Elevate!** button to launch the **Self-Service Elevation Request Form** or instant elevation, if it is enabled.

Allow user to specify the email address where a confirmation email should be sent once the administrator has processed the request for the privilege elevation rule.

(If this option is not checked, the email will be sent to the user's Exchange account as found in Active Directory.)

This option is disabled by default.

The user can enter an email address into the corresponding text field.

By default, the field is pre-populated with the email address of the user who is logged in (provided that it is specified in Active Directory).

Send an email notification to the administrator whenever a user submits a Self-Service Elevation Request.

This option is disabled by default.

Enter the **Email Address** for the administrator and/or the help desk or other recipients. Use the **+** button to add entries and the **x** button to remove them.

By default, the **Email Subject** is pre-populated with **Privilege Manager Self-Service Elevation Request** as the subject line. You can enter your own subject and press the **Reset** button to reset it to the default.

Customizing self-service request email messages

The approval and denial email messages that are sent as a response to the user's self-service elevation request can be customized.

The default Approval message says the following:

```
MESSAGE_NAME:ApprovedRequest
```

```
MESSAGE:
```

```
Your request to run the following application with elevated privileges has been
"approved".
```

```
Request Date: <ExecutionDate>
```

```
Requested Application:
```

```
<ProductName>
```

```
<Path>
```

```
<Arguments>
```

```
Reason for request: <Reason>
```

```
This new privilege should be available on your computer once Windows has refreshed its
domain security policies.
```

The default Denial message says the following:

```
MESSAGE_NAME:NotApprovedRequest
```

```
MESSAGE:
```

```
Your request to run the following application with elevated privileges has "not"
been approved.
```

```
<ProductName>
```

```
<Path>
```

```
Please contact your administrator for more details.
```

These messages can be customized by opening the MessageTemplates.cfg file in the Privilege \Console folder.

Each message in the cfg file starts with "=====**StartOfMessage**=====" and ends with "=====**EndOfMessage**=====".

The text between these delimiters can be customized to your liking.

Text delimited with < > are variables that are replaced with data at runtime.

The following variables may be used in the Approval message:

- ExecutionDate
- ProductName
- Path
- Arguments
- Reason

The following variables may be used in the Denial message:

- ProductName
- Path

Using self-service notifications

If you would like to receive an email when a user on a client computer submits a Self-Service Elevation Request Form, you can set up a self-service notification. You can configure it to go to multiple recipients, including you, your manager, and/or the help desk. In addition, you can set the subject line to meet the requirements of your help desk.

To set up self-service notifications:

1. Configure the server.
 - a. Use the **Privilege Manager Server Setup Wizard** to configure the **Server Email Notification Configuration** settings on the first screen of the wizard.
 - b. If you have previously completed the wizard, the other screens will automatically populate.
 - c. Refer to the Privilege Manager for Windows Quick Start Guide for step-by-step instructions.
2. Configure the recipient.
 - a. Use the **Settings** tab on the **Self-Service Elevation Request Settings Wizard** to configure the **Email Notification Settings**.
 - b. For more information on the wizard, see [Using the Self-Service Elevation Request Settings Wizard](#) on page 24.
 - c. For more information on setting up **Email Notification Settings**, see [Send an email notification to the administrator whenever a user submits a Self-Service Elevation Request](#).
3. Check your email for the self-service notification, containing information on the user, the request, and the client's computer.
4. Accept or reject the user's request [Using the Self-Service Elevation Request Processing Wizard](#).
5. Inform the end user of your decision [Using the Console Email Configuration screen](#).

Using the Self-Service Elevation Request Processing Wizard

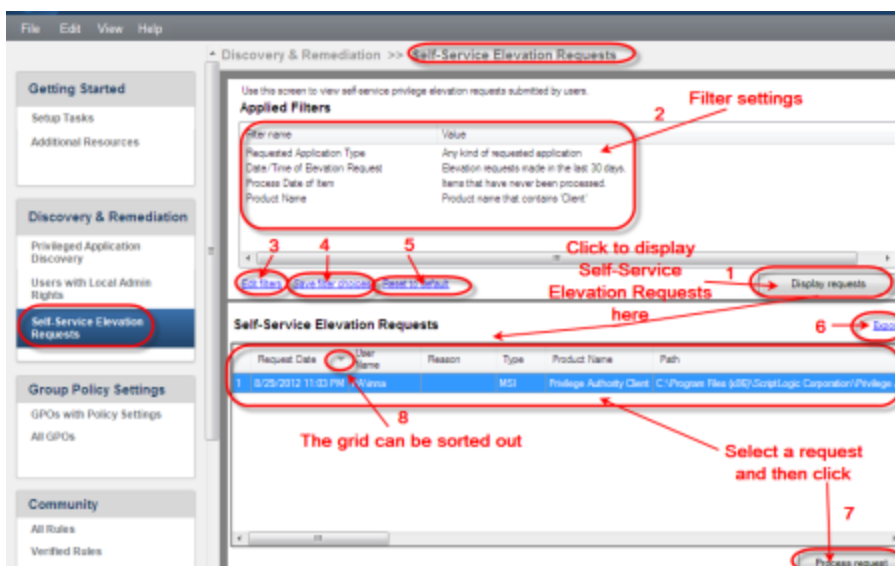
Shortly after a user on a client computer has submitted a Self-Service Elevation Request Form, you can view and/or process it within the **Self-Service Elevation Requests** section of the console (provided that your environment is properly configured according to the Maximum Sleep Time setting).

You can only view data stored in the database of the server that is selected in the server configuration (**Setup Tasks > Configure a Server**).

When processing a self-service elevation request, you can either create a rule to elevate privileges for the process or deny the request. You can then email your decision to the user using the **Console Email Configuration** screen.

To view or process self-service elevation requests:

1. Open the **Self-Service Elevation Requests** section from the navigation pane of the console. The requests will be displayed in the window to the right.

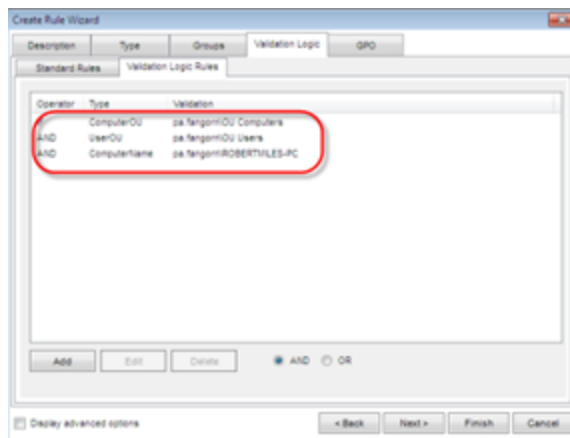


2. Click the **Display requests** button to list the self-service elevation requests submitted by users, based on the default filter settings shown in the **Applied Filters** section on the top of the screen.
3. Select a request in the **Self-Service Elevation Requests** grid below. Use the grid's column headers to sort the requests.

By default, you'll see:

- a. Requests to elevate any type of applications;
- b. Requests sent during the last 30 days; and
- c. Requests that have never been processed with the **Process request** button from the current section.

4. Use the **Applied Filters** wizard to modify the list. You can create multiple shared filter sets and save settings that other administrators can use. For more information, see [Using the Applied Filters Wizard](#) on page 74.
5. Select a record and then click the **Process request** button to open the **Self-Service Elevation Request Processing Wizard**.
6. On the first tab of the wizard, view the details for a process that failed to start, as well as the reason for requesting elevation privileges. Click **Next**.
7. Select whether you want to create a rule to elevate the privileges for this process or deny the request.
 - a. If you approve the request, the **Create Rule** wizard will display to create a rule for the requested process. By default, the rule will be created for a specific user at a specific computer, and the Administrators group (stored within the BUILTIN\Administrators Active Directory OU) will be added to the rule. Use the Validation Logic tab to modify this setting.



- b. Once a request has been processed and a rule has been created for it or it has been denied, the **Processed Action** column will display a rule created or ignored value.
 - c. To view ignored requests or requests for which the rules were created, change the **Process Date of Item** filter on the **Applied Filters Wizard** from "None: Item has not been processed" to the corresponding Date Range.
8. Select whether or not to email your decision to the user. This feature requires that you set up the **Console Email Configuration** settings.
9. Click **Finish** to save.
10. The rule created from the request will be added to the selected GPO with a default name.
11. Select **Export** to export the list of requests presented on the grid. The list will be saved as an **.xls** file.

After the rule has been created:

1. The rule will be added to the target GPO of the **Group Policy Settings** section; and
2. The rule will apply after the GPO settings are updated on the client computer.

Using the Console Email Configuration screen

If you would like an email message to be sent to the user when you have approved or denied their self-service elevation request, you can configure the settings using the **Console Email Configuration screen** found under **Setup Tasks**.

To configure the server to send your self-service elevation request approval or refusal:

1. Select **Console Email Configuration** from the Setup Tasks section.



2. Fill in the following fields:
 - a. **Host Name:** Enter the SMTP Server name of the email account from which you are going to send your emails.
 - b. **SMTP Port:** Enter the port number.
 - c. **SMTP User Name** and **Password:** If necessary, enter the authentication information and check the **SSL** checkbox.
 - d. **From Email:** Enter the corresponding email.
3. Click **Send Test Email** to send an email to the account specified within the **From Email** field.
 - a. If Privilege Manager succeeds in sending the email, the corresponding message will display.
 - b. Log into an email program with the corresponding account and locate the sent email with **Privilege Manager Test Email** in the subject.
4. Click **OK** to save the settings and quit.

Configuring temporary session elevation

Using the Temporary Session Elevation Passcode Manager

Available only in Privilege Manager Professional and Professional Evaluation editions.

Temporary Session Elevation (TSE) allows an administrator to generate elevation passcodes that can provide end users the ability to temporarily elevate the privileges of any process or application on his/her machine. The passcodes will work for both on-network and off-network machines, even if there is not an active internet connections.

Using the Temporary Session Elevation Passcode Manager

Before you configure temporary session elevation settings, ensure the following components are set up:

1. The client is running on the computers you want to apply the settings to;
2. The server is configured and running with the port that you have selected allowed for incoming data (the default port is 8003); and
3. Client data collection settings are enabled for the selected GPO.
4. The client is enabled to use offline passcodes to create temporary elevated sessions (enabled in the Client Deployment Settings wizard).

To use the Temporary Session Elevation Wizard to set up privileges:

1. Open the wizard:
 - a. Open **Passcode Manager** from the **Temporary Session Elevation** section on the navigation pane of the console.
2. Create a new passcode:
 - a. Click **New** to start the Instant **Elevation TSE passcode generator**.
3. Enable the Instant On Demand Privilege Elevation settings on the **State** tab.
 - a. Choose **Enabled**, otherwise the settings won't apply to the selected GPO.
 - b. Choose **Not Configured** to enable child GPOs to inherit settings from their parent.
4. Use the **Groups** tab to alter the settings. By default, users of the target GPO will automatically inherit the administrator's settings (BUILTIN\Administrators).
5. Complete the advanced options in the **Privileges**, **Integrity** and **Validation Logic** tabs.

6. The Passcode is created on the next tab, **Passcode**.
 - a. Enter a **Title** to describe the passcode.
 - b. Enter a **Maximum allowed usage**. This is the number of times the passcode can be used before expiring.
 - c. Enter a **Duration**. The duration is the amount of time the passcode will remain active for once activated.
 - d. Optionally, select the checkbox to **End all elevated processes (and child processes) when Passcode duration expires**. If selected, this will close all windows that were opened with a Temporary Session Elevation passcode.
 - e. Click **Export to file** to save the passcode for end user use.
7. Click **Finish** to complete the wizard.
 - a. The passcode should be delivered to the user for usage.
8. Run a Temporary Session Elevation Usage Report to view the processes that have been launched. For more information, see [Temporary Session Elevation Request Report](#) on page 71.

Configuring privileged application discovery

Using the Privileged Application Discovery Settings Wizard

Processing discovered privileged applications

Available only in Privilege Manager Professional and Professional Evaluation editions.

Use the **Privileged Application Discovery Settings Wizard** to collect information about the privileged applications used over your network during a specified time period. By default, once this feature is enabled, it is set to collect information for two weeks, but you can adjust the setting.

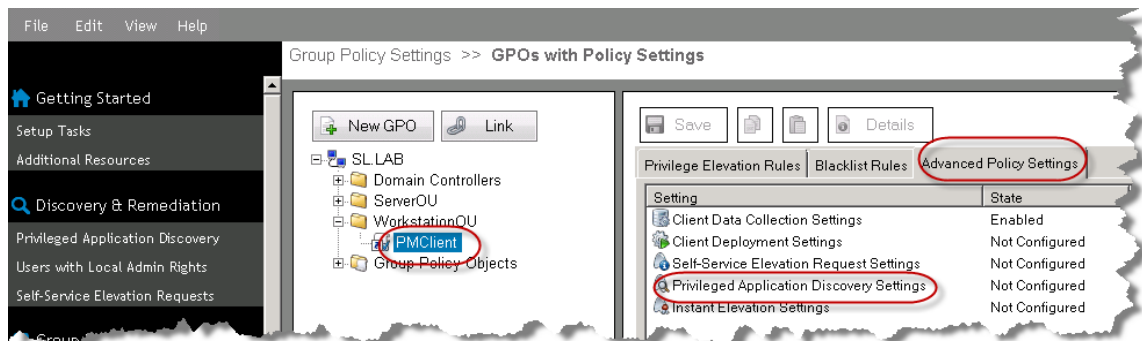
Using the Privileged Application Discovery Settings Wizard

Before you configure privileged application discovery settings, ensure the following components are set up:

1. The client is running on the computers you want to apply the settings to;
2. The server is configured and running with the port that you have selected allowed for incoming data (the default port is 8003); and
3. Client data collection settings are enabled for the selected GPO.

To use the Privileged Application Discovery Settings Wizard to set up, modify, or discard settings:

1. Open the wizard:
 - a. Open the **Privileged Application Discovery Settings Wizard** from the Setup Tasks section. It will always show the default settings, or
 - b. Double-click **Privileged Application Discovery Settings** on the Advanced Policy Settings tab of the target GPO. The changes made within the wizard will be saved here.



2. Enable the Privileged Application Discovery Settings on the **State** tab.
 - a. Choose **Enabled**, otherwise the settings won't apply to the selected GPO.
 - b. Choose **Not Configured** to enable child GPOs to inherit settings from their parent.
3. Use the **Settings** tab to set the period during which the settings will apply and the data will be collected (a month by default).
4. Click **Next** to use validation logic to target the settings to specific client computers or user accounts within the GPO, or click **Finish** to save your settings and quit.

If an error message indicates that the target GPO has not been selected:

- a. Click **OK** to close the message window.
 - b. Open the **GPO** tab and select the desired GPO.
5. Click **Next** to use the **Filters** tab to filter out Application Discovery data according to different application specific criteria.

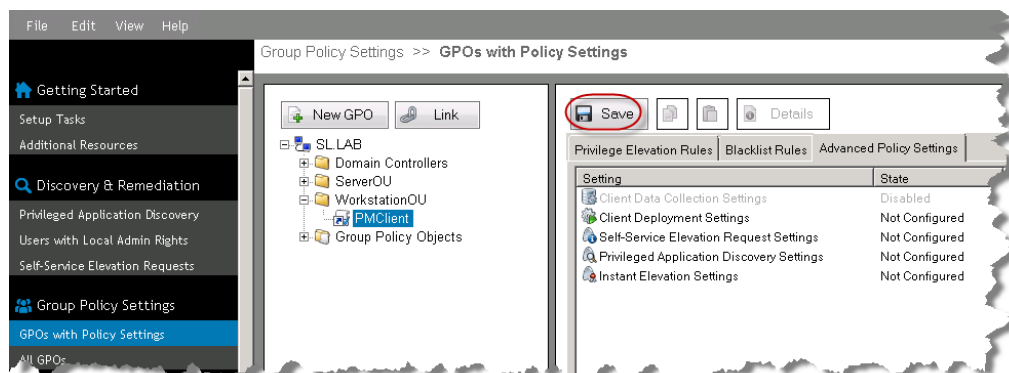
On the Filters tab, select the checkbox to enable application filters.

Enter filter criteria in at least one of the available boxes (Executable path contains, Product name contains, Publisher name contains, and File description contains).

An application only needs to meet a single filter criteria in order for its Application Discovery data to be filtered out. A comma delimiter can be used to enter multiple criteria in each filter box.

NOTE: The Privilege Manager client will not transmit any Application Discovery data for application(s) that meet any of the existing filter criteria.

6. Click **Save** on the GPO toolbar to save the new settings.



Processing discovered privileged applications

Once a privileged process has started (or failed to start) on a client computer, the corresponding information will be sent to the server and display in the **Privileged Application Discovery** section of the console (provided that your environment is properly configured according to the Maximum Sleep Time setting).

You can only view data stored in the database of the server that is selected in the server configuration (**Setup Tasks > Configure a Server**).

When processing a discovered privileged application, you can either create a rule for it so that a user without elevated privileges can launch it, or choose to mark it as processed so that it will not display in the list (unless the filter is specifically set to display it).

Use the **Generate Rules** wizard to automatically create a number of rules for different types of applications in one pass. Rules are created based on the preferences with which the application was started. You can select an application and view its preferences in the **Privileged Applications Discovered** grid.

Using the Generate Rules Wizard

To view discovered privileged applications and generate rules for them:

1. Open the **Privileged Application Discovery** section from the navigation pane of the console. The applications will be displayed in the window to the right.

The screenshot shows the 'Privileged Application Discovery' console window. The left navigation pane has 'Privileged Application Discovery' selected. The main window is titled 'Discovery & Remediation >> Privileged Application Discovery'. It contains a section for 'Applied Filters' with a dropdown menu set to 'Local Filters' and a table of filter rules. Below this is a 'Display applications' button. The main section is titled 'Privileged Applications Discovered' and contains a table with columns: Item, Select, Type, Product Name, Path, and Arguments/CLSID/MIME. The table lists 17 items, including various processes and MSI files. At the bottom of the table are buttons for 'Select all', 'Unselect all', 'Ignore (mark as processed)', and 'Generate rules'.

Item	Select	Type	Product Name	Path	Arguments/CLSID/MIME
1	<input checked="" type="checkbox"/>	Process	Microsoft® Windows® Operating System	C:\Windows\vegedit.exe	
2	<input type="checkbox"/>	Process		C:\Users\vest\Desktop\MicroApp.exe	
3	<input type="checkbox"/>	MSI	Privilege Authority Console	C:\Users\vest\Desktop\PAConsole_Pro.msi	
4	<input type="checkbox"/>	MSI	Privilege Manager Console	C:\Users\administrator.PA-YURY\Desktop\PAConsole_Pro.msi	
5	<input type="checkbox"/>	MSI	Privilege Manager Console	C:\Users\administrator.PA-YURY\Desktop\PAConsole_Pro.msi	
6	<input type="checkbox"/>	MSI	Privilege Manager Console	C:\Users\administrator.PA-YURY\Desktop\PAConsole_Pro.msi	
7	<input type="checkbox"/>	Process		C:\Program Files (x86)\Dell\Privilege Manager\Console\PrivilegeAuthority.exe	
8	<input type="checkbox"/>	Process	Microsoft® Windows® Operating System	C:\Windows\vegedit.exe	
9	<input type="checkbox"/>	Process		C:\Users\vest\Desktop\MicroApp.exe	
10	<input type="checkbox"/>	Process		C:\Users\vest\Desktop\MicroApp.exe	
11	<input type="checkbox"/>	Process		C:\Users\vest\Desktop\MicroApp.exe	
12	<input type="checkbox"/>	Process		C:\Users\vest\Desktop\MicroApp.exe	1
13	<input type="checkbox"/>	Process	Microsoft® Windows® Operating System	C:\Windows\System32\eventvwr.exe	
14	<input type="checkbox"/>	Process	Microsoft® Windows® Operating System	C:\Windows\System32\cepsdata.exe	
15	<input type="checkbox"/>	Process	Microsoft® Windows® Operating System	C:\Windows\System32\cepsdata.exe	roleusage

2. Click the **Display applications** button to list the privileged applications and other processes that were started (or failed to start), based on the default filter settings shown in the **Applied Filters** section on the top of the screen.
3. Select an application in the **Privileged Applications Discovery** grid below. Use the grid's column headers to sort the applications.

By default, you'll see:

- a. Any type of privileged applications;
 - b. Privileged applications that were discovered during the last 30 days; and
 - c. Privileged applications that have no generated rule in the current section, or are marked as ignored in it.
4. Use the **Applied Filters** wizard to modify the list. You can create multiple shared filter sets and save settings that other administrators can use. For more information, see [Using the Applied Filters Wizard](#) on page 74.
5. Select a record and then click the **Generate rules** button to open the **Generate Rules Wizard** wizard.
 - a. On the first tab of the wizard, specify your rule type preferences. Click **Next**.
 - b. Add validation logic preferences into the rule, if necessary. The selected preferences will be used to create the corresponding validation logic type. Click **Next**.
 - c. Review your rules and click **Next**, or
 - a. Click the **Review rules that will be created** button to open a window with more information.
 - b. Click the **Details** button for more information, or click **Close**.
 - d. Select a target GPO for the rule and specify the GPO policy type. By default, the Administrators group (stored within the BUILTIN\Administrators Active Directory OU) will be added to the rule. Click **Create** to save the rule.
6. Once a discovered privileged application has been processed and a rule has been created for it or it has been marked as ignored, the application is considered processed.
7. To view ignored applications or applications for which the rules were created, change the **Process Date of Item** filter on the **Applied Filters Wizard** from "None: Item has not been processed" to the corresponding Date Range.
8. The rule created from the application will be added to the selected GPO with a default name.
9. Select **Export** to export the list of applications presented on the grid. The list will be saved as an `.xls` file.

After the rule has been created:

1. The rule will be added to the target GPO of the **Group Policy Settings** section; and
2. The rule will apply after the GPO settings are updated on the client computer.

Deploying rules

Using the Create GPO with Default Rules Wizard (Privilege Elevation Rules only)

Using the Group Policy Management Editor




Using the Create Rule Wizard

Managing rules



Testing rules

Privilege Manager for Windows can create Privilege Elevation Rules and Blacklist Rules. Privilege Elevation rules are rules that raise the permissions level of the user for an application. Blacklist rules deny a user access to an application, regardless of what their default domain user permissions allows.

You can create five types of rules with Privilege Manager for Windows:

-  **By Path to the Executable:** a file rule that applies to the path to an executable. For more information, see [Creating file rules](#) on page 47.
-  **By Folder Path:** a folder path rule that applies to all processes run from a path. For more information, see [Creating folder path rules](#) on page 49.
-  **By ActiveX Rule:** an ActiveX rule that applies to a specific URL. For more information, see [Creating ActiveX rules](#) on page 50.

Available only in Privilege Manager Professional and Professional Evaluation editions:

-  **By Path to Windows Installer:** a rule that applies to the path to Windows Installer files and patches. For more information, see [Creating rules for Windows Installer files](#) on page 54.
-  **By Path to Script File:** a rule that applies to the path to a script file. For more information, see [Creating rules for script files](#) on page 55.

You can create a rule in one of the following ways:

- Create a default rule using the **Create GPO with Default Rules Wizard**.
- Create a new rule using the **Group Policy Management Editor** or the **Create Rule Wizard**.

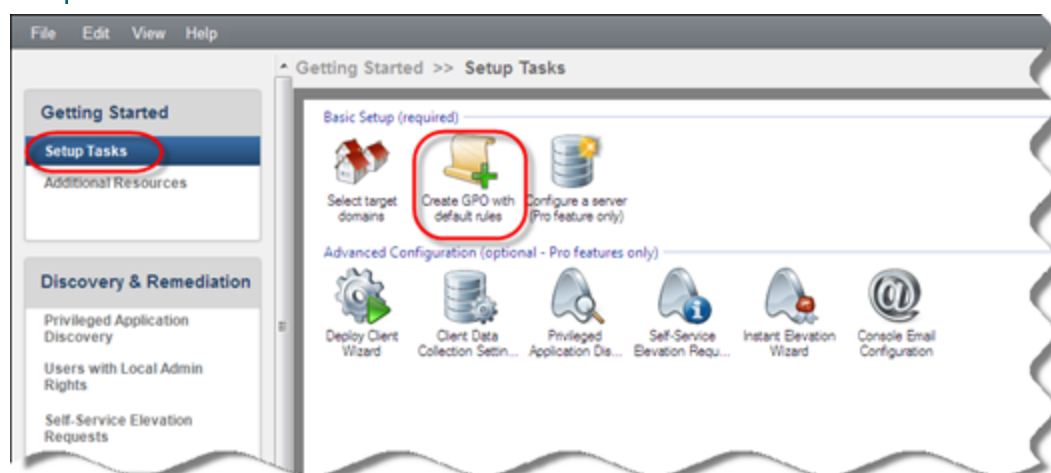
Once you create a rule, you can:

- Test the rule. For more information, see [Testing rules](#) on page 63.
- Edit or delete the rule. For more information, see [Managing rules](#) on page 62.
- Build a report to view the rule's settings, save them into a file, and get statistics on the rule's usage. For more information, see [Reporting](#) on page 68.

Using the Create GPO with Default Rules Wizard (Privilege Elevation Rules only)



Privilege Manager for Windows contains a range of useful default rules that you can add to a new or existing GPO. To create the default rules provided by Privilege Manager, use the **Create GPO with Default Rules Wizard**. To access the wizard from the **Getting Started** screen, select the **Setup Tasks** tab and then double-click **Create GPO with default rules**.

NOTE: Rules created with this process are Privilege Elevation rules only. Blacklist rules cannot be created here.



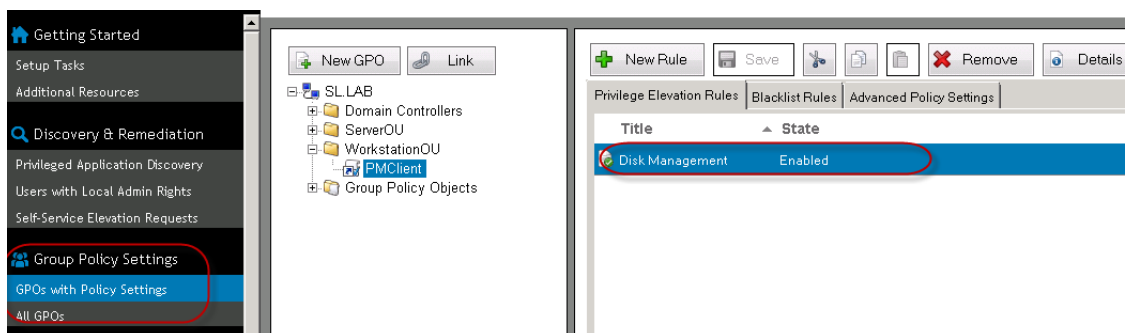
To use the Create GPO with Default Rules Wizard:

1. Double-click **Create GPO with default rules** to open the wizard.
2. Read the text in the **Introduction** dialog and click **Next**.
3. In the **Select privilege elevation rules** dialog, select your operating system from the drop-down menu and select the corresponding rules from a list of common ones. Click **Next**.

4. In the **Select target GPO** dialog, select or create a GPO to assign the rule to:
 - a. Select a GPO from the list under the domain that your local computer is a part of, or
 - b. Select a domain, click the **Create GPO** button, name it, and click **OK**. The newly created GPO will be added to the **All GPOs** list in the **Group Policy Objects** container, or
 - c. Link any GPO not marked with the  icon to your domain or Active Directory OU.
 - i. Highlight the GPO in the left pane and click the **Link GPO** button on the right to link the GPO to the domain or an OU.
 - ii. Browse for an OU or add the GPO to the domain in the dialog that displays.
 - iii. Click **OK**.
 - iv. Once the rule is created, its icon will change to  to indicate that it contains a rule and it will be listed in the **GPOs with Policy Settings** node.

i | Note: You can only link a GPO to an item for which you have sufficient rights. For more information, see [Select user policy or computer policy](#).

 - d. Click **Finish** to save and apply the rule. If you have not specified the required data, the wizard will notify you.
5. An error message will notify you if you have insufficient permissions to perform any of the operations listed above.
 - a. You must have permission to perform the same actions in the GPMC.
 - b. Contact your system administrator to get the proper permissions.
 6. The rule will display in the list of rules for the corresponding GPO under the **Group Policy Settings** section.



7. The rule will apply once the Group Policy is updated on the client computer.
8. A message will notify you that the rule's parameters will change once the trial period expires, if you create a rule with any of the Privilege Manager Professional features while using the evaluation edition. For more information, see [Editions](#) on page 7.
9. Modify the rule, as necessary. For more information, see [Managing rules](#) on page 62.

Using the Group Policy Management Editor

The Group Policy Management Console (GPMC) is a built-in Microsoft Management Console (MMC) snap in.

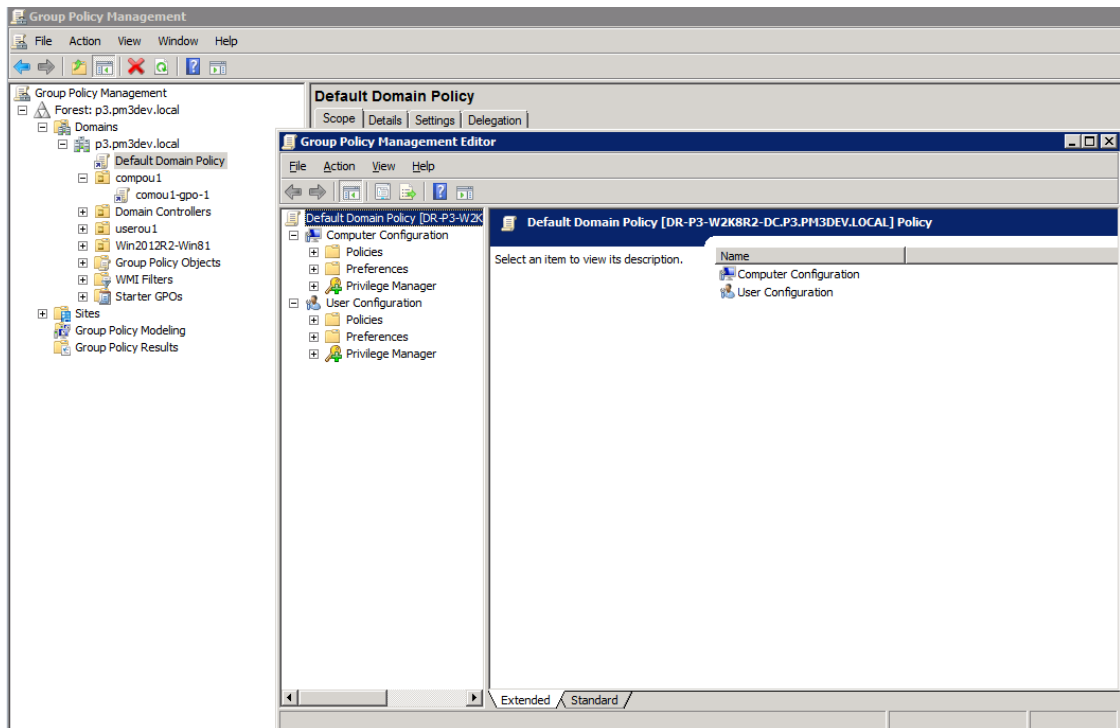
You can use the features in Privilege Manager based on your Windows rights within the GPMC.



You can use the Group Policy Management Editor in the GPMC to manage and create rules or you can use the Create Rule Wizard in the Privilege Manager for Windows console.

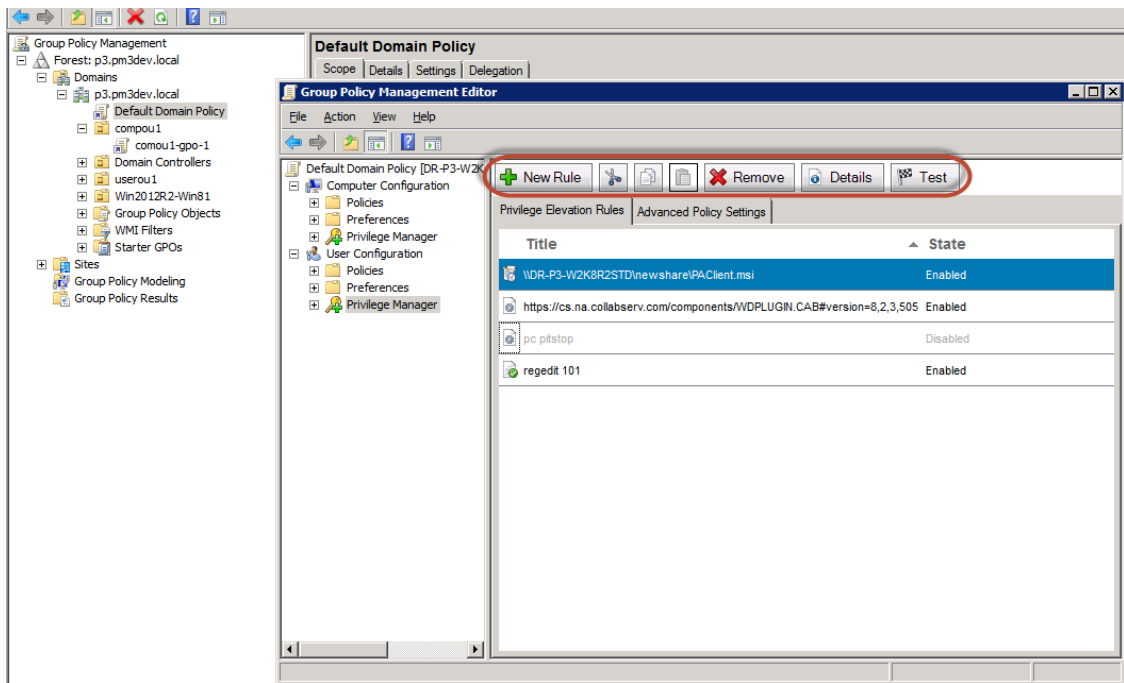
To use the Group Policy Management Editor to create and manage rules:

1. Open the MMC. On the **Start** menu, click **Run**, type **MMC**, and then click **OK**.
2. From the **File** menu, select **Add/Remove Snap-in**. The **Add or Remove Snap-ins** dialog box will open.
 - a. Select **Group Policy Management** under the list of snap-ins.
 - b. Click the **Add** button.
 - c. Click **OK**.
3. The **Console Root** window now has a snap-in, **Group Policy Management**, rooted at the Console Root folder.
4. Right-click a GPO under your forest in the Group Policy Management pane on the right and select **Edit**.

5. The Group Policy Management Editor will open. The editor now has **Privilege Manager for Windows** nodes, under **Computer Configuration** and **User Configuration**.




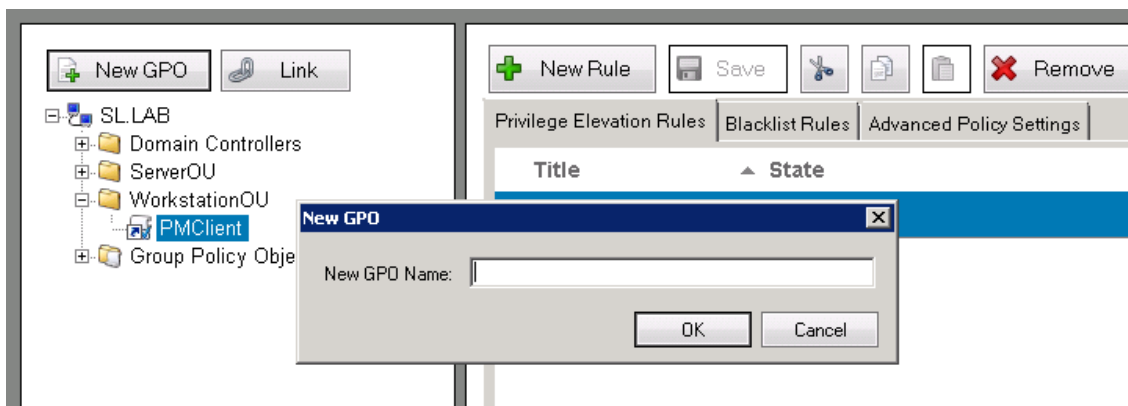
- a. The right pane has an **Extended** and a **Standard** tab.
- b. Click the **Extended** tab for more information about an item.
6. *Available only in Privilege Manager Professional and Professional Evaluation editions.* To create new rule, select a **Privilege Manager for Windows** node and use the  **New Rule** button, or use the other toolbar buttons to delete or modify it. Before clicking the  **New Rule** button, be sure to select the Privilege Elevation Rules or Blacklist Rules tab.







Using the Create Rule Wizard



To use the Create Rule Wizard:

1. Select or create a GPO in the **All GPOs** node in the left pane of the Privilege Manager for Windows console:
 - a. Select a GPO from the list under the domain that your local computer is a part of, or
 - b. Select a domain, click the  **New GPO** button, name it, and click **OK**. The newly created GPO will be added to the **All GPOs** list in the **Group Policy Objects** container.



2. Link any GPO not marked with the  icon to your domain or Active Directory OU.
 - a. Highlight the GPO in the left pane and click the  **Link** button above it.
 - b. Browse for an OU or add the GPO to the domain in the dialog that displays.
 - c. Click **OK**.
 - d. Once the rule is created, its icon will change to  to indicate that it contains a rule and it will be listed in the **GPOs with Policy Settings** node.

 Note: You can only link a GPO to an item for which you have sufficient rights. For more information, see [Select user policy or computer policy](#).

3. Use the **Create Rule Wizard** to configure the rule.
 - a. Select the **Privilege Elevation Rules** or **Blacklist Rules** tab based on the type of rule to be created.
 - b. Click the  **New Rule** button to open the **Create Rule Wizard**.
 - c. Specify the data requested in each tab and click **Next**.
 - i. When creating a Privilege Elevation rule follow the prompts through the default tabs: Start, Description, Type, Groups, and Validation Logic (available only for Privilege Manager Professional). The Privileges and Integrity tabs display as advanced options.
When creating a Blacklist rule follow the prompts through the default tabs: Start, Description, Type, and Validation Logic (available only for Privilege Manager Professional).
 - ii. Enter the required fields, marked * on the Description and Type tabs.
 - d. Click **Finish** to save and apply the rule. If you have not specified the required data, the wizard will notify you.
4. Click the  **Save** button on the menu bar of the **Rule** section. Or, if asked, confirm that you want to save the rule.
5. An error message will notify you if you have insufficient permissions to perform any of the operations listed above.
 - a. You must have permission to perform the same actions in the GPMC.
 - b. Contact your system administrator to get the proper permissions.
6. The rule will apply once the Group Policy is updated on the client computer.
7. A message will notify you that the rule's parameters will change once the trial period expires, if you create a rule with any of the Privilege Manager Professional features while using the evaluation edition. For more information, see [Editions](#) on page 7.

Getting started

To use the Start tab in the Create Rule Wizard:




1. Select **Create your own rule** to create your own settings, or
2. Create a rule with pre-defined settings:
 - a. Select the **Select common rule from the list below** option.
 - b. Use the **Operating System** menu to sort the rules according to the operating system they apply to.
 - c. Click **Next** to modify the default settings, or click **Finish** to save the your settings for the target GPO and quit.

To use the Description tab in the Create Rule Wizard:



1. Enter a title to identify the rule and an optional description.
 - a. Check the **Advertise this rule in the system tray on client computers** option to display the title of the rule when using the **View current rules** option on the client system tray.

The system tray also pop ups a desktop notification message any time there is a change to the set of rules flagged as advertised.
 - b. Check the **Disable data collection activity for this rule** option to enable/disable data collection for the individual rule.
 - b. Check the **Disable the rule regardless of validation** option to stop the rule from applying until you uncheck the option.
2. Click **Next**.

To use the Type Tab in the Create Rule Wizard to specify the essential parameters of the processes for the rule:

1. Select the type of rule that you would like to create.
 -  **By Path to the Executable:** a file rule that applies to the path to an executable. For more information, see [Creating file rules](#) on page 47.
 -  **By Folder Path:** a folder path rule that applies to all processes run from a path. For more information, see [Creating folder path rules](#) on page 49.
 -  **By ActiveX Rule:** an ActiveX rule that applies to a specific URL. For more information, see [Creating ActiveX rules](#) on page 50.

Available only in Privilege Manager Professional and Professional Evaluation editions:

-  **By Path to Windows Installer:** a rule that applies to the path to Windows Installer files and patches. For more information, see [Creating rules for Windows Installer files](#) on page 54.
 -  **By Path to Script File:** a rule that applies to the path to a script file. For more information, see [Creating rules for script files](#) on page 55.
2. Specify the options that correspond to the type of rule you have selected.
 3. Select user policy or computer policy.


Define whether the rule will be user or computer-based.

- **User Policy:** Select this option to apply the rule to the user logged into the computer. This option corresponds to the User Configuration node of the Group Policy Management Editor and is the default policy for all editions of Privilege Manager for Windows.
- **Computer Policy:** Select this option to apply the rule to a computer irrespective of the user logged in. This option corresponds to the Computer Configuration node of the Group Policy Management Editor. *Available only in Privilege Manager Professional and Professional Evaluation editions.*



Creating file rules

Use the **By Path to the Executable** rule to elevate or decrease privileges for processes that start from an executable file.

To create a By Path to the Executable file rule using the Create Rule Wizard:

1. Open the **Create Rule Wizard**. For more information, see [Using the Create Rule Wizard](#) on page 44.
 2. Specify the **Path** to an executable file on the client computer or a network share in one of the following ways:
 - Type the path to the file, including its extension, in the following format:
`\\ComputerName\SharedFolder\Filename.exe`
`DriveLetter:\Filename.exe`
 - Use the common % variable and the * and ? wildcards to identify the path, for example, `*\filename.exe`.
 - Use the **Browse**  button to locate the path. Once you locate the process, a dialog will prompt you to:
 - a. Retrieve a digital signature for the rule's **Publisher** field. Click **Yes** to add the available digital signature. Click **No** to skip the prompt.
 - b. Create a file version for the file. Click **Yes** to add the setting. Click **No** to skip the prompt.
 - c. Create a unique cryptographic hash for the file to secure its identification. Click **Yes** to add the setting. Click **No** if you are creating the rule for the file for which data is likely to be updated in the future, or for any file with its name within the specified folder.
- i** | Note: When saving the rule, Privilege Manager for Windows converts the path into environment variables.
3. Click the **Processes** button to simplify adding parameters into the rule. *Available only in Privilege Manager Professional and Professional Evaluation editions.*

- a. Select whether you will create the rule from a process on a local or remote computer.
- b. A list of processes running on the computer will open. Locate the process and view its details in the fields to the right:
 - **Path:** the path to the process's executable.
 - **Arguments:** the arguments with which the process was started.
 - **Publisher:** the digital certificate of a publisher.
 - **Version:** the File Version property.
 - **Hash:** a unique cryptographic hash.
 - **Integrity level:** the security level with which the process runs in Windows 7 and higher.
 - **Privileges:** the privileges granted to the process.
- c. Click **OK**. The data for the processes will be saved to the rule and displayed on the corresponding tabs of the wizard.
- d. To troubleshoot a **Failed to retrieve processes. Please refer to documentation for more info** error, check the following on the remote computer:
 - i. The computer is turned on and accessible from the network;
 - ii. The domain administrator credentials have been provided; and
 - iii. Windows Management Instrumentation (WMI), Distributed Component Object Model (DCOM), File and Printer Sharing, and Remote Administration are allowed through the firewall.

4. Fill in these optional fields, as necessary:
 - **Arguments:** Specify the common or user-defined arguments with which the executable will run. For example, to build a rule that will allow a non-administrator to access the Date/Time tool in the Control Panel from the task bar, enter this data:
 - i. **Path:** %SystemFolder%\rundll32.exe
 - ii. **Arguments:** /d c:\windows\system32\shell32.dll,Control_RunDLL timedate.cpl
 - *Available only in Privilege Manager Professional and Professional Evaluation editions.*
 - **Publisher:** Limit elevation to files signed with the digital certificate of a publisher. Enter the exact name or use the **Browse**  button to locate it.
 - **File Version:** Limit elevation to those whose File Version property match the ones specified.
 - **File Hash:** Click the **Browse**  button to locate the file and create a unique cryptographic hash that limits elevation to files that match it. This ensures that the rule will not apply to dangerous content that is similarly named and will help prevent security issues.

i NOTE: The file hash will not apply to a file that you have modified during program updates, so do not add it to the rule for a file which is likely to be updated, or for any file with the same name in that location.
 - **Apply settings to child processes:** Ensure that child processes triggered by the rule will not fail due to lack of privileges. This checkbox is enabled by default.
 - **User's context will be used to resolve system and resource access:** Ensure that the client will use the target's user environment to resolve file and registry access. This might be required to resolve drive mappings, and also if the rule specifies the publisher, version, or file hash for the target process running from a network location.
5. Define whether the rule will be user or computer-based.
 - **User Policy:** Select this option to apply the rule to the user logged into the computer. This option corresponds to the User Configuration node of the Group Policy Management Editor and is the default policy for all editions of Privilege Manager for Windows.
 - **Computer Policy:** Select this option to apply the rule to a computer irrespective of the user logged in. This option corresponds to the Computer Configuration node of the Group Policy Management Editor. *Available only in Privilege Manager Professional and Professional Evaluation editions.*
6. Complete the Privileges (see [Granting/denying privileges \(Privilege Elevation Rules only\)](#)) and Integrity (see [Differentiating security levels \(Privilege Elevation Rules only\)](#)) tabs to modify the rule.
7. Click **Finish** to quit the wizard.
8. The rule will be named after the executable.

Creating folder path rules


Use the **By Folder Path** rule to elevate or decrease privileges for processes that start from a folder path.



To create a **By Folder Path** rule using the **Create Rule Wizard**:

1. Open the **Create Rule Wizard**. For more information, see [Using the Create Rule Wizard](#) on page 44.
2. Specify the location of a **Folder** on the client computer or a network share in one of the following ways:
 - Type the folder path in the following format:

```
\\ComputerName\SharedFolder
```



```
DriveLetter:\Folder
```
 - Use the common % variable and the * and ? wildcards to identify the folder, for example, *\Folder
 - Use the **Browse**  button to locate the folder.

 **Note:** When saving the rule, Privilege Manager for Windows converts the path into environment variables.
3. Fill in these optional fields, as necessary:
 - *Available only in Privilege Manager Professional and Professional Evaluation editions.*
Publisher: Limit elevation to files signed with the digital certificate of a publisher. Enter the exact name or use the **Browse**  button to locate it.
 - **Apply settings to sub folders:** Apply the rule to processes started from any file under any sub folders of the path.
 - **Apply settings to child processes:** Ensure that child processes triggered by the rule will not fail due to lack of privileges. This checkbox is enabled by default.
 - **User's context will be used to resolve system and resource access:** Ensure that the client will use the target's user environment to resolve file and registry access. This might be required to resolve drive mappings, and also if the rule specifies the publisher, version, or file hash for the target process running from a network location.
4. Define whether the rule will be user or computer-based.
 - **User Policy:** Select this option to apply the rule to the user logged into the computer. This option corresponds to the User Configuration node of the Group Policy Management Editor and is the default policy for all editions of Privilege Manager for Windows.
 - **Computer Policy:** Select this option to apply the rule to a computer irrespective of the user logged in. This option corresponds to the Computer Configuration node of the Group Policy Management Editor. *Available only in Privilege Manager Professional and Professional Evaluation editions.*
5. Complete the Privileges (see [Granting/denying privileges \(Privilege Elevation Rules only\)](#)) and Integrity (see [Differentiating security levels \(Privilege Elevation Rules only\)](#)) tabs to modify the rule.
6. Click **Finish** to quit the wizard.
7. The rule will be named after the folder path.

Creating ActiveX rules

Use the **By ActiveX Rule** to allow installation of ActiveX controls from the Internet.

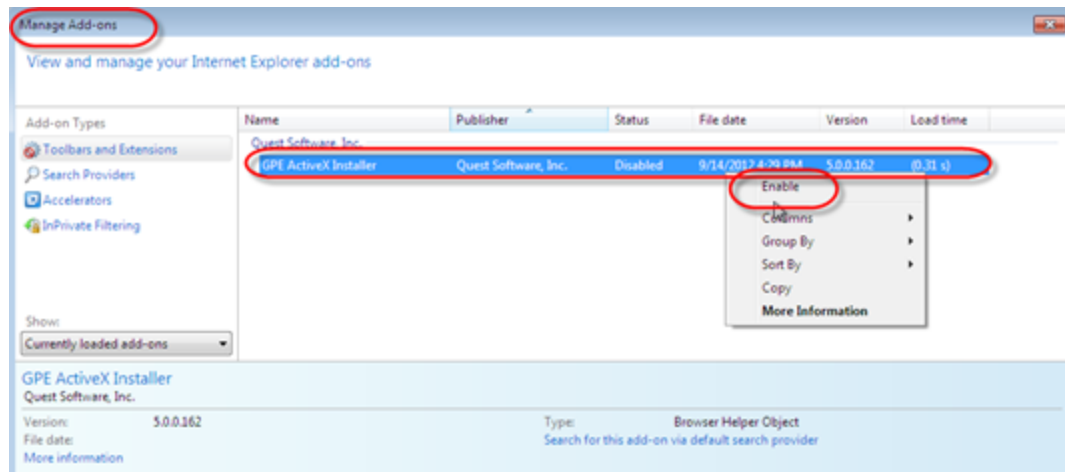
To create an ActiveX Rule using the Create Rule Wizard:

1. Open the **Create Rule Wizard**. For more information, see [Using the Create Rule Wizard](#) on page 44.
2. Specify the URL for the ActiveX control in the **Source URL** field, for example:
`http://*.macromedia.com*`
3. *Available only in Privilege Manager Professional and Professional Evaluation editions.*
 - a. Click the **Installed ActiveX Controls** button to view details of the ActiveX controls installed on the local computer and create rules based on them.
 - b. Fill in these optional fields, as necessary.
 - **Control:** Enter the name of the ActiveX control from the `CodeBase` attribute of the web page.
 - **CLSID/MIME:** Restrict loading a control unless the `CLSID` or `MIME` value on the web page matches the one specified.
 - **ActiveX Version:** Restrict elevation to ActiveX controls with a matching version number on the web page from which it will be downloaded.
4. Define whether the rule will be user or computer-based.
 - **User Policy:** Select this option to apply the rule to the user logged into the computer. This option corresponds to the User Configuration node of the Group Policy Management Editor and is the default policy for all editions of Privilege Manager for Windows.
 - **Computer Policy:** Select this option to apply the rule to a computer irrespective of the user logged in. This option corresponds to the Computer Configuration node of the Group Policy Management Editor. *Available only in Privilege Manager Professional and Professional Evaluation editions.*
5. Click **Finish** to quit the wizard.
6. The rule will be named after the ActiveX control.

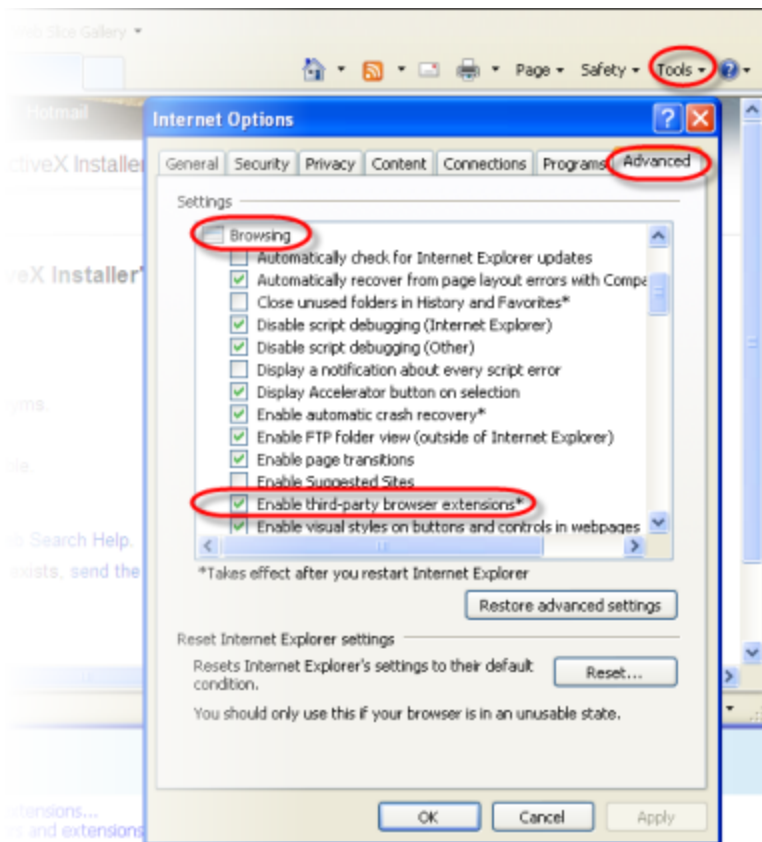
Applying ActiveX rules

In order for an ActiveX rule to take effect on clients, set up the following components:

1. Enable Quest's **GPE ActiveX Installer** add-on in the Internet Explorer browser.



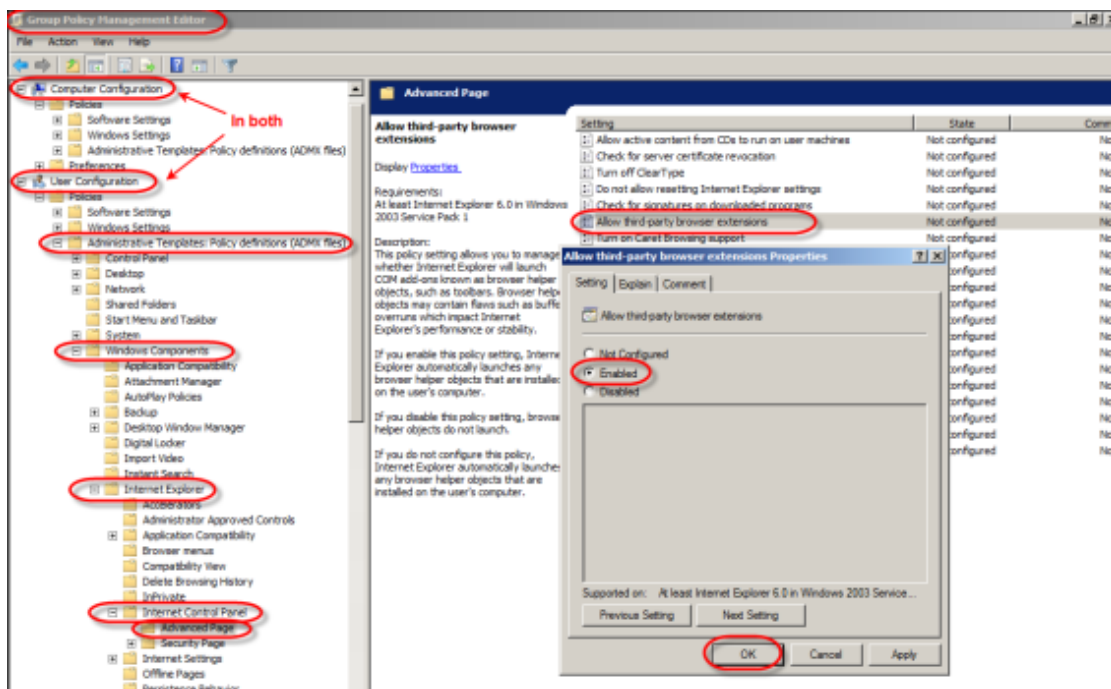
2. Open the **Internet Options** menu.
 - a. Uncheck the **Enable Protected Mode** checkbox on the **Security** tab.
 - b. Check the **Enable third-party browser extensions*** checkbox on the **Advanced** tab.



3. Restart Internet Explorer.

To centrally enable third-party browser extensions by modifying a GPO:

1. Create a dedicated GPO or open the **Group Policy Management Editor**.
2. Go to **Computer Configuration > Administrative Templates: Policy definitions (ADMX files) > Windows Components > Internet Explorer > Internet Control Panel > Advanced Page**, and double-click on **Allow third-party browser extensions** in the list to the right and enable it.




3. Open the **User Configuration** node and perform the configurations described in step 2 above.

Creating rules for Windows Installer files




Available only in Privilege Manager Professional and Professional Evaluation editions.

Use the **By Path to Windows Installer** rule to elevate or decrease privileges for processes that start from Windows Installer files (.msi) and patches (.msp).

To create a *By Path to Windows Installer* rule using the *Create Rule Wizard*:

1. Open the **Create Rule Wizard**. For more information, see [Using the Create Rule Wizard](#) on page 44.
2. Fill in the following fields:
 - **Name**: Set a path to an `.msi` or `.msp` file. Wildcards are supported and you can use the **Browse**  button to locate the path.

Optional:

- **Publisher**: Limit elevation to files signed with the digital certificate of a publisher. Enter the exact name or use the **Browse**  button to locate it.
 - **Product Code**: Limit elevation to those whose ProductCode MSI property match the one specified. Enter the exact name or use the **Browse**  button to locate it.
 - **Product Version**: Limit elevation to those whose ProductVersion MSI property match the one specified.
 - **File Hash**: Click the **Browse**  button to locate the file and create a unique cryptographic hash that limits elevation to files that match it. This ensures that the rule will not apply to dangerous content that is similarly named and will help prevent security issues.
 - **Apply settings to child processes**: Ensure that child processes triggered by the rule will not fail due to lack of privileges. This checkbox is enabled by default.
 - **User's context will be used to resolve system and resource access**: Ensure that the client will use the target's user environment to resolve file and registry access. This might be required to resolve drive mappings, and also if the rule specifies the publisher, version, or file hash for the target process running from a network location.
3. Define whether the rule will be user or computer-based.
 - **User Policy**: Select this option to apply the rule to the user logged into the computer. This option corresponds to the User Configuration node of the Group Policy Management Editor and is the default policy for all editions of Privilege Manager for Windows.
 - **Computer Policy**: Select this option to apply the rule to a computer irrespective of the user logged in. This option corresponds to the Computer Configuration node of the Group Policy Management Editor. *Available only in Privilege Manager Professional and Professional Evaluation editions.*
 4. Complete the Privileges (see [Granting/denying privileges \(Privilege Elevation Rules only\)](#)) and Integrity (see [Differentiating security levels \(Privilege Elevation Rules only\)](#)) tabs to modify the rule.
 5. Click **Finish** to quit the wizard.
 6. The rule will be named after the installer file or patch.

Creating rules for script files


Available only in Privilege Manager Professional and Professional Evaluation editions.

Use the **By Path to Script File** rule to elevate or decrease privileges for processes that start from a script file.



To create a *By Path to Script File* rule using the *Create Rule Wizard*:

1. Open the **Create Rule Wizard**. For more information, see [Using the Create Rule Wizard](#) on page 44.
2. Set the absolute or relative path to one of the following types of script files:

- **Command Prompt:** .cmd
- **Batch File:** .bat
- **JavaScript:** .js
- **VBScript:** .vbs
- **PowerShell:** .ps1
- **Perl:** .pl

Wildcards are supported and you can use the **Browse**  button to locate the path.

3. Fill in these optional fields, as necessary:

- **Publisher:** Limit elevation to files signed with the digital certificate of a publisher. Enter the exact name or use the **Browse**  button to locate it.
This field is not supported for .pl, .cmd, and .bat files.
- **File Hash:** Click the **Browse**  button to locate the file and create a unique cryptographic hash that limits elevation to files that match it. This ensures that the rule will not apply to dangerous content that is similarly named and will help prevent security issues.
- **Apply settings to child processes:** Ensure that child processes triggered by the rule will not fail due to lack of privileges. This checkbox is enabled by default.
- **User's context will be used to resolve system and resource access:** Ensure that the client will use the target's user environment to resolve file and registry access. This might be required to resolve drive mappings, and also if the rule specifies the publisher, version, or file hash for the target process running from a network location.

4. Define whether the rule will be user or computer-based.






- **User Policy:** Select this option to apply the rule to the user logged into the computer. This option corresponds to the User Configuration node of the Group Policy Management Editor and is the default policy for all editions of Privilege Manager for Windows.
- **Computer Policy:** Select this option to apply the rule to a computer irrespective of the user logged in. This option corresponds to the Computer Configuration node of the Group Policy Management Editor. *Available only in Privilege Manager Professional and Professional Evaluation editions.*

5. Complete the Privileges (see [Granting/denying privileges \(Privilege Elevation Rules only\)](#)) and Integrity (see [Differentiating security levels \(Privilege Elevation Rules only\)](#)) tabs to modify the rule.
6. Click **Finish** to quit the wizard.
7. The rule will be named after the script file.

Using Active Directory user groups (Privilege Elevation Rules only)

Use the **Groups** tab to add or remove an Active Directory user group from the security token of the target process. Removing a group decreases the privileges with which the process will run.

To add or remove an Active Directory user group using the Groups tab in the Create Rule Wizard:

1. If the Administrators group (stored within the BUILTIN\Administrators Active Directory OU) does not appear on the list by default, click the  button to add it.
 - Select this group of users, who have complete and unrestricted access to a local computer, instead of domain administrators.
 - The  button will not be active if the group is already on the list.
2. Use the  button to add or remove other groups. When the window opens:
 - a. Use the **Browse** button to specify the group name.
 - b. Select add or remove.
3. To delete or modify a record within the Security Group list, select it and use the  or  button.
 - You can only add security groups in Active Directory which have a group scope property of Built-in local to the security token of a process on a client computer if the client also has the same security identifier definition (SID) in its built-in security groups.
 - When removing a group from the security token, ensure that the user account under which the process is launched is a member of more than one primary group. Otherwise, the rule will not apply as intended.

Using validation logic

Available only in Privilege Manager Professional and Professional Evaluation editions.

By default, a rule will apply to all client computers to which the previously selected GPO is linked. For more granular targeting, you can use the Standard Rules and Validation Logic Rules sub-tabs of the **Validation Logic** tab in the Create Rule Wizard to target the rule based on the client's operating system, their IP address, and/or a logged-in user.

Using standard rules

Within the **Standard Rules** sub-tab in the Create Rule Wizard, you can set a rule to apply only to clients with specified operating systems, servers, or workstations. By default, all operating systems are selected. If no options are selected, then the rule will apply to all supported operating systems.

To use the Standard Rules sub-tab in the Create Rule Wizard:

- Check the **Server** checkbox in the **Class** section to apply the rule to Windows Server 2008/2008 R2/2012/2012 R2.
- Check the **Workstation** checkbox in the **Class** section to apply the rule to Windows 7/8.1/10.
- In the **Operating System** section, check the checkboxes for your operating systems.

Using validation logic rules





The **Validation Logic Rules** sub-tab in the Create Rule Wizard allows you to set additional parameters to target the rule. You can define whether the rule will run on computers with a prefix in the name, a group or IP address range, or a user currently logged in. For example, you can target the rule to computers belonging to OUs that end with DEPARTMENT and are in subnet 192.168.0.X, except for the IP address 192.168.0.1.






i Note: Client Deployment Settings can only be targeted to specific computers and not to user accounts or groups.

Setting rule parameters

To set rule parameters using the Validation Logic Rules sub-tab in the Create Rule Wizard:

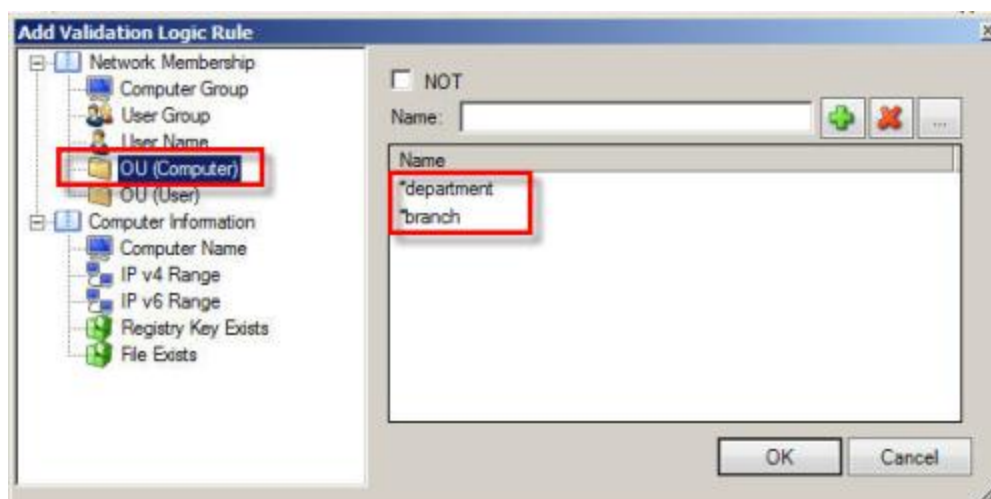
1. Click **Add** to open the **Add Validation Logic Rule** window.
2. Select the type of rule:

Type of Rule	Action
 Computer Group	Set a rule for one or several names, or partial names, of your Active Directory computer groups. Enter the NetBIOS name, for example: DERPA\DOMAIN CONTROLLERS
 User Group	Set a rule for one or several names, or partial names, of your Active Directory user groups. The group membership value you enter will be compared against the groups that the user belongs to during the logon process and must match for the configuration to be processed. Enter the NetBIOS name, for example: DERPA\ADMINISTRATORS
 User Name	Set a rule if specific users are logged into client computers. Enter the NetBIOS name, for example: DERPA\HELPDESK
 OU (Computer)	Set a rule for names, or partial names, of computer-based OUs or the Computers container in your Active Directory. The OU value you enter will be compared against the OU the client computer belongs to during the logon process and must match for the configuration to be processed. Enter the fully qualified domain name (FQDN), for example: DERPA.DERPADEV.LOCAL\DOMAIN CONTROLLERS

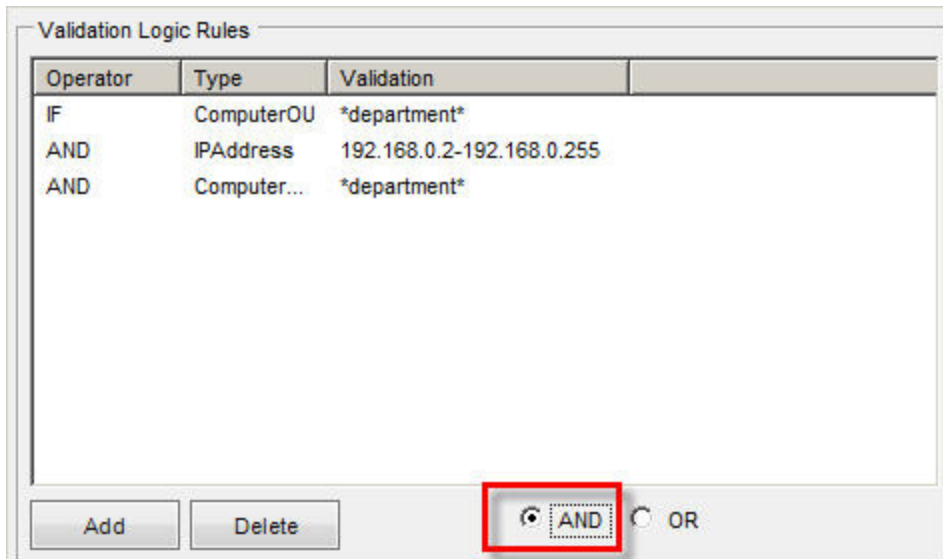
Type of Rule	Action
	<ul style="list-style-type: none"> To select OUs, check the OU checkboxes. To select all containers (instead of OUs), select the domain so that it is highlighted. To include child objects, highlight the parent object and check Include child objects.
 OU (User)	<p>Set a rule for names, or partial names, of the user-based OUs or the Users container in your Active Directory. The OU value you enter will be compared against the OU the user belongs to during the logon process and must match for the configuration to be processed. Enter the FQDN, for example:</p> <p>DERPA.DERPADEV.LOCAL\USER ACCOUNTS</p> <ul style="list-style-type: none"> To select OUs, check the OU checkboxes. To select all containers (instead of OUs), select the domain so that it is highlighted. To include child objects, highlight the parent object and check Include child objects.
 Computer Name	<p>Set a rule for computers with names or partial names. Enter the FQDN, for example:</p> <p>DERPA.DERPADEV.LOCAL\PASERVER</p>
 IP Address Range (v4/v6)	<p>Set a rule for IP addresses or ranges of computers.</p>
 Registry Key Exists	<p>Set a rule based on the registry keys on client computers.</p>
 File Exists	<p>Set a rule for files on the client computer or on the network. Specify a file that must exist on the client computer or on the network in order for the rule to run, for example:</p> <p>\\ComputerName\SharedFolder\Filename.exe</p> <p>DriveLetter:\Filename.exe</p> <p>i Note: On the Type tab of the Create Rule Wizard, check the checkbox for User's context will be used to resolve system and resource access to ensure that the rule will apply.</p>
	<p>Define when a rule should start and/or stop being enforced.</p> <ol style="list-style-type: none"> Check the checkboxes before the date and/or time fields in the Date Range/Time Range sections.

Type of Rule	Action
Date and Time Range	<p>b. Set the values.</p> <p>c. The rule will apply according to the time/date parameters of the console used to create the rule.</p>

- Specify the rule's parameters in the dialog window that will display on the right:



- Use the common asterisk (*) and question mark (?) wildcards in the validation value, as necessary.
 - *: Stands for no or any number of any characters
 - ?: Stands for a single character
- Check the **NOT** checkbox to exclude the items specified from the rule.
- For **Computer Group**, **User Group**, **User Name**, **OU (Computer)**, **OU (User)**, and **Computer Name**:
 - Use the **Name** field to specify the rule's value manually (see example values in the table above), and then click the button. Or,
 - Use the **Browse** button to select the items available on your network. You can filter the items by the first letters. Wildcards are not supported in the **Filter** field.
 - The desired value will be added to the list. You may add as many rule values as necessary.
- Click **OK** when you are finished specifying the settings within the rule type. The record will display in the main **Validation Logic Rules** list.
- To add another validation logic rule, repeat the steps above.
- Add or combine validation logic rules with AND or OR Boolean logic. By default, rules will combine with OR Boolean logic. To make the rule use the AND operator, select **AND** at the bottom of the **Validation Logic Rules** window.



7. To edit a rule setting:
 - a. Within the **Validation Logic Rules** list, double-click a rule value or click the **Edit** button.
 - b. Make changes in the dialog.
8. When finished specifying validation logic rules, click **Next**. If the **Display Advanced Options** checkbox has not been selected, complete the rule creation process.

Granting/denying privileges (Privilege Elevation Rules only)

On the **Privileges** tab in the Create Rule Wizard you can grant or deny privileges for a process, based on the standard Windows policies in the User Rights Assignment list (Local Security Settings\Local Policies).

To apply/deny privileges for processes (including child processes) using the Privileges tab in the Create Rule Wizard:

1. Select the privilege and click **Grant** or **Deny**. To select multiple privileges, hold down the CTRL (or SHIFT) key while selecting the items.
2. To discard your choices, select the privilege and click **Not Set**.

Differentiating security levels (Privilege Elevation Rules only)

You can differentiate the security levels with which a process will run using the **Integrity** tab in the **Create Rule Wizard**. The integrity level is a feature of Windows operating systems beginning with Windows 7.

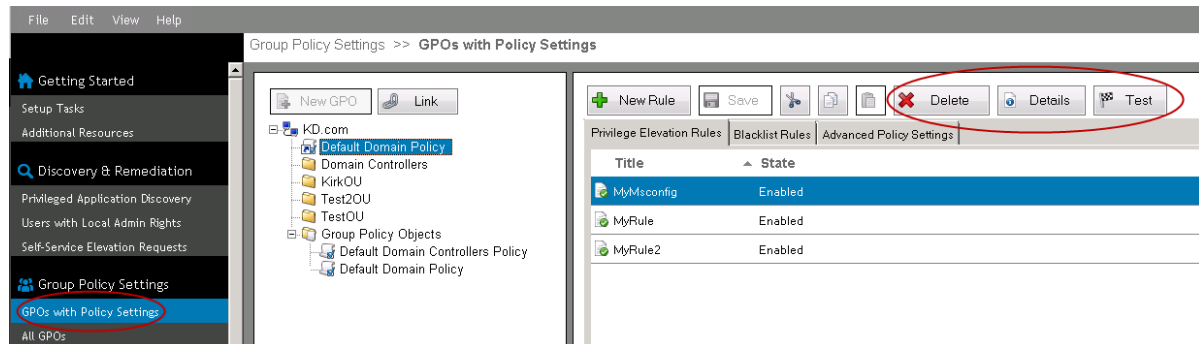
This parameter can be applied to clients running Windows Server 2008, Windows 7 and Windows Server 2008 R2 and Windows Server 2012, and Windows 8.1 and Windows Server 2012 R2, and Windows 10.

By default, this setting will not apply and is set to the **High integrity level**.


Managing rules

Once a rule is created, you can change its settings, delete, import and export it.

To delete, modify, or share a rule, use the toolbar buttons:



To use the Edit Rule Wizard to configure a rule:

1. Select the **Privilege Elevation Rules** or **Blacklist Rules** tab based on the type of rule to be created.
2. Double-click a rule's title or click the **Details** button on the toolbar to open the **Edit Rule Wizard**.
3. Specify the data requested in each tab and click **Next**.
 - a. Follow the prompts through the default tabs: Description, Type, Groups, and Validation Logic (available only for Privilege Manager Professional). The Privileges and Integrity tabs display as advanced options.
 - b. Enter the required fields, marked * on the Description and Type tabs.
4. Click **Finish** to save and apply the rule. If you have not specified the required data, the wizard will notify you.
5. Click the  **Save** button on the menu bar of the **Rule** section. Or, if asked, confirm that you want to save the rule.

More information for managing rules:

- To delete or modify a GPO created with Privilege Manager, use the Microsoft Group Policy Management Console (GPMC). You can also edit rules using the GPMC. For more information, see [Using the Group Policy Management Editor](#) on page 1
- If you are using the Privilege Manager Community Edition and open a rule with a Privilege Manager Professional feature to view or modify its settings, a notification will display. Click **Yes** to open the **Edit Rule** window to display all the rule settings except for the Professional ones. Modifying the rule will discard the Professional features.

Import/Export Rules

Once rules are created for a GPO they can be exported in order to share the rules, copy the rules to another GPO or even for backup purposes.

To export rules:

1. Select a GPO in the domain tree.
2. Right-click on the GPO name and select **Export Rules**.
3. Enter the path and filename of the export file to be created. Click ... to select a path using File Explorer.
4. A popup window will display a count of the Privilege Elevation Rules and Blacklist Rules for the GPO.
 - a. Select **Export all Privilege Elevation Rules** to include those rules in the export.
 - b. Select **Export all Blacklist Rules** to include those rules in the export.
5. Click **Export** to begin the export process.

To import rules:

1. Select a GPO in the domain tree.
2. Right-click on the GPO name and select **Import Rules**.
3. Enter the path and filename of the file to be imported. Click ... to select a path using File Explorer.
4. A popup window will display a count of the Privilege Elevation Rules and Blacklist Rules for the GPO.
 - a. Select **Import all Privilege Elevation Rules** to include those rules in the import.
 - b. Select **Import all Blacklist Rules** to include those rules in the import.
5. Click **Import** to begin the import process.


Testing rules

You can test a rule to ensure that the settings you specified map to a process on a local or remote computer. You can test all types of rules, except ActiveX.

Before you test a rule, ensure the following components are set up:

1. The client is running on the computer on which you intend to test the rule.
2. The remote computer is switched on and is accessible from the network.
3. The correct credentials to connect to the remote computer are provided.
4. The following exceptions are added for remote computers with a firewall turned on:
 - Windows Management Instrumentation (WMI): `dllhost.exe`
 - Host process for Windows services: `svchost.exe` for 32-bit OS and `%SystemRoot%\SysWOW64\svchost.exe` for 64-bit OS.

To test a rule:

1. Within the **Group Policy Settings** section, select a rule, and click the  **Test** button.
2. Select whether to test the rule on a local or remote computer.

3. A test window will open and the test will start. The window will display the initial conditions necessary for the rule to run and present its status in the **Test Progress** section, testing if:
 - The connection with the target computer has been established;
 - The client is installed on your computer;
 - The Group Policy update has run successfully on the client computer;
 - The GPO with the selected rule is present on the domain; and
 - The rule exists on the client side and on the domain.
4. If the test fails any of the steps, resolve the issue. If you encounter a **Failed to retrieve processes**. **Please refer to documentation for more info** error, complete the steps above before you test the rule.
5. Click **Next**.
6. When the **Detecting Process** window opens, manually run the process the rule will apply to. Use the parameters specified in the **Rule Details** section of the **Test File Rule** window. The window will show two tabs:
 - The **Started Processes** tab with the processes started after you switched from the **Detecting Process** window.
 - The process that you've started to test the rule will display with either a tick or a cross sign.
 - If the process is marked with the cross sign, look at the **Process Details** and check that you started the process with the right parameters, or modify the rule settings. And,
 - The **All Processes** tab with all currently running processes.
7. Once the rule is created and distributed to clients via Group Policy, the rule will be applied to the corresponding process.

Removing local admin rights

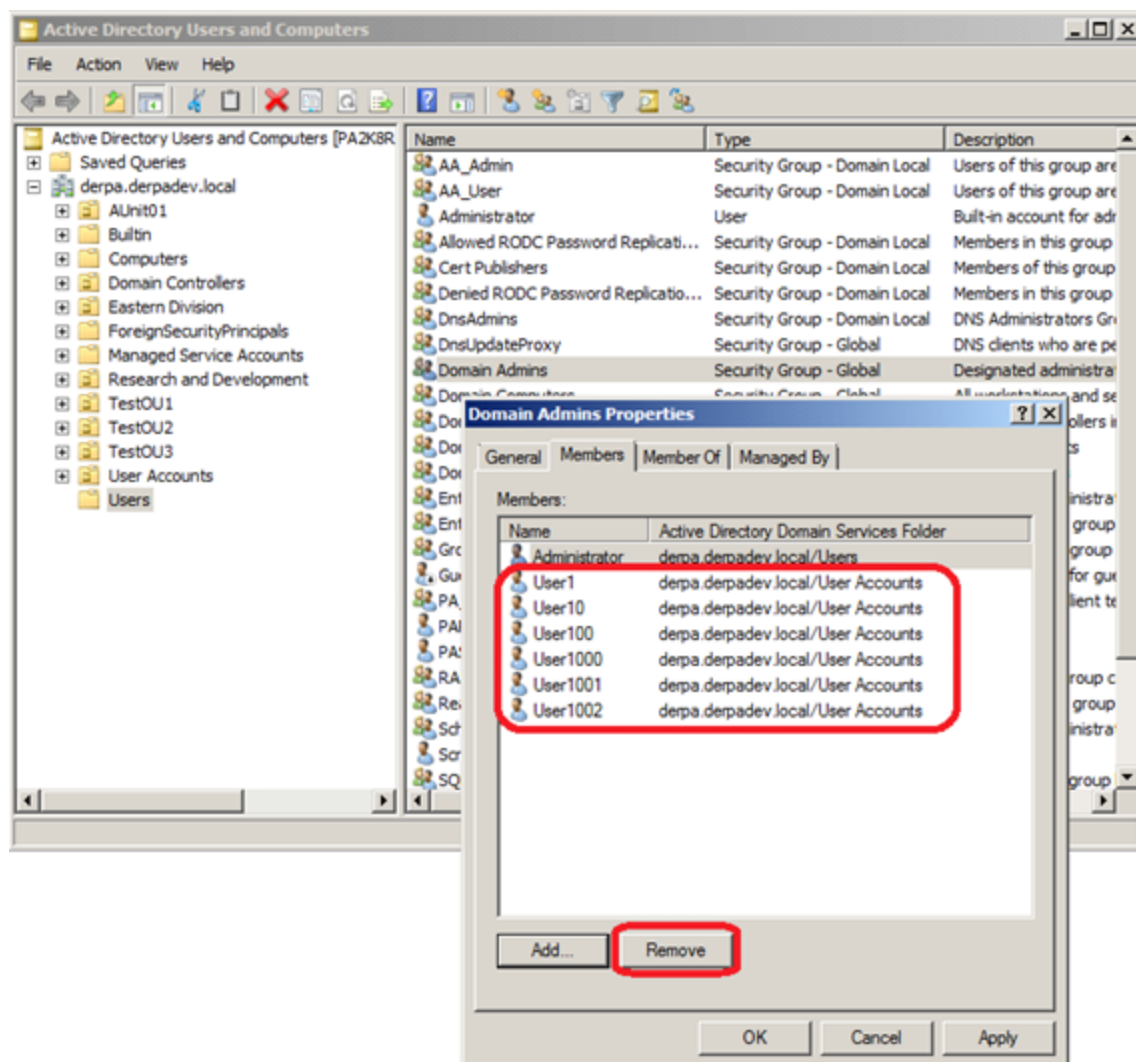
Using the Active Directory Users and Computers utility

Using the Users with Local Admin Rights screen

The last step in preparing your environment for least privileged use is to remove administrative access from users who no longer require it.

Using the Active Directory Users and Computers utility

Use the Windows utility **Active Directory Users and Computers**, installed on Windows Server operating systems such as Windows 2008, to scrub the Domain Administrators group of users that should no longer be given administrative rights to every computer in the domain. Select **Domain Admins Properties > Members** tab > **Remove**.



Using the Users with Local Admin Rights screen

Available only in Privilege Manager Professional and Professional Evaluation editions.

Under the **Discovery & Remediation** tab on the console, select the **Users with Local Admin Rights** screen to discover which domain users have been assigned to the local Administrators group on client computers and remove them.

Before you begin, check the following on each target computer:

1. The computer is turned on and accessible from the network; and
2. Windows Management Instrumentation (WMI), Distributed Component Object Model (DCOM), File and Printer Sharing, and Remote Administration are allowed through the firewall.

To remove domain users from the local Administrators group on computers on your domain:

1. Within the **Select Computers** section, use the **Add** and **Remove** buttons to add and remove computers.
 - You cannot select a domain controller computer.
 - If the File and Printer Sharing exception is not enabled for a computer, it will not display in the list.
 - If the Windows Management Instrumentation exception is not enabled, the Class and OS columns will display the Unavailable value.
2. Click the **Clear all entries** button to remove all computers from the list.
3. Click the **Discover Accounts in local Administrator groups** button to discover users and domain groups with local administrator rights. By default, the search results will only include domain users and domain groups. However, you can optionally opt to include local and built-in (for informational purposes only) users as well.
4. In the window that opens, specify whether to search for local Administrator groups, users, or both.
5. Check the **Only display domain accounts discovered in the results list** option to restrict the search to Domain accounts only. Uncheck the option to include local accounts from the Administrators group on client machines.
6. A window will display your progress as the list builds.
 - a. If an error occurs, it will display in the **Errors** section with a description. The **Unable to open log file...** notification signifies that no users in the local Administrators group have been detected.
 - b. Click the **Open report file** button to view data on detected users. The button will not be activated if no users have been found in the local Administrators group.
 - c. When the discovery operation is completed, click the **Close** button.
7. The list of discovered users will display in the **User Accounts Discovered in Local Administrators Groups** section.
8. Revise the list to only include users you are potentially going to revoke rights from then make your final selection from the remaining list.
 - a. Click the **Exclude selected entries from list** link to remove users from this list.
 - b. Select users from the remaining list, for which you would like to revoke their local administrator rights.
 - c. Click the **Remove all selected users from local Administrators groups** button.
9. In the window that opens, click **Yes** to confirm that you want to remove the users or groups.
10. A window will display your progress as the users are removed.
 - a. If an error occurs, it will display in the **Errors** section with a description.
 - b. Click the **Open report file** button to view the operation log.
11. When the operation is complete, the users will no longer have local administrator rights.

Congratulations - You are now running in a least privileged use environment!

Reporting

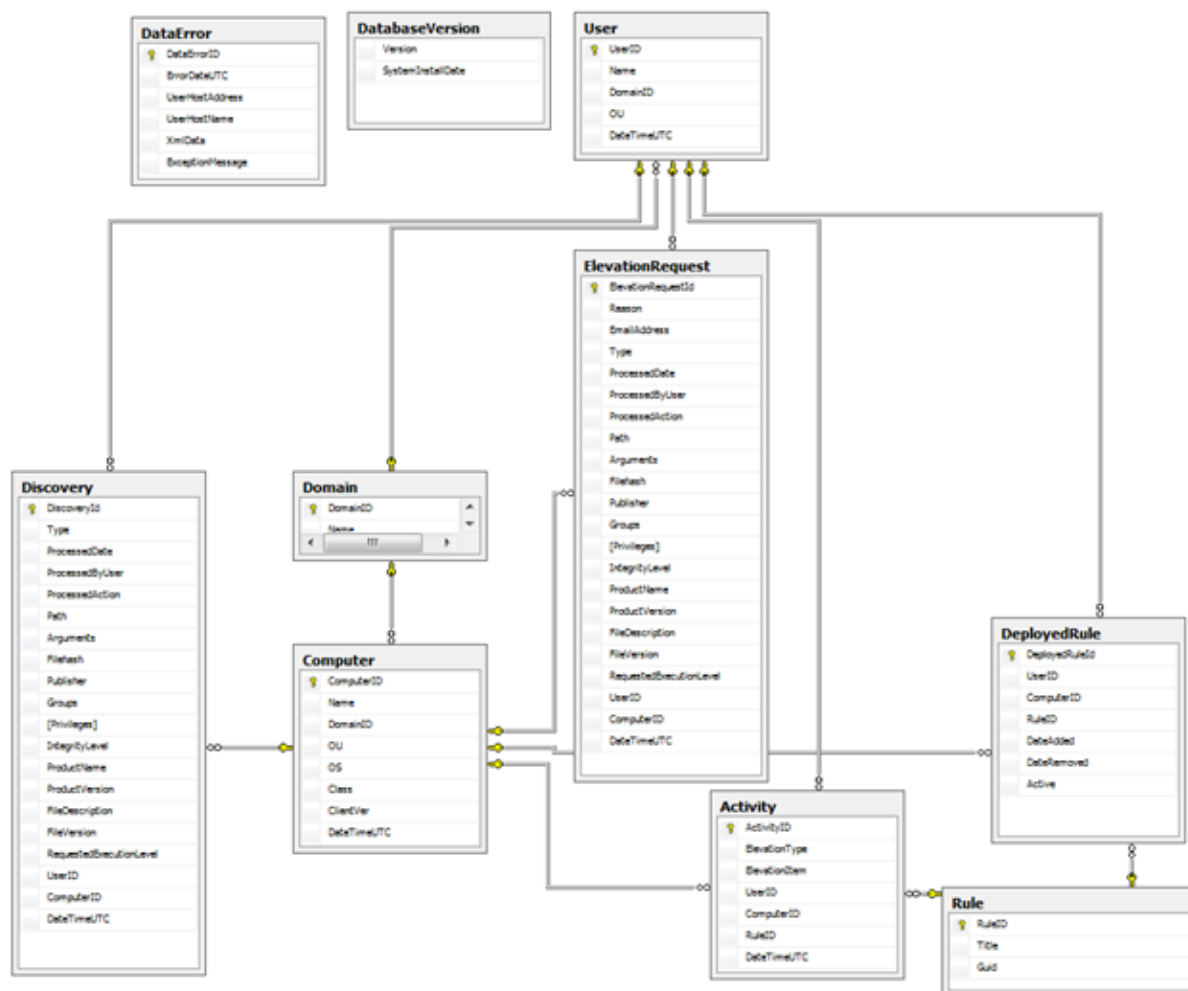
[Elevation Activity Report](#)
[Blacklist Activity Report](#)
[Rule Deployment Report](#)
[Instant Elevation Report](#)
[Temporary Session Elevation Request Report](#)
[Temporary Session Elevation Usage Report](#)
[Rule Details Report](#)
[Advanced Policy Settings Report](#)
[Generating and using reports](#)
[Using the Applied Filters Wizard](#)
[Using the Scheduled Reports Details Wizard](#)
[Using the Resultant Set of Policy Wizard](#)

Reporting is available only within the Professional edition; once a trial license expires, data will no longer be collected and reports will stop generating.

You can build five types of reports on activities from client computers:

- [Blacklist Activity Report](#): lists how frequently a rule is used.
- [Rule Deployment Report](#): lists rules deployed on the client computer.
- [Instant Elevation Report](#): lists processes that have been elevated using instant elevation.
- [Rule Details Report](#): lists rules that have been configured.
- [Advanced Policy Settings Report](#): lists Advanced Policy Settings, except those set to the **Not Configured** option.

In addition to these out of the box reports, you can create custom reports using third party tools to query the SQL-based Privilege Manager for Windows reporting database. Use this database schema to create your own custom reports or data analysis:



A PAResulting database is created when you set up the server and is configured to work with the ScriptLogic PA Reporting Service, the data collection web service running on a console host.

Before you generate reports, ensure the following components are set up:

1. The server is configured and you can successfully join the data collection web service running on it.
2. Client data collection settings are configured for the GPOs you will report on. You can generate reports on GPOs for which you have read/write access in Windows.

Elevation Activity Report

This report allows you to track which rules were used to elevate processes during a period of time on managed client computers. With this report, you can see when users have run privileged processes and on which computers.

Each privilege elevation event reported contains these details:

- **Type:** the privilege elevation rule type;
- **Elevated Item:** the path to the elevated application or command with the argument (if any);

- **Rule Name:** the privilege elevation rule name;
- **Rule GUID:** the privilege elevation rule globally unique identifier (GUID);
- **User (Domain\Name\OU):** the user, domain name, and OU;
- **Computer (Domain\Name\OU\Class\OS):** the computer, domain name, OU, class, and OS; and
- **Elevation Time:** the time of the privilege elevation on the client computer.

To learn how to create this type of report and manage the data, see [Generating and using reports](#).

Blacklist Activity Report

This report allows you to track which rules were used to blacklist processes during a period of time on managed client computers. With this report, you can see when users have attempted to run blacklisted processes and on which computers.

Each blacklist event reported contains these details:

- **Type:** the privilege elevation rule type;
- **Blacklisted Item:** the path to the blacklisted application or command with the argument (if any);
- **Rule Name:** the privilege elevation rule name;
- **Rule GUID:** the privilege elevation rule globally unique identifier (GUID);
- **User (Domain\Name\OU):** the user, domain name, and OU;
- **Computer (Domain\Name\OU\Class\OS):** the computer, domain name, OU, class, and OS; and
- **Blacklisted Time:** the time of the blacklisted event on the client computer.

To learn how to create this type of report and manage the data, see [Generating and using reports](#).

Rule Deployment Report

This report tracks the overall usage of privilege elevation rules across a domain. The report lists each rule, showing how many clients it has been deployed to and how many times it has been used.

Each record about a deployed rule contains these details:

- **Rule Name:** the privilege elevation rule name;
- **Rule GUID:** the privilege elevation rule globally unique identifier (GUID);
- For a **Summary** report:
 - **# Comp:** the number of client computers on which the rule is deployed;
 - **# Used:** the number of times the rule has been enforced;
- For a **Details** report:
 - **User (Domain\Name\OU):** the user, domain name, and OU;
 - **Computer (Domain\Name\OU\Class\OS):** the computer, domain name, OU, class, and OS; and
 - **Deployed Date:** the date the rule was deployed on the client computer.

To learn how to create this type of report and manage the data, see [Generating and using reports](#).

Instant Elevation Report

This report allows you to track instant elevation activity during a period of time on managed client computers. With this report, you can see when users have been granted instant elevation privileges and on which computers.

Each privilege elevation event reported contains these details:

- **Type**: the privilege elevation rule type;
- **Elevated Item**: the path to the elevated application or command with the argument (if any);
- **Rule Name**: the privilege elevation rule name;
- **Rule GUID**: the privilege elevation rule globally unique identifier (GUID);
- **User (Domain\Name\OU)**: the user, domain name, and OU;
- **Computer (Domain\Name\OU\Class\OS)**: the computer, domain name, OU, class, and OS; and
- **Elevation Time**: the time of the privilege elevation on the client computer.

To learn how to create this type of report and manage the data, see [Generating and using reports](#).

Temporary Session Elevation Request Report

This report allows you to track temporary session elevation passcode requests from managed client computers. With this report, you can see when a passcode has been generated based on a request, if the request was denied, or if the request is still pending review.

The Temporary Session Elevation Usage report contains these details:

- **User (Domain\Name)** - The user that used the passcode on their machine.
- **Action** - The state of the elevation request. This can be *Pending* (when a request is received), *Granted* (when a passcode is generated for the request) or *Denied* (when a passcode request was not granted).
- **Processed Date** - The date the administrator responded to the request.
- **Reason** - The reason given for the elevation request.
- **Maximum Allowed Usage** - The number of times the passcode can be used before expiring.
- **Duration** - The amount of time the passcode will remain active for when used.
- **Computer (Domain\Name)** - The computer that the passcode requested from.
- **Request Sent** - The date and time the user submitted the request for a passcode.

To learn how to create this type of report and manage the data, see [Generating and using reports](#).

Temporary Session Elevation Usage Report

This report allows you to track temporary session elevation activity during a period of time on managed client computers. With this report, you can see when users have been granted temporary instant elevation privileges using passcodes, on which computers, and also which specific applications were elevated.

The Temporary Session Elevation Usage report contains these details:

- **User (Domain\Name)** - The user that used the passcode on their machine.
- **Maximum Allowed Usage** - The number of times the passcode can be used before expiring.
- **Remaining Usage** - The number of times that are left to use this passcode.
- **Usage Count** - The number of times this passcode has been used so far.
- **Elevated Item** - The application that was run in an elevated state.
- **Computer (Domain\Name)** - The computer that the passcode was used on.
- **Time Elevated** - The date and time the elevation occurred.
- **Passcode ID** - The exact passcode provided by the administrator.

To learn how to create this type of report and manage the data, see [Generating and using reports](#).

Rule Details Report

This report lists all the configuration details for a rule in a single view. The detail for each privilege elevation event are specified in the Create Rule Wizard. For more information, see [Using the Create Rule Wizard](#) on page 44.

To learn how to create this type of report and manage the data, see [Generating and using reports](#).

Advanced Policy Settings Report

This report lists all configuration details, except those set to the **Not Configured** option, of the Advanced Policy Settings for your GPOs in a single view:

- Client Data Collection Settings
- Client Deployment Settings
- Self-Service Elevation Request Settings
- Privileged Application Discovery Settings
- Instant Elevation Settings

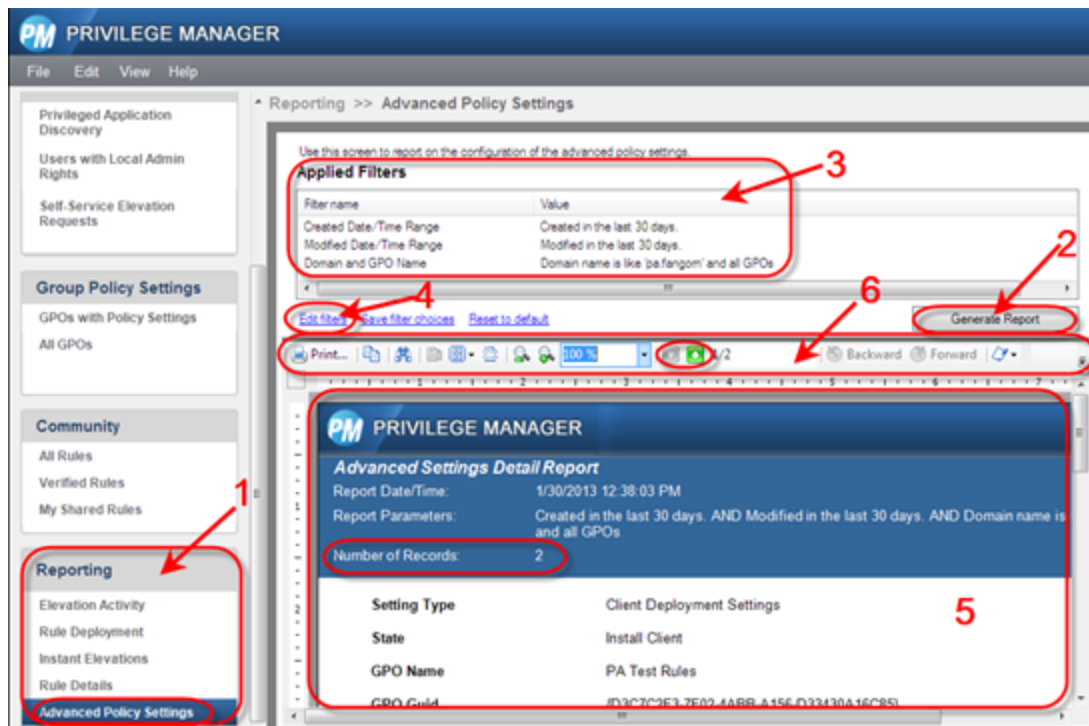
The details for each privilege elevation event are specified in the corresponding section for each of the settings.

To learn how to create this type of report and manage the data, see [Generating and using reports](#).

Generating and using reports

To generate a report:

1. Under the **Reporting** section of the console, select the type of report. The window for the report will open to the right.



2. Click the **Generate Report** button to generate a report based on the default filter settings displayed in the **Applied Filters** section on the top of the screen. You can create multiple shared filter sets and save settings that other administrators can use. For more information, see [Using the Applied Filters Wizard](#) on page 74.
3. Use the toolbar next to the Applied Filters drop-down menu to add, edit, copy, or delete a filter.
4. The results will display below.
5. For the **Rule Deployment** report, use the **Type** and **Sort** menus to view additional information and sort data.
6. Use the toolbar at the top of the results window to navigate the pages or organize them and search for data.



7. To navigate across a multi-page report, use the and buttons.
8. The **Number of Records** field in the upper part of the results page refers to the number of rules listed in the report.

To save the data, use either the Copy or Export To buttons on the results window:

1. Click anywhere on the results window.
2. Click the **Copy** button.
3. Paste the copied data into a file.

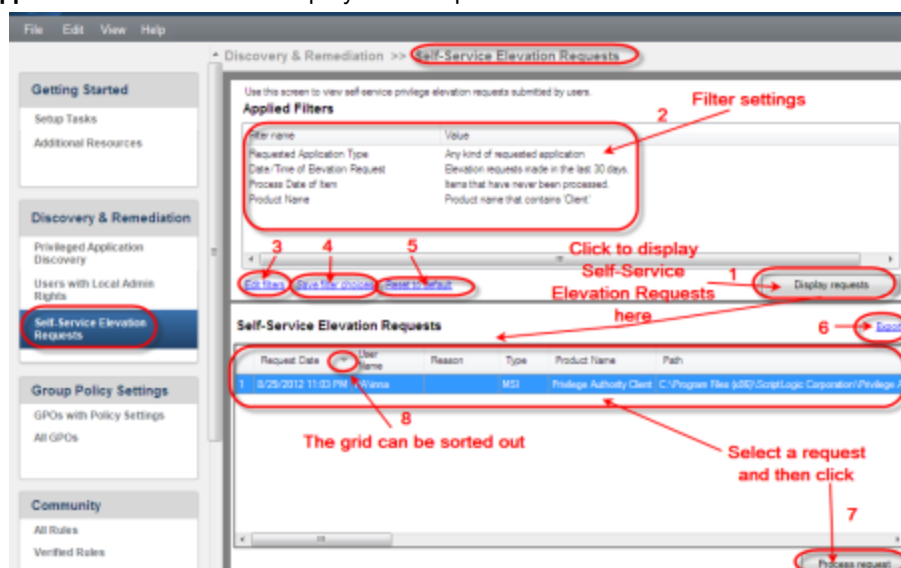
Or,

1. In the toolbar of the of the results window, click the **Export To PDF**, **Export To Excel**, **Export To Html**, or **Export To RTF** button to save the data into a PDF, Excel, HTML, or RTF file.
2. In the **Save As** window that will open, name the report.
3. Click **Save**.

Using the Applied Filters Wizard

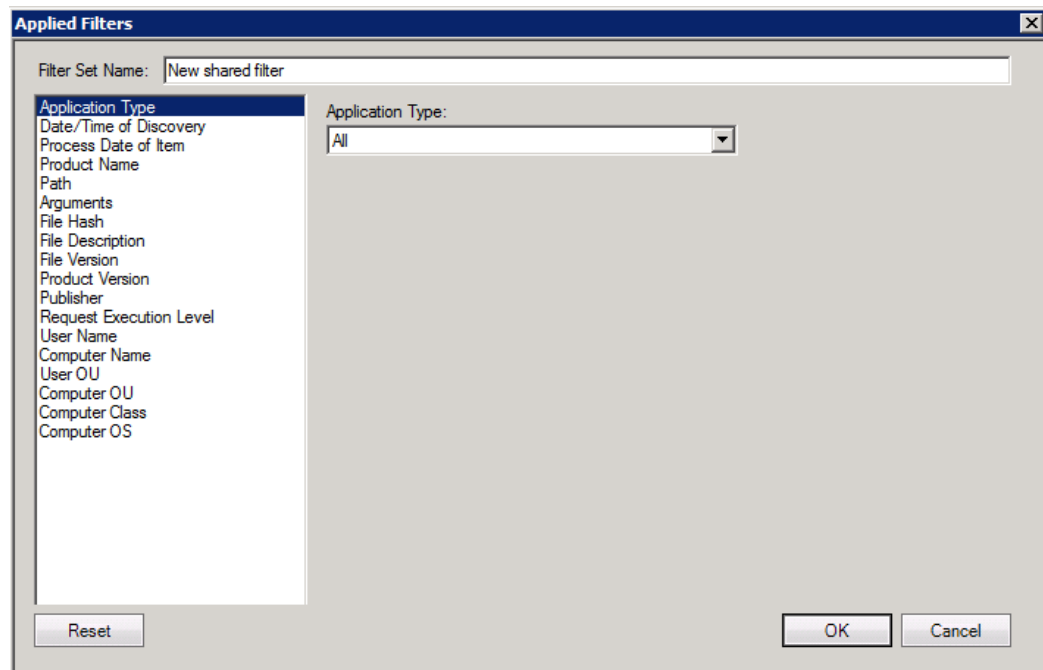
To use the Applied Filters Wizard to modify displayed requests and save shared filters for other administrators:

1. Open the console and select the area for your shared filter set.
 - a. Under the Reporting section, open the screen for Elevation Activity, Rule Deployment, Instant Elevations, Rule Details, or Advanced Policy Settings, or
 - b. Under the Discovery and Remediation section, open the screen for Privileged Application Discovery or Self-Service Elevation Requests.
2. The **Applied Filters** section will display on the top of the screen.



3. Use the     toolbar next to the Applied Filters drop-down menu to add, edit, copy, or delete a filter.

4. The **Applied Filters Wizard** will open when you add a filter.







- a. Enter a name for your filter set.
 - b. Select a filter type in the left section.
 - c. Set the desired parameters in the right section.
 - d. Press **Reset** to reset to the default screen, **OK** to save your settings, or **Cancel** to close the screen.
5. You can create multiple shared filter sets and save settings that other administrators can use.
 6. Once you have selected a filter type, it is saved automatically and you can proceed to another modification. Select as many filter types as necessary by switching between them and configuring settings.

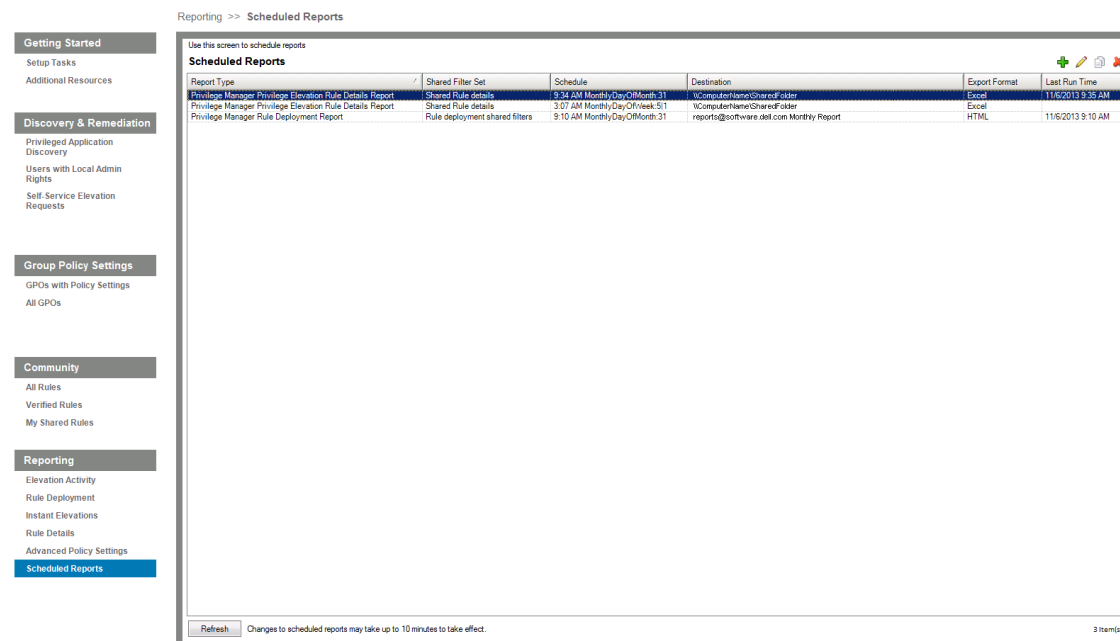
i Note: Each filter type can have only one value specified. Every time you set a new value for the same filter type, the newer one will overwrite the older one.
 7. Click **OK** to save your changes when you are finished. The specified filter values will display in the **Applied Filters** list.

Using the Scheduled Reports Details Wizard

After you create a shared filter set to modify your report criteria, you can select a report and set its schedule and delivery. You can configure it to go to multiple recipients, including you, your manager, and/or the help desk. In addition, you can set the subject line to meet the requirements of your help desk. You can also specify network and file share locations to send it to.

To use the Scheduled Reports Details Wizard to generate a scheduled report:

1. Configure the server.
 - a. Use the **Privilege Manager Server Setup Wizard** to configure the **Server Email Notification Configuration** settings on the first screen of the wizard.
 - b. If you have previously completed the wizard, the other screens will automatically populate.
 - c. Refer to the Privilege Manager for Windows Quick Start Guide for step-by-step instructions.
2. Create shared filter sets to modify your report criteria. You must create at least one shared filter set to generate a scheduled report. Scheduled reports work only for shared filter sets configured in the Reporting tab (except for the built-in Local Filters), not in Discovery & Remediation. For more information, see [Using the Applied Filters Wizard](#) on page 74.
3. In the **Reporting** section of the navigation pane, select **Scheduled Reports**.
4. The **Scheduled Reports** section will display on the top of the screen.
 - a. Click the **Refresh** button to refresh the screen and update the last run time.
 - b. Use the     toolbar to add, edit, copy, or delete a report.



Reporting >> Scheduled Reports

Use this screen to schedule reports

Report Type	Shared Filter Set	Schedule	Destination	Export Format	Last Run Time
Privilege Manager Privilege Elevation Rule Details Report	Shared Rule details	9:34 AM Monthly DayOffMonth:31	\\computername\shared\folder	Excel	11/6/2013 9:35 AM
Privilege Manager Privilege Elevation Rule Details Report	Shared Rule details	3:07 AM Monthly DayOffWeek:51	\\computername\shared\folder	Excel	
Privilege Manager Rule Deployment Report	Rule deployment shared filters	9:10 AM Monthly DayOffMonth:31	reports@software.dell.com Monthly Report	HTML	11/6/2013 9:10 AM

Refresh Changes to scheduled reports may take up to 10 minutes to take effect.

3 item(s)

5. The **Scheduled Reports Details Wizard** will open when you add a report.

Scheduled Reports Details Wizard

Type | Schedule | Delivery

Schedule a report by first selecting the type of report and then by selecting the name of the shared filter set to use for that report. (NOTE: Only reports which already have at least one shared filter set configured will be displayed on this page.)

Report Type:






Shared Filter Set Name:

Filter name

Privilege Manager Privilege Elevation Rule Details Report
Privilege Manager Rule Deployment Report
Privilege Manager Privilege Activity Report

< Back | Next > | Finish | Cancel

6. Complete the **Type** tab and click **Next**.
7. Complete the **Schedule** tab.
 - a. Select the **Start** time.
 - b. Select the **Cycle** for how often the report will run. Changes to scheduled reports may take up to 10 minutes to take effect.
 - c. Click **Next**.

8. Complete one of the sub-tabs under the **Delivery** tab.
 - a. Complete the **Email** sub-tab.
 - i. Use the  button to add email addresses and the  button to remove them.
 - ii. Enter a subject.
 - iii. Select the report format.
 - Or,
 - b. Complete the **File share** sub-tab.
 - i. Type the folder path in the following format: `\\ComputerName\SharedFolder`
 - ii. Use the **Browse**  button to locate the folder.
 - iii. Use the  button to add folder paths and the  button to remove them.
 - iv. Select the report format.
9. Click **Finish**.
10. After the report has been created, check your email or file share to confirm receipt.

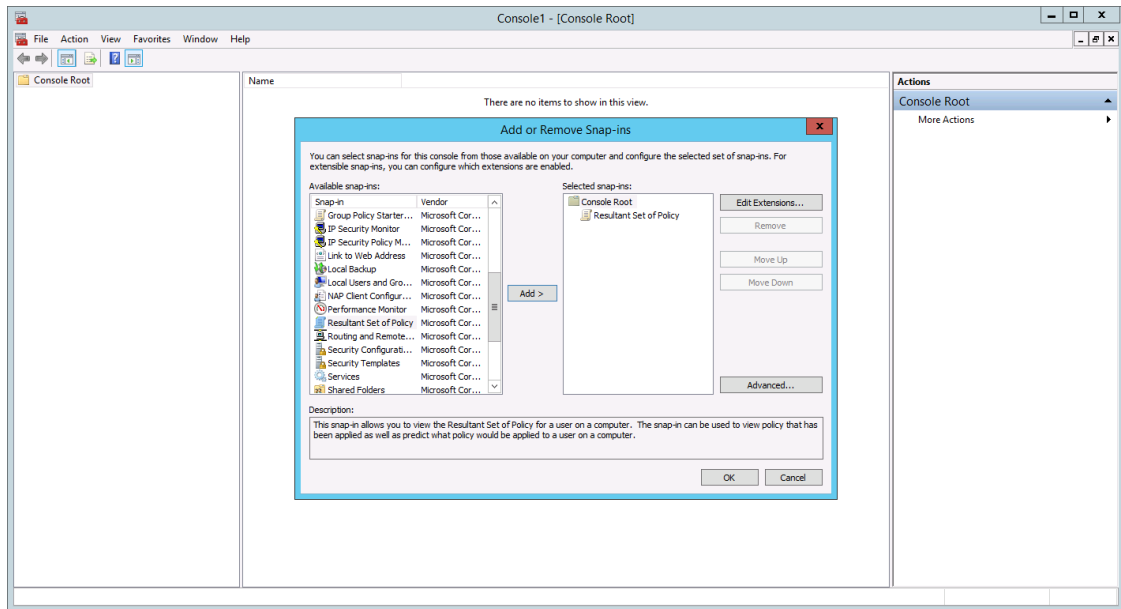
Using the Resultant Set of Policy Wizard

The Resultant Set of Policy (RSoP) Wizard is a built-in MMC snap in. It helps you view policy settings applied to selected computers and users (in the logging mode) or simulate a policy implementation to plan changes to your network (in the planning mode). On Windows 10 machines .Net 4.0 needs to be enabled or the PM Console installed in order to view the values from the RSoP Wizard.

To use the Resultant Set of Policy Wizard to report on policies you have applied:

1. Install the client on the computer for which you are viewing or simulating a policy.
2. Open the MMC. On the **Start** menu, click **Run**, type **MMC**, and then click **OK**.

- From the **File** menu, select **Add/Remove Snap-in**. The **Add or Remove Snap-ins** dialog box will open.

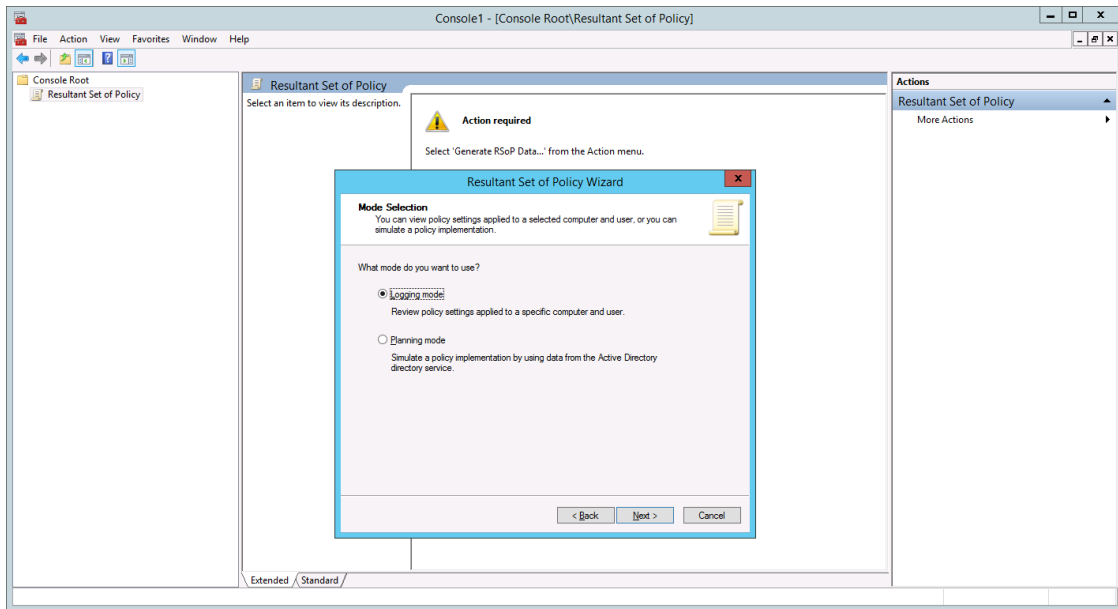


- Select **Resultant Set of Policy** under the list of snap-ins.
 - Click the **Add** button.
 - Click **OK**.
- The **Console Root** window now has a snap-in, **Resultant Set of Policy**, rooted at the Console Root folder.
 - Under the **Name** column, click **Resultant Set of Policy**.
 - Right-click **Resultant Set of Policy** and select **Generate RSoP Data**.

Or,

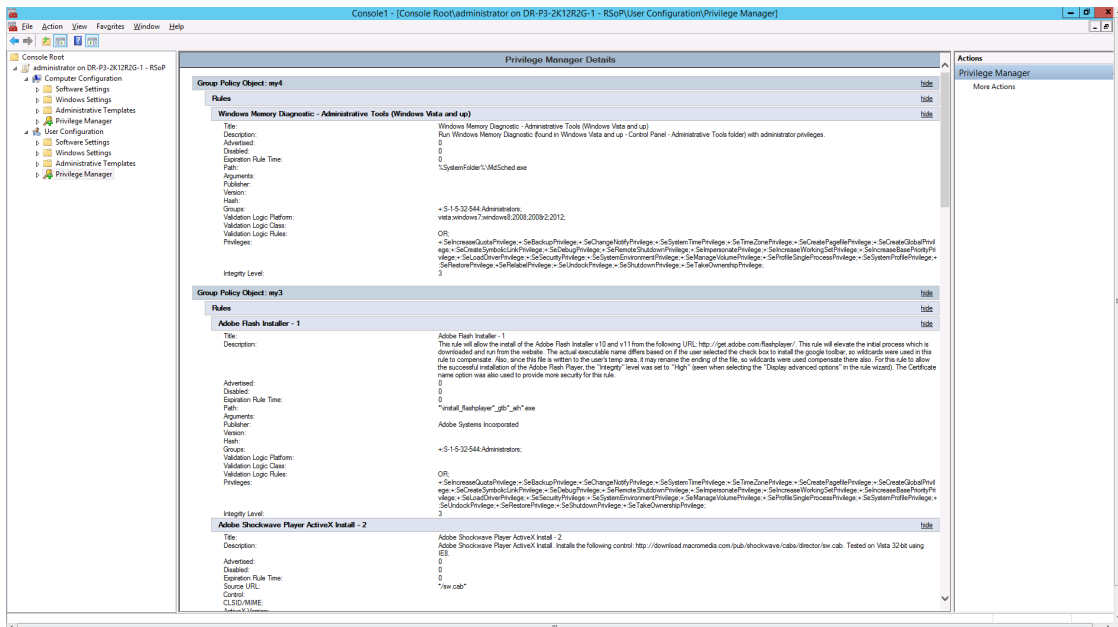
Under the **Resultant Set of Policy** pane in the **Actions** column, click **More Actions** and select **Generate RSoP Data**.

7. The **Resultant Set of Policy Wizard** will open.



- Choose the **Logging mode** to review policy settings or the **Planning mode** to simulate a policy implementation.
- Specify the data requested in each tab and click **Next**.
- Click **Finish** to quit the wizard.

8. The **Console Root** window now has **Privilege Manager for Windows** nodes, rooted at the Console Root folder under **Computer Configuration** and **User Configuration**. **Privilege Manager for Windows Details** will display on the right, showing the rules and advanced policy settings that were applied.



Client-side UI Customization

Privilege Manager supports the text customization of all user-facing dialogs on client computers. In addition to the ability to change the default English dialog text, admins can also create client-side UI customization files for any non-English client language locale.

Language Translation Files

To customize the language used in the client-side UI, one or more translation files must be located in the same folder where the client files are installed, by default: C:\Program Files (x86)\Common Files\Quest\Privilege Manager\Client.

A language-specific translation file must be named as follows: (two_letter_language_code)-pmlang.ini

Example:

- Spanish translation language filename: es-pmlang.ini
- English translation language filename: en-pmlang.ini (used to customize client computers with English locale)
- French translation language filename: fr-pmlang.ini

i NOTE: The en-pmlang.ini file is present in the client folder by default. If no language translation file exists, default English UI text is used. Please see Privilege Manager for Windows [KB 266054](#) for information on language translation files currently available for download, as well as configuration and troubleshooting tips.

Privilege Manager will automatically search for the language translation file corresponding to the language locale setting on a client computer. If no translation file is found, default English client-side text strings are used.

A specific language translation file can be used regardless of the Window's local setting, with the use of a registry setting.

- Hive: HKCU\Software\Scriptlogic Corporation\Privilege Authority
- Key: Preferred Language
- Type: REG_SZ
- Value: name of language file; for example: es-pmlang.ini

Of course, the corresponding translation file must exist as described above.

In addition to checking locally on the client computer for language translation files, the Privilege Manager client will atomically copy down (and overwrite existing, if older) language files found on the NETLOGON share.

i **NOTE:** NETLOGON is checked for updated language files every time a user logs on to a computer. Additionally, Admins can configure the Privilege Manager client to check an alternate location for updated language translation files. This can be done by updating the TranslationFilesFolder value in HKLM\Software\Scriptlogic Corporation\Privilege Authority.

Using Microsoft tools

You can use Microsoft tools with Privilege Manager for Windows to:

- Install the client using the Group Policy Management Console. For more information, see [Using the Group Policy Management Console](#) on page 14.
- Create and manage rules using the Group Policy Management Editor in the Group Policy Management Console. For more information, see [Using the Group Policy Management Editor](#) on page 42.
- Remove local administrator rights using the Active Directory Users and Computers Utility. For more information, see [Using the Active Directory Users and Computers utility](#) on page 65.
- Report on policies you have applied using the Resultant Set of Policy Wizard. For more information, see [Using the Resultant Set of Policy Wizard](#) on page 78.

Maintaining a least privileged use environment

Processing Self-Service Elevation Requests

Using Group Policy Settings

Maintain a least privileged use environment by processing self-service elevation requests, using the Console Email Configuration screen, and using group policy settings.

Processing Self-Service Elevation Requests

Monitor and process self-service requests from users using self-service notifications and the **Self-Service Elevation Requests** screen under the **Discovery & Remediation** tab. You can approve or deny requests for access to run privileged applications. If approved, an elevation rule will automatically be generated for each request. For more information, see [Using self-service notifications](#) on page 29 and [Using the Self-Service Elevation Request Processing Wizard](#) on page 30.

Using the Console Email Configuration screen

If you would like an email message to be sent to the user when you have approved or denied their self-service elevation request, you can configure the settings using the **Console Email Configuration screen** found under **Setup Tasks**. For more information, see [Using the Console Email Configuration screen](#) on page 32.

Using Group Policy Settings

Use the **Group Policy Settings screens** to create custom elevation rules or modify existing ones for your environment. The **Advanced Policy Settings** tab can also be used to modify the settings for advanced features

at the GPO level. These features include client deployment settings, client data collection settings, instant elevation settings, self-service elevation request settings, and privileged application discovery settings.

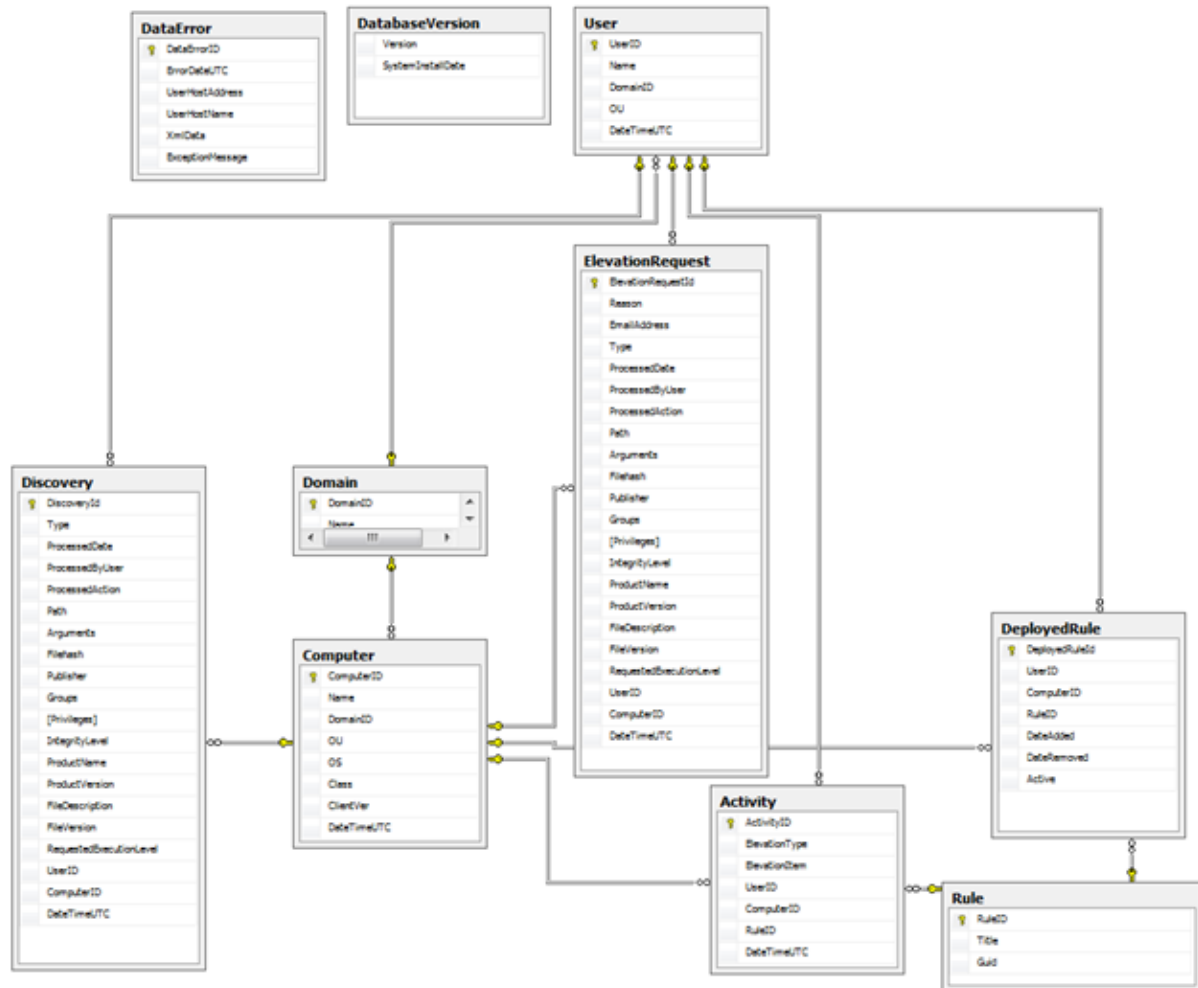
Database Planning

The goal of this topic is to proactively manage disk capacity as it relates to Privilege Manager. The capacity planning information provided here contains steps to help understand, install, and configure the Privilege Manager database environment.

Eighty percent of database issues deal with disk capacity problems and in many cases, they are caused by failure to adhere to best practices. Failure to adhere to best practices should never happen as these issues are very predictable and could have been prevented with a comprehensive database plan.

This section gives you a breakdown of the Privilege Manager database structure to better understand the database environment and walks through capacity planning best practices to minimize the risk of disk over-utilization.

Privilege Manager Database Diagram



Privilege Manager Tables

Table Name	Description
Activity	Contains rule and instant elevation activity; includes elevation type and item.
Computer	Contains client computer information such as its name, domain, class, OU, operating system and the version of Privilege Manager installed.
DatabaseVersion	Contains the database version of the Privilege Manager database.
DataError	Contains database exceptions and includes exception messages, host address, host name and the xml data document that caused the exception.
DeployedRules	Every time a new rule is deployed, a record is created for every user associated with this rule. This keeps track of all deployed rules giving them a status of active or inactive and tracks date added or removed.

Discovery	Contains information on any process that starts or fails to start on a client computer. Data stored here includes the product name and requested execution level. It is used by the Privileged Application Discovery component.
Domain	Contains records of the network domains.
ElevationRequest	Contains elevation requests made on the client, including information about the name of products the request is being made for and the reason for the request.
Reports_Scheduled	Contains records of the scheduled reports to be generated.
SharedFilters	All shared filters created.
Rules	Rules created and saved in the Privilege Manager console.
Users	Users who have logged into a Privilege Manager client machine.

Data Storage Estimates

Table 1: Table size estimate for 1 Privilege Manager user.

Table Name	# Rows	Byte Size per Row	Total Size (bytes)
Activity	1,000	4,222.68	422,268.00
Computer	1	84.38	84.38
DatabaseVersion	1	72.09	72.09
DataError	20	8,834.25	176,685.00
DeployedRules	20	49.15	983
Discovery	30	3,8049.23	1,141,476.9
Domain	1	84.38	84.38
ElevationRequest	20	54,540.61	1,090,812.2
Reports_Scheduled	10	4,575.25	45,752.50
Reports_SharedFiles	10	9,436.70	94,367.0
Rule	20	304.99	6,099.8
User	1	4,443.48	4,443.48
Total Size			4,683,128.73 Bytes

As the number of users grow, some tables will increase in size more rapidly than others. For this reason, the database size will not grow proportionately.

Database size calculation uses the following rules:

1. The Activity table generates one thousand records per user.
2. The number of Computer records are equal to the number of user records.

3. 20 reports represent one user.
4. The DatabaseVersion table should be one record irrespective of the number of user in the environment.
5. The DataError table is estimated to be twenty records to one user.
6. The DeployedRules table should generate twenty records per one user.
7. The Discovery table should generate roughly thirty records per user.
8. The number of Domain table records are set to one per user.
9. Twenty ElevationRequest records are generated per user.
10. There are ten Schedule_report records per user.
11. There are ten Reports_SharedFilters per user.
12. Twenty Rule records are generated per user.
13. One user record exists in the User table per user.

Table 2: Database size for multiple users.

Privilege Manager Users	Privilege Manager Database
1	4.7 MB
10	10.5 MB
100	73.0 MB
1,000	692.6 MB
2,000	1,378.6 MB
5,000	3,439.9 MB
10,000	6,876.4 MB
15,000	10,313.0 MB
20,000	13,749.5 MB
50,000	34,368.8 MB
100,000	68,734.2 MB

Database Hardware and Software Requirements

It is recommended that databases above 6876.4MB or 10,000 users (Table 2 displays the database size as it relates to the number of users in the database environment) install the full SQL Server version. Any database size below 6000MB should be adequate to run SQL Server Express with room to grow before an upgrade to the full version of SQL Server is required.

NOTE: SQL Server Express databases have a size capacity limit of 10,000MB.

When it comes to computing capacity and maximum memory there is also a bottleneck where different SQL Server installs would not be able to take advantage of processing power and large memory storage.

Table 3: Maximum database size, compute capacity, and maximum memory of different SQL Server installs.

	Enterprise	Standard	Web	Express
Maximum database size	524 PB	524 PB	524 PB	10 GB
Compute Capacity	OS Max	4 sockets or 24 cores	4 sockets or 16 cores	1 socket or 4 cores
Maximum Memory	OS Max	128 GB	64 GB	1 GB

Table 4: Recommended SQL Server Installs for different size Privilege Manager environments

Privilege Manager Users	Privilege Manager Database	Recommended SQL Server Install
1	4.7 MB	SQL Server Express
10	10.5 MB	SQL Server Express
100	73.0 MB	SQL Server Express
1,000	692.6 MB	SQL Server Express
2,000	1,378.6 MB	SQL Server Express
5,000	3,439.9 MB	SQL Server Express
10,000	6,876.4 MB	SQL Server Express
15,000	10,313.0 MB	SQL Server
20,000	13,749.5 MB	SQL Server
50,000	34,368.8 MB	SQL Server
100,000	68,734.2 MB	SQL Server

Auto-Growth

Privilege Manager uses the default auto-growth configuration settings that comes installed on SQL Server. This setting sets the initial database size of SQL Server to 3MB, then grows it by 1MB every time the data limit is exceeded. The log file starts at 2MB and is set to grow by 10% increments until the disk is full.

Even though the default auto-growth configuration settings will work for Privilege Manager, it may not be the most appropriate configuration for all environments (especially for customers exceeding 10,000 users).

Every time the database grows it takes a performance hit. In SQL Server storage terms, 1024K is 128 pages; pages are stored in 8K blocks. For Privilege Manager, which is going to potentially load millions of records, growing the data file of a database every 128 pages incurs a large performance hit, especially since SQL Server's I/O requests are a major bottleneck.

Additionally, since auto-growth allocates chunks of data at a time it is easier for the database to become fragmented. With that in mind it is recommended to update the auto-growth settings.

The table below displays the recommended settings based on the size of the network environment. These values are not set in stone but are based on database growth rates of your specific environment. The rule of thumb is to set this value to one eighth the estimated database size. Ideally you should use auto-grow as a failsafe and use alerts or monitoring programs to monitor file sizes and grow files proactively. This helps you avoid fragmentation and permits you to shift these maintenance activities to non-peak hours.

Table 5: Auto-growth recommendation for different size Privilege Manager environment.

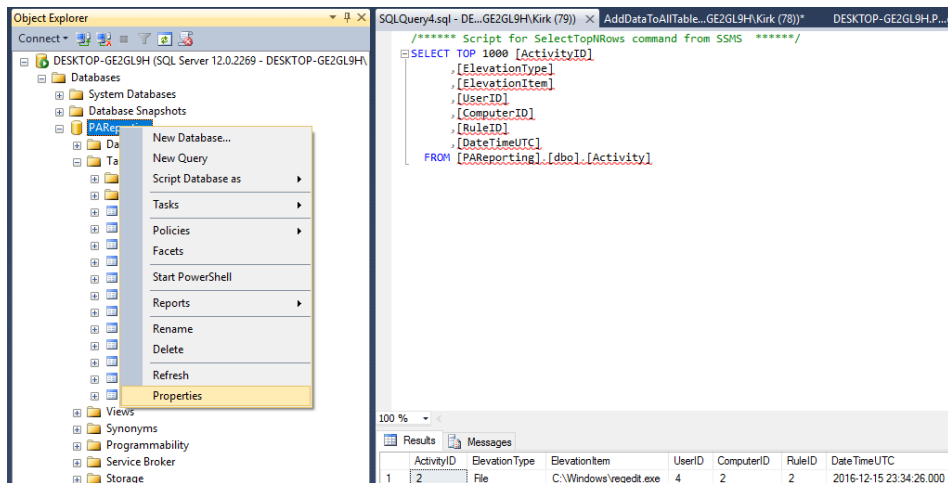
Privilege Manager Users	Privilege Manager Database	Auto-growth
1	4.7 MB	1 MB
10	10.5 MB	1.3 MB
100	73.0 MB	9.1 MB
1,000	692.6 MB	86.5 MB
2,000	1,378.6 MB	172.3 MB
5,000	3,439.9 MB	429.9 MB
10,000	6,876.4 MB	859.5 MB
15,000	10,313.0 MB	1289.1 MB
20,000	13,749.5 MB	1718.7 MB
50,000	34,368.8 MB	4296.1 MB
100,000	68,734.2 MB	8591.8 MB

How to change auto-growth on SQL Server 2014

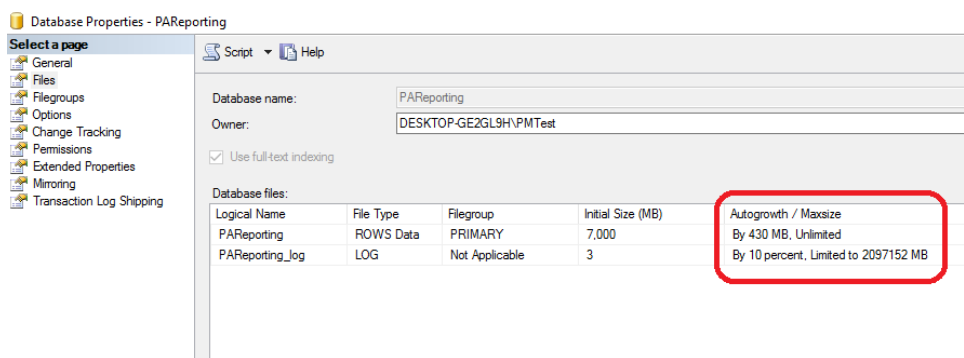
i | **NOTE:** Steps may be slightly different for other supported versions of SQL Server.

To change the auto-growth settings:

1. Start SQL Server Management Studio.
2. Highlight, then right click the PARReporting database and navigate to Properties.



3. In the left Panel, select Files from the Database Properties dialog. The Properties window will be used to change Auto-growth.
4. Identify the PARReporting name under Logical Name and change the Auto-growth based on table 5 above. In this example, we have set the auto-growth to 430MB and a max size of unlimited and left the log file to grow my 10% to a limit of 20971252MB. 430 is roughly one eighth of the 3,439.9MB database size for the 5000-user environment.



Initial database size

When Privilege Manager is installed it uses the default file and log size specified by SQL Server. The specified file size is 3MB for the database and 2MB for the database logs. As these files fill up and exceed the initial file size there are performance implications from growing this file and fragmentation of the data on the disk.

To prevent these performance issues, it is recommended that if the database is expected to grow to a specific size in a month double that value and use it for the initial size. For example, if the database is expected to grow to 2000Mb in a month, set the initial database size to 4000Mb. This will reduce the number of auto-growths and lessen fragmentation because a larger allocation means more database related information can be accessed from the same disk location. Table 6 below breaks down the recommended initial size for the database based on a range of 1 to 100,000 users for the different database size estimates.

Table 6: Initial Size recommendation for different size Privilege Manager environment.

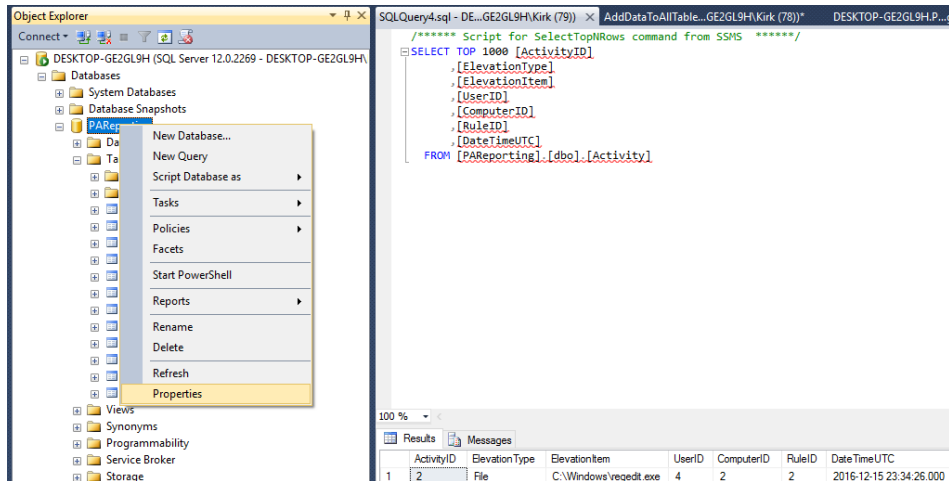
Privilege Manager Users	Privilege Manager Database	Initial Size
1	4.7 MB	9.4 MB
10	10.5 MB	21.0 MB
100	73.0 MB	146.0 MB
1,000	692.6 MB	1385.2 MB
2,000	1,378.6 MB	2,757.2 MB
5,000	3,439.9 MB	6,879.8 MB
10,000	6,876.4 MB	13,752.8 MB
15,000	10,313.0 MB	21,626.0 MB
20,000	13,749.5 MB	27,498.0 MB
50,000	34,368.8 MB	68,736.0 MB
100,000	68,734.2 MB	137,468.4 MB

How to change the Initial Size on SQL Server 2014

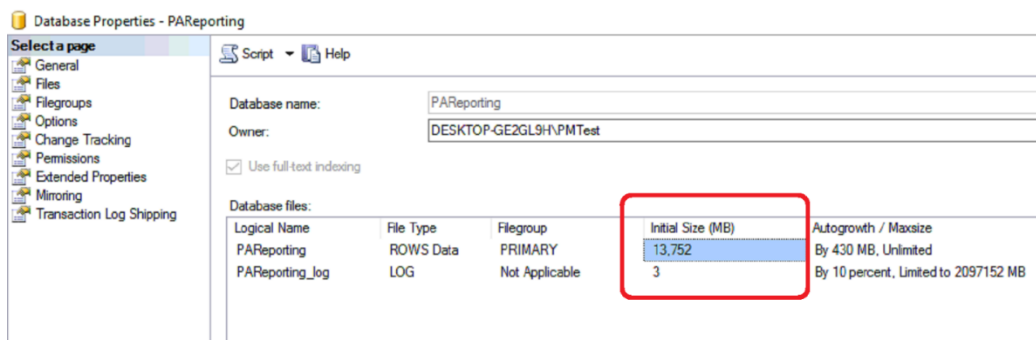
i | **NOTE:** Steps may be slightly different for other supported versions of SQL Server.

To change the Initial Size settings:

1. Start SQL Server Management Studio.
2. Highlight, then right click the PARReporting database and navigate to Properties.



3. In the left Panel, select Files from the Database Properties dialog. The Properties window will be used to change the Initial Size.
4. Identify the PARReporting name under Logical Name and change the Initial Size based on table 5 above.



In this image, we have set the Initial Size (MB) to 13,752.8MB. This value is 2 times the size of the database.

Product Improvement Program

To assist in the development of new features, as well as drive future improvements, we have implemented a Product Improvement Program. Feedback from this program provides Product Management with valuable insight into how our products are being used. This information is essential to help the R&D team prioritize existing enhancement requests within the roadmap of the each product. Participation is voluntary, and no personal contact information is ever collected.

How do I participate in the Product Improvement Program? What if I change my mind?

There is an option in Privilege Manager that can be used to verify or change your participation at any time. Select the **Help** menu and then click on **Product Improvement Program** to change your participation option.

How will the collected information be used?

Information collected will be used to develop new features and improve Privilege Manager.

Where is the data being stored?

The data is stored on a secure server within the USA and will be accessed only by the members of the Privilege Manager R&D team.

What information is collected?

- Privilege Manager features usage data such as console configuration settings
- System information such as operating system, processor, and memory installed
- Domain information such as number of users, servers, and workstations being managed
- Browser type and version
- Product information such as version
- License information such as type and number of seats

How does the Product Improvement Program work?

You choose to participate and allow Privilege Manager to send usage data, associated with an anonymous user ID from your computer. If you are offline at any time, the data will be sent the next time an internet connection is available.

How long will collected data be stored?

We will store the collected data on our secure server for as long as the Product Improvement Program is in place.

Will I receive spam if I participate in the Product Improvement Program?

You will not receive any e-mail regarding the Product Improvement Program, regardless of whether you participate. We do not collect personally identifiable information.

Do I need an Internet connection?

An Internet connection is required for participation. However, it can be an intermittent connection. When an internet connection becomes available, the information is automatically transmitted with minimal impact to your system.

Can I see the data that is collected before it is transmitted?

No, the information cannot be displayed on the customer side. The collection of the desired data occurs seamlessly in the background without affecting the product. Additionally, all formatting and processing of the collected data are done post transmission.

How long will my participation in the program last?

Information is actively collected as long as you use the product version for which you have agreed to participate or until you decide to end your participation.

How is my privacy protected?

We take many precautions in protecting the information that is collected and transmitted. You can learn more about how we handle user information by reviewing our Privacy Policy.

Since no personally identifiable information is collected, the anonymous data will not be meaningful to anyone outside of our company.

We are more than just a name

We are on a quest to make your information technology work harder for you. That is why we build community driven software solutions that help you spend less time on IT administration and more time on business innovation. We help you modernize your data center, get you to the cloud quicker and provide the expertise, security and accessibility you need to grow your data-driven business. Combined with Quest's invitation to the global community to be a part of its innovation, and our firm commitment to ensuring customer satisfaction, we continue to deliver solutions that have a real impact on our customers today and leave a legacy we are proud of. We are challenging the status quo by transforming into a new software company. And as your partner, we work tirelessly to make sure your information technology is designed for you and by you. This is our mission, and we are in this together. Welcome to a new Quest. You are invited to Join the Innovation™.

Our brand, our vision. Together.

Our logo reflects our story: innovation, community and support. An important part of this story begins with the letter Q. It is a perfect circle, representing our commitment to technological precision and strength. The space in the Q itself symbolizes our need to add the missing piece — you — to the community, to the new Quest.

Contacting Quest

For sales or other inquiries, visit <https://www.quest.com/company/contact-us.aspx> or call +1-949-754-8000.

Technical support resources

Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at <https://support.quest.com>.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal enables you to:

- Submit and manage a Service Request
- View Knowledge Base articles
- Sign up for product notifications
- Download software and technical documentation
- View how-to-videos
- Engage in community discussions
- Chat with support engineers online
- View services to assist you with your product

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