opentext™

Universal Policy Administrator 3.3

Administration Guide

June 2023

Legal Notice

Contents

About This Guide

The *Universal Policy Administrator Administration Guide* provides information to help you understand, install, configure, and use the Micro Focus Universal Policy Administrator product to help manage your hybrid enterprise environment.

Audience

This guide is written for administrators and users who will use Micro Focus Universal Policy Administrator to more effectively manage Active Directory and universal policies in a hybrid environment.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation.

Additional Documentation

Universal Policy Administrator is supported by other documentation (in both PDF and HTML formats) that you can use to learn about and implement the product. For additional documentation, see the Universal Policy Administrator documentation website.

1 Introduction

To leverage Universal Policy and comply with necessary regulations without human intervention, you need ways to:

- Model changes to Universal Policies safely without interrupting services.
- Test Universal Policies and secure approval from all stakeholders before deploying them.
- Deploy tested Universal Policies into trusted or untrusted Active Directory domains and hybrid environments.
- Maintain consistent Universal Policies across business units, regions, worldwide locations or cloud resources.
- Roll back to a last known good Universal Policy to quickly recover from errors.

Universal Policy Administrator is an enterprise-wide universal policy administration solution to help administrators to centrally manage thousands of resources on premises or on cloud. It can also help meet compliance objectives, especially those that require you to document changes that affect network security or access to sensitive files, such as financial, business or personnel data.

The following sections provide more information:

- "Understanding Universal Policy Administrator" on page 7
- "Understanding the Universal Policy Administrator Architecture" on page 8
- "Using the Web Console" on page 10

Understanding Universal Policy Administrator

Universal Policy Administrator has an offline repository where you can test and manage changes to Universal Policies before rolling them out into the live environment. This helps in avoiding potentially catastrophic changes that can impact network or service availability.

Universal Policy Administrator has a change management workflow and delegation model to safely involve all Universal Policy stakeholders and built-in tools to analyze, compare, troubleshoot, and test Universal Policies. The comprehensive reporting capability helps in documenting regulatory compliances.

Benefits of Using Universal Policy Administrator

The benefits of using the Universal Policy Administrator are:

- Provides a buffer from making errors in a live Active Directory environment
- Lets you compare and view differences between Universal Policies
- Performs health checks to ensure Universal Policies are not corrupted
- Lets you quickly roll back to a last known good version of a Universal Policy
- Stores backup copies of Universal Policies including WMI filters and links

- Lets you centrally manage Universal Policies in untrusted domains
- Lets you migrate Universal Policies from one domain to another
- Lets you delegate Universal Policy changes to appropriate people while limiting Active Directory permissions

Universal Policy Administrator helps manage policies in a hybrid environment with the help of a Web Console. By deploying Universal Policy Administrator in your hybrid environment, you can:

- Enforce secure password and account policies
- Ensure access to network resources
- Secure network and wireless communications
- Comply with government and industry regulations such as HIPAA, PCI DSS and many others

It helps secure and unify hybrid environment operations across multiple policy silos including Active Directory, Linux, Mac, and Cloud.

It helps large enterprises with hybrid environments to automate the following types of tasks:

- Enforcing consistent use of Universal Policies across the enterprise
- Managing and maintaining Universal Policies across trust barriers
- Automatically deploying Universal Policies during non-peak hours
- Diagnosing problems and differences between Universal Policies

Understanding the Universal Policy Administrator Architecture

Universal Policy administrator extends the Active Directory (AD) capabilities by enabling domain controllers to add Linux and Mac servers along with Cloud resources to the AD environment, which can interface with identity services, Universal policies, and domains.

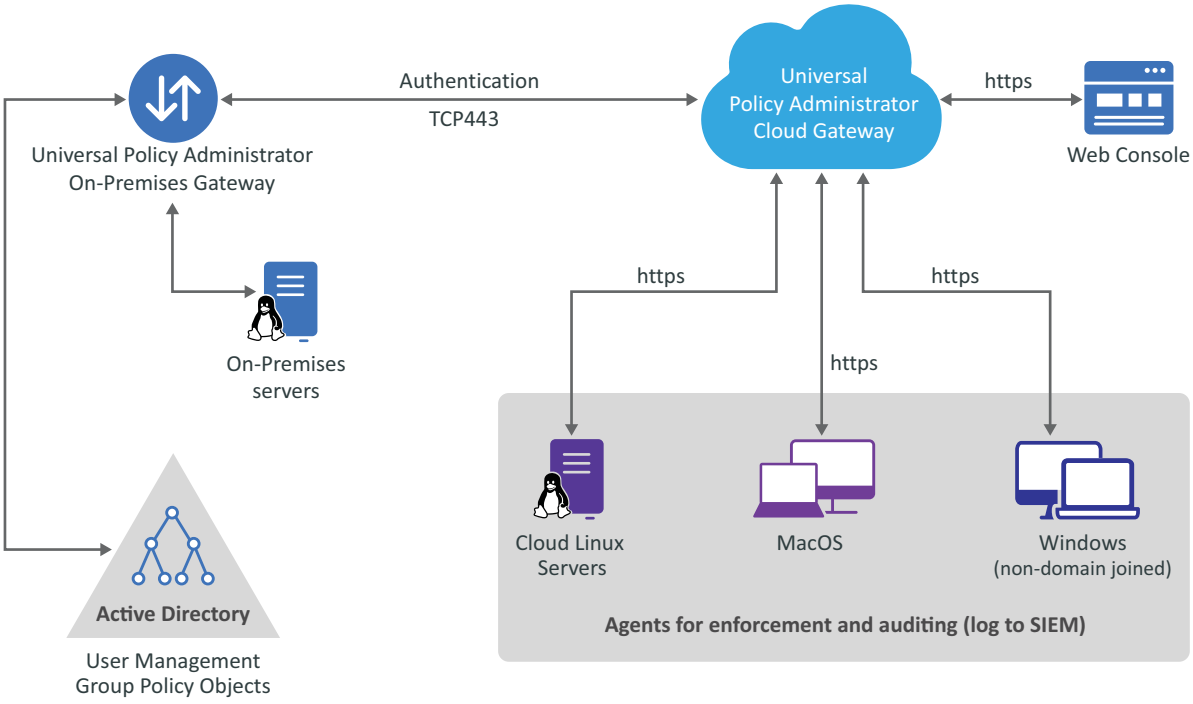
Universal Policy Administrator Components

Universal Policy Administrator Components	Description
Universal Policy Administrator Agents	Windows, Linux or Mac based software that enforce universal policies and audit logs; the Windows agent manages a non-domain joined Windows computer.
Universal Policy Administrator On Premises Gateway	A Windows server that is used to push policies from Active Directory to the Universal Policy Administrator Cloud Gateway.
Universal Policy Administrator Cloud Gateway	A component that provides the ability to bridge VMs in the cloud with the Universal Policy Administrator On Premises Gateway to apply universal policies to cloud VMs.

Universal Policy Administrator Components	Description
Web Console	A browser-based console that Interfaces dashboards and management consoles for universal policies, associated roles, domains, OUs, users, groups, agent versions, environments, view session and event details and so on.

Understanding the Workflow

Universal Policy Administrator has multiple components depicted in the architecture diagram below:



A high-level Universal Policy Administrator change management workflow includes the following steps:

1. Create a new Universal Policy in the Web Console or import GPOs from your production Active Directory environment into the Web Console of the Universal Policy Administrator and save as a Universal Policy.
2. Check out a Universal Policy, locking it from changes by other users.
3. Edit the Universal Policy as needed.
4. Check in the updated Universal Policy, unlock the Universal Policy and update its version number.
5. Analyze the Universal Policy to verify your changes (for example, RSoP analysis), and then approve the policy.
6. Export to Active Directory.

Using the Web Console

You can identify and manage domain joined Mac, Linux devices, both on premises and cloud, on a browser to improve security and provide better visibility into the infrastructure from any supported device and location.

You can sort devices to list by **Environments**, **Agent Versions** and **Connections**. Environments include Windows and non Windows; Connections include devices joined on premises, Cloud AD along with Domain or Cloud non-joined. Thus, this single dashboard centralizes device and policy management beyond your organization as well.

To add a web console, you must first set up your web server in Microsoft Azure. Following tabs and associated information is displayed in the Web Console, to an Administrator:

- **Administration:** You can search and view roles, role details, and subscribed role notifications.
- **Organization:** You can view and manage Cloud based OUs and Domain based OUs and GPOs.
- **Universal Policies:** You can view and manage Linux, Mac, and Windows policies and also create **Universal Policies** or import existing policies from a GPO in Active Directory and save them as universal policies. You can also:
  - Modify, approve, deploy (to agent machines) and export (to AD as GPOs) existing policies
  - Delete policies
  - Refresh policies
- **Devices:** You can view a dashboard and manage environments, agents versions and connection types across the Universal Policy Administrator infrastructure on premises, cloud and devices.

  NOTE: You can link an available Universal Policy to a selected device.

- **Auditing:** You can search for and view User Session and Event audit information from a consolidated user interface.

2 Installing Universal Policy Administrator

This section contains information that will help you understand the following:

Installation Checklist

The following checklist provides Universal Policy Administrator installation tasks. Review the information in this section before installing non Windows Universal Policy Administrator Agents.

	Task	See
❑	Review the information about how Universal Policy Administrator works.	"Understanding Universal Policy Administrator" on page 7
❑	Ensure your user account has the necessary permissions to complete the installation and the computers on which you want to install Universal Policy Administrator components meet minimum hardware and software requirements.	Hardware Requirements Software Requirements

	Task	See
❑	Determine and install Universal Policy Administrator components.	"Installing the Universal Policy Administrator Cloud Gateway (Gatekeeper) and On Premises Gateway" on page 13 "Installing the Universal Policy Administrator Cloud Gateway, On Premises" on page 14 "Installing the Universal Policy Administrator On Premises Gateway" on page 15 "Installing Citrix GPO Snap-in to Manage the Citrix Policies" on page 18 "Installing the Universal Policy Administrator Linux Agent" on page 19 "Installing the Universal Policy Administrator Windows Agent" on page 17 "Installing the Universal Policy Administrator Mac Agent" on page 22
❑	Make any post-installation configurations.	Chapter 3, "Configuring Universal Policy Administrator," on page 25

Installing Universal Policy Administrator Components

To complete an installation of Universal Policy Administrator you must install the following components and agents relevant to your environment:

- Universal Policy Administrator Cloud Gateway and On Premises Gateway

  For more information, see "Installing the Universal Policy Administrator Cloud Gateway (Gatekeeper) and On Premises Gateway" on page 13
- Universal Policy Administrator Cloud Gateway, On Premises

  For more information, see "Installing the Universal Policy Administrator Cloud Gateway, On Premises" on page 14
- Universal Policy Administrator On Premises Gateway

  For more information, see "Installing the Universal Policy Administrator On Premises Gateway" on page 15
- Universal Policy Administrator Windows Agent

  For more information, see "Installing the Universal Policy Administrator Windows Agent" on page 17
- Support for Citrix Policies in Universal Policy Administrator

  For more information, see "Installing Citrix GPO Snap-in to Manage the Citrix Policies" on page 18
- Universal Policy Administrator Linux Agent

  For more information, see "Installing the Universal Policy Administrator Linux Agent" on page 19

- Universal Policy Administrator Mac Agent

  For more information, see "Installing the Universal Policy Administrator Mac Agent" on page 22

Installing the Universal Policy Administrator Cloud Gateway (Gatekeeper) and On Premises Gateway

You can install Universal Policy Administrator on Cloud and on-premises using the Cloud Gateway (Gatekeeper) and Gateway installer.

Ensure that the following prerequisites are met before you install the Universal Policy Administrator On-Premises Gateway:

- Domain Administrator account access

The Universal Policy Administrator On Premises Gateway installer also installs Microsoft .Net Framework 4.7.x.

NOTE: The Universal Policy Administrator On Premises Gateway installation on a Microsoft Windows Server 2012 R2 computer upgrades Microsoft Windows PowerShell to version 5.1 through a Windows Management Framework (WMF) 5.1 update.

To install the Universal Policy Administrator Cloud Gateway (Gatekeeper) and On Premises Gateway:

1. Log in to a member server as a domain administrator.
2. Download the Universal Policy Administrator On Premises Gateway installer file UPA0PG_3_3.exe from the Micro Focus Downloads website.
3. Execute the downloaded UPA0PG_3_3.exe file.
4. When the installation wizard opens, select both **Install Gatekeeper** and **Install Gateway** options and click **Install**.
5. Click **Next**.
6. Read and accept the license agreement, and click **Next**.
7. Specify a certificate in the .pfx format and enter the password for the certificate on the Certificate File Page. Click **Next**.
8. Specify the connection string and SSL hostname on the Configuration wizard, and click **Next**.
9. Accept the default installation location or specify the alternate location for the installation. Click **Next**.
10. Click **Install**.
11. Click **Finish** to complete the Gatekeeper setup.

    NOTE: After the Gatekeeper installation completes, the Gateway installation automatically starts.

    ---

12. Click **Next**.
13. Read and accept the license agreement, and click **Next**.

14 Select an installation option. The available options are:

- NAT Traversal
- DMZ or Port Forward

NOTE: In most cases, select **NAT Traversal**.

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15 Click **Next**.

16 Enter domain administrator credentials on the Domain Credentials Page and click **Next**.

17 Enter the Cloud Gateway URL and Universal Policy Administrator On Premises Gateway owner account credentials for your tenant on the Login page and click **Next**.

NOTE: If you do not have an administrator or owner account for the tenant, click **Register** to create a new account.

---

18 Accept the default installation location or specify the alternate location for the installation. Click **Next**.

19 Click **Install**.

20 Click **Finish** to complete the Gateway installation.

Installing the Universal Policy Administrator Cloud Gateway, On Premises

Ensure the following prerequisites are met before you install the Universal Policy Administrator Cloud Gateway, on premises:

- Microsoft SQL Server installed and running SQL Server 2016 or later.

To set up the Universal Policy Administrator Cloud Gateway, On Premises:

1 Log in to a Member server as a domain administrator.

2 Download the Universal Policy Administrator On Premises Gateway installer UPA0PG_3_3.exe file from the Micro Focus Downloads website.

3 Execute the downloaded UPA0PG_3_3.exe file.

4 When the installation wizard opens, select **Install Gatekeeper** option and click **Install**.

5 Click **Next** when the Gatekeeper Installation wizard opens.

6 Read and Accept the License Agreement, and click **Next**.

7 Browse your system to select a certificate in the .pfx file format, specify the password, and click Next.

8 Specify the connection string, SSL hostname in the Configuration wizard, and click Next.

9 Select the destination folder for the installation files and click **Next**.

10 Click **Install** to copy the Gatekeeper files.

11 Click **Finish** to complete the Gatekeeper setup.

Installing the Universal Policy Administrator On Premises Gateway

The Universal Policy Administrator On Premises Gateway is used to push policies from Active Directory to the Cloud Gateway.

When using Universal Policy Administrator to work with Universal Policies, you can use the Universal Policy Repository to effectively plan and evaluate your Universal Policy before implementing it in your production environment. The Universal Policy Repository also provides change management features.

NOTE: The Offline Repository is built and configured during the installation of the Universal Policy Administrator Gateway. After the installation, the repository is built and the Universal Policy Administrators can use the Web Console to manage domains, users, groups and Cloud OUs.

Ensure that the following prerequisites are met before you install the Universal Policy Administrator On-Premises Gateway:

- Domain Administrator account access

The Universal Policy Administrator On Premises Gateway installer also installs Microsoft .Net Framework 4.7.x.

NOTE: The Universal Policy Administrator On Premises Gateway installation on a Microsoft Windows Server 2012 R2 computer upgrades Microsoft Windows PowerShell to version 5.1 through a Windows Management Framework (WMF) 5.1 update.

To install the Universal Policy Administrator On Premises Gateway:

1. Log in to a member server as a domain administrator.
2. Download the Universal Policy Administrator On Premises Gateway installer file `UPA0PG_3_3.exe` from the Micro Focus Downloads website.
3. Execute the downloaded `UPA0PG_3_3.exe` file. The installation wizard is displayed.
4. Select the **Install Gateway** option and click **Install**.
5. Click **Next**.
6. Read and accept the license agreement, and click **Next**.
7. Select an installation option. The available options are:
   - NAT Traversal
   - DMZ or Port Forward

   NOTE: In most cases, select **NAT Traversal**.

   ---
8. Click **Next**.
9. Enter domain administrator credentials on the Domain Administrator Credentials page and click **Next**.

10 Enter the Cloud Gateway URL and Universal Policy Administrator On Premises Gateway owner account credentials for your tenant page on the Login page, and click **Next**.

NOTE: If you do not have an administrator or owner account for the tenant, click Register to create an account.

---

11 Accept the default installation location or specify an alternate location for installation. Click **Next**.

12 Click **Install**.

13 Click **Finish** to complete the Gateway installation.

Configuring the Universal Policy Administrator Syslog Provider

You can configure Universal Policy Administrator to forward events and syslog messages to one or more SIEM solutions.

To configure the Universal Policy Administrator Syslog Provider:

1 Open the `C:\Program Files\MicroFocus\AD Bridge\Gateway\WebApp\Web.Config` file.

2 Modify the highlighted text in the following code snippet according to your environment:

```
<syslogSettings CEFVendor="Micro Focus" CEFProduct="AD Bridge"
CEFVersion="2.0">
    <Forwarders>
      <add host="localhost" port="514" senderType="UDP"
rfcType="Rfc5242" filterType="None" />
    </Forwarders>
  </syslogSettings>
```

The available options for each of these attributes are:

- **senderType:** The default value is UDP.
  - TCP
  - UDP
- **rfcType:** The default value is Rfc5242.
  - `Rfc5242`
  - `Rfc3164`
- **filterType:** The default value is None.
  - `SyslogOnly`
  - `AuditOnly`
  - None

NOTE: Universal Policy Administrator 3.0 only supports the filterType attribute value, `AuditOnly`.

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3 Set `CEFVendor`, `CEFProduct`, and `CEFVersion` to values of your choice.

NOTE: You can specify multiple forwarders in the same `Web.Config` file.

Installing the Universal Policy Administrator Windows Agent

The Universal Policy Administrator Windows Agent allows you to manage a non-domain joined Windows computer. You configure these settings in the Web Console, when installed in Cloud or Hybrid mode.

Ensure the following prerequisites are met before you install the Universal Policy Administrator Windows Agent:

- Microsoft Windows Server 2012 R2 or later, installed and running.
- Domain Administrator Account.

The Universal Policy Administrator Windows Agent installer also installs Microsoft .NET Framework 4.7.x.

NOTE: The Universal Policy Administrator Windows Agent installation on a Microsoft Windows Server 2012 R2 computer upgrades Microsoft Windows PowerShell to version 5.1 through a Windows Management Framework (WMF) 5.1 update.

To install the Universal Policy Administrator Windows Agent:

1. Log in to a non-domain joined Microsoft Windows Server 2012 R2 or later as a local administrator.
2. Download the Universal Policy Administrator Windows Agent installer file `UPA_3_3_WindowsAgent.exe` from the Micro Focus Downloads website and copy onto the non-domain joined Windows Server.
3. Execute the downloaded `UPA_3_3_WindowsAgent.exe` file.
4. Click **Next** when the Agent setup wizard opens.
5. Read and Accept the License Agreement, and click **Next**.
6. Select Installation Options. The available options are:
   - Hybrid
   - Cloud
7. Click **Next**.
8. Enter domain administrator credentials and click **Next**.

   NOTE: The Cloud Gateway URL is pre-populated.
9. Retain or **Change** the default location for program installation, and click **Next**.
10. Click **Install** to begin copying files.

NOTE: If .NET Framework 4.7.x is not already installed on your Domain Controller, it is installed as a part of the prerequisite check, before the Universal Policy Administrator Windows Agent installation starts.

11 Click **Finish** on the last screen of the wizard to complete the installation.

Installing Citrix GPO Snap-in to Manage the Citrix Policies

The Citrix Policy Management snap-in allows you to manage a Citrix environment. You must install the Citrix GPO snap-in and use the web console to create a new Universal Policy and add a Citrix policy to it. Approve this policy and export the policy to the Active Directory to manage the Citrix environment.

Complete the following requirements before you install the Citrix GPO Snap-in:

- Install Gateway using the `ADBridge.exe` file. For more information, see "Installing the Universal Policy Administrator On Premises Gateway" on page 15
- Install `VC_redist.x64.msi` from the Micro Focus Downloads website.

To Install Citrix GPO snap-in:

1. Log in to Microsoft Windows Server 2012 R2 or later as a local administrator.
2. Download the Universal Policy Administrator Citrix installer file `CitrixGroupPolicyManagement_x64.msi` from the Micro Focus Downloads website and copy onto the non-domain joined Windows Server.
3. Execute the downloaded `CitrixGroupPolicyManagement_x64.msi` file. The installation wizard is displayed.
4. Read and accept the license agreement and click **Next**.
5. Click **Finish** to complete the setup.

Non Windows Agent Requirements and Installations

Complete the following requirements before you install the Linux Agent and join Active Directory:

- Install the Linux Agent with `root` (requires administrator password)
- DNS name servers on the Linux Agent must list the Active Directory DNS servers
- The Active Directory domain is listed as one of the default search domains
- Download and install prerequisite Linux packages from respective vendors during or prior to running the Linux Agent installation. For more information, see Other Linux Requirements.

NOTE: If a prerequisite package check or installation fails, the failure notice will identify any missing prerequisites.

Installing the Universal Policy Administrator Linux Agent

After you download the Universal Policy Administrator Linux Agent installer, unpack the installer for your specific Linux distribution. Following is an example of the files included with the final distribution installer:

- `Package_Name.rpm`
- `install.sh`
- `uninstall.sh`

NOTE: The Universal Policy Administrator Linux Agent installer also installs .Net Core 2.2, that is used during an uninstall.

To install the Universal Policy Administrator Linux Agent on a Linux machine:

1. Copy the Linux Agent installer UPA_3_3_`LinuxAgent.tar.gz` file applicable to your distribution onto the Linux machine.

Installer file	Linux distribution
`UPA_3_3_LinuxAgent.tar.gz` `UPA_3_3_UbuntuAgent.tar.gz`	◆ RHEL 7 and 8 ◆ CentOS 7 and 8 ◆ Oracle Linux 7 and 8 ◆ SLES 12 and 15 ◆ Ubuntu 16 ◆ Ubuntu 18 ◆ Ubuntu 20.4

2. On the command line, log in as the `root` user and type the following command to unpack the applicable installation package: `tar xvzf <file name>`.
3. For all distributions except Ubuntu, execute the command again using the file name specific to your platform from the table below.

   For example: `tar xvf <file name>`

Installer file	Linux distribution
RHEL_CENT_Oracle8.tar	◆ RHEL 8 ◆ CentOS 8 ◆ Oracle 8
RHEL_CENT_Oracle7.tar	◆ RHEL 7 ◆ CentOS 7 ◆ Oracle 7
Ubuntu18.tar	Ubuntu 18
Ubuntu16.tar	Ubuntu 16
SLES15.tar	SLES 15
SLES12.tar	SLES 12

4 Verify all installer files are on the computer with the list command: `# ls`.

5 Run the `install.sh` script file as `root` to set up the Linux Agent. For example:

- `# ./install.sh`
- `#bash install.sh`

Available agent configuration types are:

```
(g) - Join the agent to the Cloud Gateway Only
(h) - Join the agent to the Cloud Gateway, and create an AD object for
  this computer (Hybrid Mode)
(n) - Don't join the agent to anything
```

Installation time varies depending on your environment and prerequisites that need installation. Warning messages during the installation are informational and do not necessarily require action unless you experience an installation failure.

IMPORTANT: For SUSE installations, you may receive a confirmation prompt `y/n` before the installation starts. For SUSE 15 installations, the `dotnet-runtime-2.1` installation displays a problem dependency for `libicu52-1`.

Enter 2 to ignore the dependency and enter y when prompted to install “NEW packages.”

6 (Optional) Enter g, h, or n when prompted to join Active Directory.

NOTE: This step and the following step are optional if you want to join agent configuration type later. For information about joining Agent Configuration Type after installation, see Joining Linux Agent Configuration Type Post Installation.

7 (Optional) When prompted, provide the full domain name, the AD account with rights to join a domain, and AD account password. For example:

```
myCompany.local
administrator
<password>
```

NOTE: A fully qualified domain name (FQDN) is only required to join the agent to Active Directory.

During the installation, the Linux Agent is added by default to the Computers OU in Active Directory. After the installation is complete, the Linux Agent service runs on the Linux system, as demonstrated in the following example of an installation on a Red Hat distribution.

```
[root@dev-rhat22 ~]# systemctl status linuxagent.service
● linuxagent.service - LinuxAgent Service
   Loaded: loaded (/etc/systemd/system/linuxagent.service; enabled; vendor preset: disabled)
   Active: active (running) since Wed 2019-02-06 10:35:54 EST; 1min 32s ago
 Main PID: 1739 (scl)
   CGroup: /system.slice/linuxagent.service
           ├─1739 /usr/bin/scl enable rh-dotnet21 /opt/rh/rh-dotnet21/root/bin/dotnet LinuxAgent.dll
           ├─1740 /bin/bash /var/tmp/scl61RG3I
           └─1743 /opt/rh/rh-dotnet21/root/bin/dotnet LinuxAgent.dll

Feb 06 10:35:54 dev-rhat22.adanywhere.local systemd[1]: Started LinuxAgent Service.
Feb 06 10:35:54 dev-rhat22.adanywhere.local systemd[1]: Starting LinuxAgent Service...
[root@dev-rhat22 ~]#
```

NOTE: For information about how to start the Linux Agent Service or verify if it is running, see "Linux Agent Commands and Lookups" on page 51.

Adding a GoDaddy SSL Certificate

To add a GoDaddy SSL certificate, you must download the certificate, copy it to the necessary agent machine and manually assign trust to the certificate.

NOTE: The GoDaddy SSL certificate is a prerequisite for Linux Agent installation in Cloud Gateway or Hybrid mode only.

Prerequisite

Download the gdig2.crt.pem certificate from the GoDaddy Repository.

For RHEL 7 or CentOS 7 or Oracle Linux 7:

1. Copy the gdig2.crt.pem file to `/etc/pki/tls/certs`.
2. Type `ln -s /etc/pki/tls/certs/gdig2.crt.pem /etc/pki/tls/certs/27eb7704.0` and press Enter.
3. Type `certutil -d sql:/etc/pki/nssdb -A -t "C,C,C" -n "Go Daddy Secure Certificate Authority - G2" -i /etc/pki/tls/certs/gdig2.crt.pem` and press Enter.

For RHEL 8 or CentOS 8 or Oracle Linux 8:

1. Copy the `Go Daddy Secure Certificate Authority - G2.pem` file to `/usr/share/pki/ca-trust-source/anchors`.
2. Type `update-ca-trust` and press Enter.

For SLES 12 and SLES 15:

1. Copy the certificate to `/etc/pki/trust/anchors/`.
2. Type `update-ca-certificates` and press Enter.
3. Restart the agent.

For Ubuntu 16 and 18:

1. Copy the `certificate.pem` to `/usr/local/share/ca-certificates/certificate.crt`.
2. Type `dpkg-reconfigure ca-certificates` and press Enter.

Installing the Universal Policy Administrator Mac Agent

The Universal Policy Administrator Mac Agent allows you to manage non-domain joined Mac computers with universal policies configured in the web user interface and installed in Cloud Gateway Only mode or native group policy tools in Hybrid mode.

Ensure the following prerequisites are met before you install the Universal Policy Administrator Mac Agent:

- macOS 10.13, 10.14 or 10.15 installed and running.
- Domain Administrator Account.

The Universal Policy Administrator Windows Agent installer also installs Microsoft .NET Framework 4.7.x.

To install the Universal Policy Administrator Mac Agent:

1. Log in to a non-domain joined Mac computer as a local administrator.
2. Download the Universal Policy Administrator Mac Agent installer file from the Micro Focus Downloads website and copy it onto the non-domain joined Mac computer.
3. Execute the downloaded `UPA_3_3_MacAgent.dmg` file.
4. Click **Continue** when the Universal Policy Administrator Mac Agent setup wizard opens.
5. Click **Install** to begin copying files.
6. Enter the local macOS password if prompted to start `Terminal` and proceed with the installation.

   NOTE: ASP.NET Core 2.1 is installed as part of the prerequisite check, if not installed already and before the Universal Policy Administrator Mac Agent installation starts.

   ---

7. Choose an agent configuration type. The available options are:

   ```
   (g) - Join the agent to the Cloud Gateway Only
   (h) - Join the agent to the Cloud Gateway, and create an AD object for
     this computer (Hybrid Mode)
   (n) - Don't join the agent to anything
   ```

NOTE: Installation time varies depending on your environment and prerequisites that need installation. Warning messages during the installation are informational and do not necessarily require action unless you experience an installation failure.

8 Enter g, h, or n.

NOTE: This step is optional if you want to join the agent configuration type at a later time.

9 (Optional) Execute the `configure.sh`file from the `/opt/adb-agent/`install directory to choose from agent configuration type options as in the previous step, at a later time.

Joining Linux Agent Configuration Type Post Installation

If you did not join your Linux computer to Active Directory or Cloud Gateway in Gateway Only or Hybrid mode when installing the Universal Policy Administrator Linux Agent, follow these instructions on the Linux Agent at a later time:

1 Open the Linux Terminal and locate the `agent` directory. For example:

`cd /opt/adb-agent`.

2 Type respective commands for given agent configuration types:

- **Active Directory:** `dotnet LinuxJoinAD.dll <full domain name> <AD Admin account name> [distinguished name of the computer OU]`

  For example: `dotnet LinuxJoinAD.dll myCompany.com administrator`.

  NOTE: The Linux server is on a corporate network and you choose to join Active Directory for management with native AD tools and GPOs.

- **Cloud Gateway:** `dotnet CloudLinuxJoin.dll <gatekeeperServer[:port]> <traversalServer[:port]> <domainUser>`

  NOTE: The Linux server is in the cloud (outside the corporate network) and does not have a computer object in Active Directory. You can manage this Linux server only from the Universal Policy Administrator web console using Universal Policies.

- **Hybrid Mode:** `dotnet CloudLinuxJoin.dll <gatekeeperServer[:port]> <traversalServer[:port]> <domainUser> [-create-ad-object]`

  NOTE: The Linux server is in the cloud (outside the corporate network) and will have a computer object in Active Directory linked to the Universal Policy Administrator Secure Gateway. Choose this option to manage your cloud Linux server with native Active Directory tools and GPOs.

3 Enter the AD account password when prompted.

NOTE: You can also choose to join a specified OU of Active Directory.

Licensing Universal Policy Administrator On Premises Gateway and Agents

This section provides information about the following:

Evaluation Licenses

The Universal Policy Administrator and associated Windows, Linux and Mac agents come with an independent built-in 30-day evaluation period for each component to use the complete functionality. To continue using after 30 days, purchase and apply the product and agents before the 30 days elapse for each installation.

For more information, contact Micro Focus Sales.

To download this product, go to the Micro Focus Downloads or Customer Care website.

Enterprise Licenses

The Universal Policy Administrator license is applied on the Universal Policy Administrator On Premises Gateway, which in turn enables the Universal Policy Administrator Web Console on the Universal Policy Administrator Cloud Gateway.

NOTE: You must purchase agent license types and numbers according to the need in your environment.

To activate a Universal Policy Administrator Gateway and appropriate Agent license:

1. Copy the associated license file into the Universal Policy Administrator On Premises Gateway location `%PROGRAMDATA%\Micro Focus\AD Bridge\License`.
2. Copy the associated license file into the Windows Agent install directory.
3. Copy the associated license file into the Linux or Mac Agent install directory `/opt/adb-agent`.

   NOTE: After the license file is copied for each component, the system picks up the licenses at license check iterations, that are run every 15 minutes.

   ---

3 Configuring Universal Policy Administrator

Universal Policy Administrator is used to manage Universal Policies, it provides a security model to ensure the safety and reliability of your Active Directory environment. This security model, implemented in the Offline Repository, enables you to enforce a secure workflow for creating, modifying, testing, approving, and deploying Universal policies to your production Active Directory environment:

Service Accounts

Accounts with special privileges in Universal Policy Administrator to access AD or Cloud services to accomplish specific tasks are Service Accounts. For example, an Account that exports Universal Policies to AD.

NOTE: The account you use to access AD, when you install the Universal Policy Administrator On Premises Gateway, functions as a Service Account.

Importing Linux Custom Configuration File Settings

From the Configuration Files node, you can import custom settings for Configuration Files into your Linux Agent. This enables you to create Universal Policies to manage the configuration of custom or legacy applications. When you import Configuration File settings, you can do the following:

- Add new settings without removing existing settings
- Change existing settings
- Overwrite existing settings
- Create a new configuration file

To import custom Configuration File settings:

1. Click **+** to add policies from the Web Console and expand the **Linux** folder.
2. Expand the **Linux** and the **Configuration Files** folders, then select **Add Custom Configuration File**.

   NOTE: While adding a custom configuration file using **Add Custom Configuration File**, you can use a hyphen(-) in the file name.

   ---

3. Provide the path and file name for the file you want to import, and click **Add**.

   If the specified configuration file does not exist, you have the option to create a new file from which you can create new custom Configuration File settings.

To modify Configuration File settings:

1. Click **SSH** or **Sudoers** or a file in the Configuration Files node that you imported and do one of the following:
   - Select an existing rule and modify the attributes as desired.
   - Add a custom rule and specify the attributes as desired.
2. Click **Add**.

To overwrite the existing settings:

1. Click **SSH** or **Sudoers** or a file in the Configuration Files node.
2. Select **Overwrite** check box to modify an existing rule. The existing values of the **Setting** and **Rule** get overwritten with the new values.

Example of Deployment and Initial Setup

Jack a policy administrator at MF Corporation is responsible to install and configure Universal Policy Administrator across the enterprise. Therefore, he runs through the installation checklist and meets the necessary hardware and software requirements, downloads and installs various Universal Policy Administrator components and agents on end points across the enterprise:

- Universal Policy Administrator Cloud Gateway in Microsoft Azure
- Universal Policy Administrator On Premises Gateway
- Universal Policy Administrator Agents (Windows, Linux or Mac)

Jack applies license keys to the Universal Policy Administrator On Premises Gateway and the Agents and configures Universal Policy Administrator within his enterprise, adds in various policy tenants in the central repository and delegates policies to his coworkers to perform policy management from the browser-based web console which he can audit.

Jack is pleased with the consolidated and simplified policy management solution, with the oversight and assurance of security policies applied to all enterprise endpoints.

4 Working with Universal Policies

A Universal Policy is defined in one of two different forms - Windows or cross platform environments to centrally manage and configure user and computer objects to manage applications, operating systems, discreet individual settings on premises or in the cloud. Cross platform environments include Mac or Linux managed on premises or in the cloud. You can apply and use Mac and Linux policies interchangeably. To ease management and avoid confusion, it is recommended to define, apply and manage cross platform policies by operating system. For example: Apply Linux policies to Linux systems only.

Additional benefits of Universal Policy Administrator include the following:

- Implements a process to create, test, and deploy Universal Policies and minimize risks to your production environment
- Tracks the history of changes made to Universal Policies and restore prior versions
- Avoids changing Universal Policies directly in your production environment
- Takes advantage of features such as version control and reports
- Delegates Universal Policy administration capabilities and control the tasks each user can perform

---

NOTE: Universal Policy Administrator obtains descriptions of policies and permissible value ranges from Windows Server 2012 R2.

You can use the Universal Policy Repository to plan and evaluate your Universal Policies before implementing them in your production environment. Using the Universal Policy Repository enables you to perform a number of tasks that assist to manage Universal Policies in your Active Directory environment.

NOTE: A sub-string search in the Universal Policies tab of the web console lists all Universal Policies from the domain, if the search string matches the domain name.

You can view and manage Universal Policies with the Universal Policy Administrator web console. After you create, import or modify a Universal Policy, you can export it to Active Directory.

After you create, edit or merge a Universal Policy, you must check in the policy and submit for approval from the **Universal Policies** tab of the Web Console. The system then moves the policy to the appropriate approver. If approved, the policy becomes available for application in Active Directory.

NOTE: The option to submit a Universal Policy for approval becomes available only if the policy is in a checked in state.

- "Creating and Checking In Universal Policies" on page 28
- "Editing and Deleting Universal Policies" on page 29
- "Merging Universal Policies" on page 29

Creating and Checking In Universal Policies

When you create a Universal Policy, Universal Policy Administrator automatically links it to the domain or OU in which you are working.

- AD
- Linux
- Cloud
- Mac
- Non Domain Windows

NOTE: The browser-based web console allows you to check out and check in universal policies as there are no external dependencies involved or any limitations on account of untrusted domain scenarios. You can also search for and edit policies simultaneously, saving both time and effort.

NOTE: To create a Universal Policy, you must be an Administrator or have Create UP permission either at global or domain level to which the UP is linked.

To create a Universal Policy from the web console:

1. Log in to the **Web Console** as an Administrator and navigate to the **Universal Policies** tab.
2. Click **+** to open the **New Universal Policy** dialog box.
3. Enter a **Name** for the New Universal Policy.
4. (Optional) Select **Import policies from a GPO in Active Directory** and choose policies to import.
5. Enter a **Domain** name.
6. (Optional) Select a **WMI Filter for Domain OUs** from the drop-down list.
7. Click **Create**.
8. Click **+** to select and add platform specific policies to the created Universal Policy.
9. Click **Add**.

Editing and Deleting Universal Policies

To modify a Universal Policy from the web console:

1. Log in to the **Web Console** as an Administrator and navigate to the **Universal Policies** tab.
2. Select a Universal Policy and click **Checkout** if not already.
3. Click **Edit** to open the **Edit Universal Policy** dialog box.
4. Make necessary changes to the selected policy name, **Description** and **WMI Filter for Domain OUs**.
5. Click **Save**.
6. (Optional) To edit Universal Policy settings only, select a Universal Policy and select associated **Platforms**, **Sections** and **Machine Security Settings** or **Machine Policies**.
7. Make necessary changes and click **Save**. Alternatively click **Undo** changes or **Remove** linked settings or policies.
8. (Optional) To delete a Universal Policy, select a Universal Policy and click **Delete** to open the **Delete Universal Policy** dialog box.
9. Click **Delete**.

Merging Universal Policies

Merge policies to reduce the number of policies, consolidate and remove redundancies to make policy management simpler.

To merge a Universal Policy from the web console:

1. Log in to the **Web Console** as an Administrator and navigate to the **Universal Policies** tab.
2. Select a Universal Policy and click **Merge**.
3. Enter a name for the newly merged Universal Policy.
4. To delete the original Universal Policy and retain only the merged Universal Policy, select the **Delete Originals** check box
5. Select the Universal Policy to merge with and click **Select**.
6. Choose to **Delete Originals** if you must.
7. Select a method from the **Any conflicting settings during merge should** drop down menu to resolve any conflict that might arise during the merging process.
8. Click **Merge**.
9. Select the created policy and click **+** to add additional settings.

Approving Universal Policies

An approver must approve a Universal Policy, before you can use it.

To approve a Universal Policy from the web console:

1. Log in to the **Web Console** as an Administrator or Approver and navigate to the **Universal Policies** tab.
2. Select a new Universal Policy from the Universal Policies tab in the Web Console and click **Submit for Approval**.
3. Enter comments about your changes and click **Submit**.
4. The approver can **Approve** or **Reject** the policy.

   NOTE: The system checks for conflicts before approval.
5. Click **Checkout** to make changes to the policy.
6. Select the created policy and click **+** to add a policy and settings.
7. Click **Checkin** or **Revert** to undo.

NOTE: You need to reexport the Universal Policy to the Active Directory whenever you make changes such as linking, activating, and enforcing the Universal Policies in the Domain OU. For more information, see "Linking and Activating Universal Policies and Including Agents in Cloud or Domain OUs" on page 41.

Managing Universal Policy versions

Universal Policy Administrator allows you to manage different versions of the same policy.

Rolling Back Universal Policies

You can roll back to an earlier version of a Universal Policy.

To roll back to a Universal Policy version from the web console:

1. Log in to the **Web Console** as an Administrator and navigate to the **Universal Policies** tab.
2. Click **Roll back** and select the policy version to roll back to open the **Roll Back Universal Policy** dialog box.
3. Enter **Comments** and click **Roll Back**.
4. Click **Submit for Approval** to open the **Submit Universal Policy for Approval dialog** box.
5. Click **Submit**.
6. The approver can **Approve** or **Reject** the policy.

   NOTE: The system checks for conflicts before approval.

Exporting Universal Policies and Updating OU Links

You must export the Universal Policy to the Active Directory for the approver to review and approve, and use in the system.

To export a Universal Policy from the web console:

1. Log in to the **Web Console** as an Administrator or Exporter and navigate to the **Universal Policies** tab.

   NOTE: The Universal Policy must be in Approved State to export to the Active Directory.

2. Select a Universal Policy for which you want to update the GPO and OU links and click **Export to Active Directory**.
3. Specify when you want to export the Universal Policy. Select **Now** to export the policy immediately. Select **Later** to export the policy at the specified Date and Time.
4. Click **+Include GPO**.
   - Select a GPO from the list. If the GPO that you want to include is not in the list, click New GPO to add the GPO to the list.
   - Enter a name for the GPO and click Add.
   - Click **Include**.
5. Select **Update All Links of This Universal Policy** to update the GPOs and OU links.
6. You can verify the linked OUs in GPMC.

Replicating and Migrating Universal Policies

You can replicate and migrate Universal Policies between two domains managed by Universal Policy Administrator.

To migrate a Universal Policy from one domain to another from the web console:

1. Log in to the **Web Console** as an Administrator and navigate to the **Universal Policies** tab.
2. Select an existing Universal Policy from the Universal Policies tab in the Web Console and click **Replicate**.
3. Enter a **New Policy Name** for the Universal Policy.
4. Select a **Target Domain** from the drop-down list.
5. Click **Next**.
6. Enter a **Target** role to migrate settings.
7. Select the **Target** for the OU to which the Universal Policy is linked and click **Next**. This step is applicable only if the Universal Policy has an OU.
8. Click **Next** and then **Close**.

Managing Non Windows Agent Services with Universal Policies

You can monitor, start, stop, and restart services on Non Windows Agent computers with Universal Policies. You can use an existing or a new policy, but the Universal Policy needs to be linked with the OU that has the agents where you want to perform the action.

NOTE: You can use the command-line interface to refresh policies.

Agents deliver flexible installation and configuration capability to work across enterprise and cloud. Supported Agent Install modes include agent machines joined to:

- On Premises AD
- Cloud AD
- Cloud Non AD

This allows you to monitor files in real-time and for persistence of local Configuration files, outside of the Universal Policy and the Sysvol check cycle.

In addition, the cloud agent helps extend on premises AD management capabilities to cloud-based resources. This permits you to leverage on premises AD authorization and authentication to improve security and reduce the number of unmanaged identities.

To start, stop, or restart a service on am Agent computer:

1. Select a Universal Policy and click **Policies** to open the **Add Policies** dialog box.
2. Expand the **Services** node and enter the service name. This must be the actual service name as opposed to the friendly name of the service.
3. Select the desired option and click **Add**. The available options are:
   - **Start**
   - **Restart**
   - **Stop**

Managing Non Windows Applications with Universal Policies

You can deploy application files on non Windows Agent computers by using Universal Policies to harden, manage, and persist application settings on these computers. With these Universal Policies in place, any attempts to modify an application configuration from the Agent computer will be overwritten by the Universal Policy configuration.

This is done from the Deploy Files node by importing existing application files into one or more Universal Policies and assigning the Universal Policies to the non Windows Agent OU. All changes going to these applications can then be managed from the Universal Policies in Active Directory.

For example, if you have a Web Service in your enterprise environment that manages user access on the Internet or Intranet by restricting communication based on IP addresses, you can modify these settings in the Universal Policy.

Before you can manage a non Windows Agent application by using a Universal Policy, the following prerequisites need to be met:

- Universal Policies must be linked to applicable non Windows agents
- You need to know the relative path for deploying the configuration file on the agent
- You need to know the location of the application file you will use to configure the group policy

To begin managing Non Windows applications using Universal Policies:

1. Select a Universal Policy and click **Policies** to open the **Add Policies** dialog box.
2. Expand the **Linux** folder, and click the **Deploy Files** node.
3. Click the browse button and locate the application file.
4. Enter the relative path on the Linux Agent(s) where you will deploy the GPO configuration file.
5. Click **Add**.
6. Once you have the application file added to the Universal Policy make any required configuration changes from the Web Console and save your changes to apply the policy to the non Windows Agent computers.

NOTE: You can add and deploy more than one application configuration to a Universal Policy.

Executing Commands with Universal Policies

You can create Universal Policies to execute commands or run shell scripts on your local computer, once or every hour.

To execute a command:

1. Click **+** to add policies from the Web Console and expand the **Linux** folder.
2. Click the **Execute Command** node.
3. Add a command and select **Run Once** if you choose to.
4. Add and save your changes.

Managing User Logins with Universal Policies

Using universal policies, you can control which users and groups are allowed or denied to log in on Linux Agent computers in your Active Directory domain. This is accomplished by creating or modifying one or more Universal Policies and setting the login privileges for specified users or groups.

NOTE: For cloud AD logins, users or groups must be part of the MFPolicy-Users group.

To configure and apply Universal Policy login settings on Linux agents:

1. Click **+** to add policies from the Web Console and expand the **Linux** folder.
2. Expand the **Linux** and then the **AD Login** folders.
3. Select the **On-Premise** or **Cloud** folders, then **AD login provider mode**, and then select a mode in the pull-down menu.

   For example, select **Simple allow/deny list**.
4. Click **Add** again, and select the desired rule.

IMPORTANT: When you configure a Universal Policy to prevent users or groups from logging in, this is in effect an exclusionary list for Active Directory objects. However, when you configure to "Allow AD users or groups" those objects will be the only AD users or groups that will be able to login on the Linux agents that have the Universal Policy applied. You cannot have both Allow and Deny logins in the policy at the same time.

5 Click the browse button, and use the **Select Users** dialog box to (a) define if the rule is for users or groups, (b) choose the applicable domain, and (c) locate required users and or groups that are applicable to the policy.

6 Save the changes to apply the policy to applicable Linux agents.

NOTE: For the policy to be applied to Linux Agent computers, the Linux Agent Service must be running on those devices. If the service is not running, use one of the commands below, applicable to the platform, to start the service:

- `systemctl start adb-agent.service`
- `service adb-agent start`

NOTE: For the policy to be applied to Linux Agent computers, the Linux Agent Service must be running on those devices. If the service is not running, use one of the following commands, applicable to the platform, to start the service:

- `systemctl start adb-agent.service`
- `service adb-agent start`

5 Working with Universal Policy Administrator Delegation

The Delegation model in UPA enables you to define who can use Universal Policies, OUs, and GPOs. It allows to define who can view, create, modify, delete domains, export to, or import Universal Policies from the Active Directory. Depending on the permissions defined for a role, the user gets access to and can perform the actions on the defined selected list, such as UPs, OUs, and GPOs.

Understanding Roles, Views, and Assignments

Under the **Administrator** tab there are three sub-nodes, **Roles**, **Views**, and **Assignments**.

You can use these three sub-nodes to:

- Define access roles, using built-in or custom roles
- Create a View and define the scope of permissions (where permissions get applied)
- Select users and assign them to the roles on the View that you have defined

Adding and Editing Roles

Roles define a set of actions that users can perform. You can create roles and assign permissions to them. You can also modify and delete roles.

To add a role and define permissions:

1. Log in to the **Web Console** as an Administrator and navigate to the **Administrator** tab.
2. In the left pane, click **Roles**.
3. Click **New** and specify a name for the Role and click **Create**.
4. In the **Role Details** pane, Select the permissions that you want to assign to the role and click **Save**.
5. (Optional) To edit the role, select the role click **Edit** and specify a name, select or deselect permissions for the user.
6. (Optional) To delete a role, select the role and click **Delete**.

Using Delegation OUs to Grant Access

Delegation OUs are used to grant access to a set of Universal Policies. Create structured OUs to delegate abilities and add these OUs in the **Administration** tab to delegate which Universal Policies, Cloud OUs, and Repository OUs are available to each of the Delegation OUs.

To add a Delegation OU:

1. Log in to the **Web Console** as an Administrator and navigate to the **Organization** tab.
2. In the left pane, click **Delegation**.
3. To create a top-level Delegation OU, do one of the following:
   - In the left pane, click the three dots icon within the **Delegation** tab, and click **New Delegation OU**.
   - In the right pane, click **New Delegation OU.** Specify a name for the Delegation OU and click **Create**.
4. To link Universal Policies, click **Linked Universal Policies.** For more information, see "Linking and Activating Universal Policies and Including Agents in Cloud or Domain OUs" on page 41.
5. To create one or more nested OUs within the top-level Delegation OU, do one of the following:
   - In the left pane, click the three dots icon within the top-level Delegation OU, click **New Delegation OU**.
   - In the right pane, click **New**. Specify a name for the nested Delegation OU and click **Create**.

   NOTE: Create as many nested Delegation OUs as required and link Universal Policies within the Delegation OUs and nested OUs to define the scope of delegation.

Creating and Editing Views

Views define a list of universal policies, OUs, and AD OUs that be managed by users or groups. You can add, modify, and delete views.

To add a View:

1. Log in to the **Web Console** as an Administrator and navigate to the **Administrator** tab.
2. In the left pane, click **Views**.
3. Click **New.** In the **New View** window:
   1. Specify a name for the View. Click the **Universal Policies** tab. Select one or more Universal Policies.
   2. Click the **OUs** tab and select one or more OUs to **Include**.
   3. Click the **AD OUs** tab and select an AD OU. Click **Save**.
4. (Optional) To edit a View, select the View and click **Edit**. Make the required changes and click **Save**.
5. (Optional) To delete a Role, select the role and click **Delete**.

Creating and Editing Assignments

Assignments define who can perform which actions on the objects in a view. You can add, modify, and delete views.

To add an Assignment:

1. Log in to the **Web Console** as an Administrator and navigate to the **Administrator** tab.
2. In the left pane, click **Assignments**.
3. Click **+New**. In the **New Assignment** window:
    1. Specify a name for the Assignment. Click the **Include Role** tab. Select a Role.
    2. Click the **Include Views** tab and select a View to **Include**.
    3. Click the **Include Groups** tab and search for the Group you want to include or select a Group from the list to Include.
    4. Click **Include Users** tab and search for the User you want to include or select a User from the list to Include. Click **Save**.
4. (Optional) Select an Assignment and click **Edit**. Make the required changes and click **Save**.
5. (Optional) To delete an Assignment, select the Assignment and click **Delete**.

Applying Role Notifications

Subscribe to email role notifications to be notified of each of the Actions listed below. Each Role can select a given Action and click **+** to subscribe to associated Role Notifications. The available Actions are:

- Create Repository
- Delete Repository
- Checkout
- Checkin
- Revert
- Create Release

6 Working with Cloud OUs and Domains

Universal Policy Administrator allows you to import domains and associated OUs from Active Directory. You can also add Cloud resources and save them in the familiar OU format.

NOTE: If GPO imports fail for an untrusted domain, you must configure a local group policy to disable mutual authentication for the SYSVOL share of the untrusted domain on the Universal Policy Administrator On Premises Gateway.

For more information, see UNC Path Configuration

Importing Domains and OUs

To import a domain or OU into Universal Policy Administrator from the web console:

1. Log in to the **Web Console** as an Administrator, navigate to the **Organization** tab and click **Import** to open the **Load Active Directory OU into Repository** dialog box.
2. Enter the fully qualified domain name (FQDN) of a **Domain** or **OU**.

   Click to select a schedule. The available options are:

   - **Now**
   - **Later**
3. (Optional) To schedule for later, select an appropriate **Date** and **Time**.

   NOTE: You may schedule time-consuming domain imports to run at night.
4. Click **OK**.

NOTE: **Reimport OU** adds a job to reimport the entire domain.

Accessing Domains and OUs

You can set up Read or Read /Write Access to domains and associated OUs.

To access domains and associated OUs in the web console:

1. Log in to the **Web Console** as an Administrator, navigate to the **Organization** tab, and select an imported domain.
2. Enter the User Principle Name (UPN) and **Password** to set up *Read* or *Read /Write* access to the selected domain.

NOTE: UPN is your unique sign in name in the format username@domain.com.

Creating, Editing and Deleting WMI Filters

Windows Management Instrumentation (WMI) filters let you dynamically detect the scope of Universal Policies, based on the attributes of the targeted computer.

To create a WMI filter:

1. Log in to the **Web Console** as an Administrator, navigate to the **Organization** tab, select a domain and **WMI Filters**.
2. Click **+** to open the **New WMI Filter** dialog box.
3. Enter a Filter name and click **+** to open the **Add WMI Query** dialog box.
4. Enter a Query.
5. Click **Save**.
6. (Optional) To edit an existing WMI filter, click **Edit** to open the **New WMI Filter** dialog box.
7. Make necessary changes and click **Save**.
8. (Optional) To delete an existing WMI filter, click **Delete** to open the **Delete WMI Filter** dialog box.
9. Click **Delete**.

NOTE: If the name entered for a new WMI filter already exists, the existing WMI filter is overridden when you save.

Adding and Removing Cloud OUs

To add a Cloud OU from the web console:

1. Log in to the **Web Console** as an Administrator, navigate to the **Organization** tab, click **Cloud** and then **+** to open the **New Cloud OU** dialog box.
2. Enter a **Cloud OU name** and **Description**.
3. Click **Create**.
4. (Optional) To remove a Cloud OU, select and click **Remove**.
5. Select created Cloud OU and click **Include Universal Policies** to open the **Edit Linked Universal Policies for the OU** dialog box.
6. Select one or more linked Universal Policies and click **Link**. You can also **Unlink**, **Move Up** or **Move Down**, selected Universal Policies.

7 Click **OK**.

8 Select created Cloud OU again and click **Include Agents** to open the **Include Agents** dialog box.

9 Select an Agent and click **Include**.

Linking and Activating Universal Policies and Including Agents in Cloud or Domain OUs

You can link Universal Policies to a Cloud OU and also include Agents in them.

To link Universal Policies to a Cloud OU and also include Agents in then, from the web console:

1 Log in to the **Web Console** as an Administrator, and navigate to the **Organization** tab.

2 Select a Cloud or Domain OU and click **UPs** or **Links** respectively to open the **Edit Linked Universal Policies for the OU** dialog box.

3 Select one or more linked Universal Policies and click **Link**. You can also **Unlink**, **Move Up** or **Move Down**, selected Universal Policies.

4 Click **Save**.

5 For a Domain OU, select the linked Universal Policy on the **Linked Universal Policies** pane. Toggle the associated switch to enabled for **Active** and **Enforce** to activate the policy. This step is optional for the Cloud OUs.

6 Click **Save**.

7 (Optional) To include agents, select a created Cloud OU and click **Include Agents** to open the **Include Agents** dialog box.

8 Select an Agent and click **Include**.

NOTE: Only Universal Policies with release versions > 1 are available to link in the **Edit Linked Universal Policies for the OU** dialog box.

Removing Linked Universal Policies and Agents from Cloud OUs

To remove Universal Policies and Agents from a Cloud OU using the web console:

1 Log in to the **Web Console** as an Administrator, navigate to the **Organization** tab.

2 Select a Cloud OU, click **Linked Universal Policies** and click **Edit** to open the **Edit Linked Universal Policies for the OU** dialog box.

3 Select one or more linked Universal Policies and click **Unlink**.

4 Click **OK**.

5 Select a Cloud OU and **Agents**.

6 (Optional) To remove an agent type from an OU, select an agent and click **Remove Agent Type from OU**.

7 (Optional) To delete an agent from the system, select an agent and click **Delete Agent from System**.

NOTE: You can delete Universal Policies linked to Cloud OUs; ensure you delete only those you must.

7 Reporting on Universal Policies

Universal Policy Administrator offers reporting for Universal Policies in the Universal Policy Repository and in Active Directory, including reports that provide the following information.

Viewing RSoP Analysis Reports

You can view RSoP analysis reports for both Cloud and Domain OUs.

To view RSoP Analysis Reports in the web console:

1. Log in to the **Web Console** as an Administrator, navigate to the **Organization** tab.
2. (Optional) Select a **Cloud** OU with Universal Policies assigned and click **RSoP Report and Planning**.
3. (Optional) Select a **Domain** OU with Universal Policies assigned and click **RSoP Report and Planning**.
4. View the **RSoP Report**.

NOTE: RSoP is supported for Windows Universal Policies only.

Adding and Viewing RSoP Planning Reports

You can add and view RSoP planning reports that allow simulating links for both Cloud and Domain OUs.

To view RSoP Planning Reports in the web console:

1. Log in to the **Web Console** as an Administrator and navigate to the **Organization** tab.
2. Select a cloud OU with Universal Policies assigned and click **RSoP Report and Planning**.
3. To add new simulating link, click **Add Planning Item** and select the following values:
    1. A universal policy to simulate linking to OU.
    2. The target OU for the simulated link.
    3. Clear the **Enforced Settings** check box.
    4. (Optional) Specify a link order for the policy to be included in the link list.

NOTE: You can see both simulated and the linked policies in the **Contributed Policies** section.

Viewing Conflict Analysis Report

You can view conflict analysis reports for Universal Policies. This provides for an easy method for administrators to clean up and consolidate policies across the repository.

To view Conflict Analysis Reports in the web console:

1. Login to the **Web Console** as an Administrator, navigate to the **Universal Policies** tab.
2. Select a **Universal Policy** and click **Conflict Analysis**.
3. View the **Conflict Analysis Report**.

Viewing Comparison and Differential Reports

You can view comparison and differential reports between two versions of the same Universal Policy.

To view Comparison and Differential Reports in the web console:

1. Login to the **Web Console** as an Administrator, navigate to the **Universal Policies** tab.
2. Select a **Universal Policy** and click **Changes**.
3. Click **Compare last two versions**.
4. View the changes.

8 Uninstalling Universal Policy Administrator

Complete the following tasks to uninstall Universal Policy Administrator:

1. Uninstall the Universal Policy Administrator agents from respective devices.
2. Uninstall Universal Policy Administrator On Premises Gateway from the Windows Control Panel on the installed computer.
3. Delete the Universal Policy Administrator Cloud Gateway and Web User Interface container installation instances from the hosted account in Microsoft Azure.

A Automating Universal Policy Administrator Operations with PowerShell Cmdlets

The PowerShell command-line and scripting language can be used to automate many Universal Policy tasks, including configuring registry-based policy settings. To help you perform these tasks, the Universal Policy Administrator snap-in for PowerShell provides the cmdlets covered in the following sections:

Importing The PowerShell Snap-In

You must import the PowerShell snap-in for use with Universal Policy Administrator. To import, execute the cmdlet from a PowerShell prompt as in the following snippet:

```
add-pssnapin HAPI.ProviderPowershellSnapin
```

Listing PowerShell Snap-In Cmdlets

After you load the PowerShell snap-in, to view the list of supported cmdlets you must execute the cmdlet from a PowerShell prompt as in the following snippet:

```
get-command -module HAPI.ProviderPowershellSnapin
```

The outputs provides a complete list of cmdlets that Universal Policy Administrator supports. For more information, see "Supported PowerShell Cmdlets" on page 52

Viewing A Sample Cmdlet Detail

You can view a sample cmdlet detail from a PowerShell prompt as in the following command:

```
get-help Get-UniversalPolicy -detailedNAME
    Get-UniversalPolicy

SYNTAX
    Get-UniversalPolicy [-AllDetails <SwitchParameter>] [-BranchName
<string>] [-Domain <string>] [-LoadGPOId
    <string>] [-PolicyId <string>] [-PreviousVersion <bool>] [-SectionId
<string>] [-SpecificVersion <int>] [-UPId
    <string>] [<CommonParameters>]


DESCRIPTION
    The Get-UniversalPolicy cmdlet gets the properties for a specified
Universal Policy, or all Universal Policies.


PARAMETERS
    -LoadGPOId <string>
       Obsolete. Use New-UniversalPolicy + Import-UniversalPolicy instead.
(optional) Specifies the Guid of a GPO to
        import into a new UP.

    -load <string>
       Obsolete. Use New-UniversalPolicy + Import-UniversalPolicy instead.
(optional) Specifies the Guid of a GPO to
        import into a new UP.

        This is an alias of the LoadGPOId parameter.

    -UPId <string>
        Id of the UP to retrieve. If not specified, all UPs will be
retrieved.

    -PolicyId <string>
        If specified, Policy within the UP to retrieve.

    -SectionId <string>
        If specified, Section within the UP to retrieve.

    -AllDetails <SwitchParameter>
        If this flag is set, the results will include the Policies,
Sections, and Settings within the UP. Otherwise,
        only the UP properties will be returned.

    -PreviousVersion <bool>
        True to retrieve a previous version of the UP.

    -SpecificVersion <int>
        If specified, Version of the UP to retrieve.

    -BranchName <string>
       (Optional) The branch where the Universal Policy is retrieved from.

    -Domain <string>
        (Optional) The name of the domain where the Universal Policy is
```

```
retrieved from.

    <CommonParameters>
        This cmdlet supports the common parameters: Verbose, Debug,
        ErrorAction, ErrorVariable, WarningAction, WarningVariable,
       OutBuffer, PipelineVariable, and OutVariable. For more information,
see
        about_CommonParameters (https:/go.microsoft.com/fwlink/
?LinkID=113216).

    ----------  EXAMPLE 1  ----------

    This example opens a HAPI session, and then retrieves all Universal
Policies from the domain
    'mydomain.com'Get-Credential | Get-HAPIConnection -url "https://
dev.hapidevelopment.com"
```

B Appendix

This appendix provides information about Linux Agent commands, lookups and PowerShell cmdlets that Universal Policy Administrator supports.

Linux Agent Commands and Lookups

The items in this section contain useful Linux commands and lookups pertaining to the Universal Policy Administrator Linux Agent.

Start the Linux Agent Service

If the Linux Agent Service is not running, use one of the following commands, applicable to your platform, to start the service:

- `systemctl start adb-agent.service`
- `service adb-agent start`

Verify the Linux Agent Service is running

If you want to verify that the Linux Agent Service is running, use one of the following commands, applicable to your platform, to check the status:

- `systemctl status adb-agent.service`
- `service adb-agent status`

Check for the Linux Agent version

If you need to know what version of the Linux Agent is installed on a given Linux device, access `/opt/adb-agent` and type a **tail** command for the `version` file to show the agent version.

For example:

1. `cd /opt/adb-agent`
2. `tail version`

View the Universal Policy Update Schedule

Installed Linux Agents are configured by default to run a pull from Active Directory every 60 minutes to check for any changes to Universal Policies. This configuration is set in the `appsettings.json` file at `/opt/adb-agent` on the Linux Agent using the "`PullIntervalInMins`" element.

While this configuration can be changed, modifying this file is not recommended and may involve some risk.

Supported PowerShell Cmdlets

Universal Policy Administrator supports PowerShell cmdlets listed below:

1	Add-ChildToOU	Adds agents or Universal Policies to a Cloud or Repository OU.
2	Add-CloudOU	Adds a new Cloud OU into the Cloud OU tree.
3	Add-GlobalPolicySetting	Adds a policy setting to a Universal Policy.
4	Add-GroupMember	Adds a member to an Active Directory group.
5	Add-HapiGPO	Creates a Group Policy Object in Active Directory.
6	Add-HapiGPOLink	Links a GPO to a Scope.
7	Add-HapiGPOPermission	Grants the specified User/Group Permissions on a GPO.
8	Add-Notification	Enables notifications for the specified operation for members of the specified role.
9	Add-Role	Creates a new delegation Role.
10	Add-ViewScope	Creates a new delegation View.
11	Add-DelegationAssignment	Creates a new delegation Assignment.
12	Approve-UniversalPolicy	Approves or Unapproves a Universal Policy.
13	Assign-UniversalPolicy	Assigns new Universal Policy to an agent or OU.
14	Checkin-UniversalPolicy	Checks in changes to a Universal Policy.
15	Checkout-UniversalPolicy	Checks out a Universal Policy.
16	Clone-UniversalPolicy	Clones a Universal Policy.
17	Deploy-UniversalPolicy	Deploys a Universal Policy.
18	Find-UniversalPolicy	Finds Universal Policies using the given search filters.
19	Find-UniversalPolicySettings	Finds settings in a given Universal Policy.
20	Get-ADComputers	Gets one or more Active Directory computers.
21	Get-ADDomainControllers	Gets the list of Active Directory Domain Controllers for the specified domain.
22	Get-ADDomains	Gets the set of Active Directory domains that can be managed by HAPI.
23	Get-ADGroups	Gets one or more Active Directory groups.
24	Get-AdmFiles	Gets ADMX definitions for policy settings.
25	Get-ADUsers	Gets one or more Active Directory users.
26	Get-AgentPolicy	Gets the policy settings for a specified agent. This cmdlet is for internal use only.
27	Get-AllOUs	Gets Repository and Cloud OUs.

28	Get-AvailablePermissions	Gets the set of permissions that are supported by a HAPI Provider.
29	Get-CloudOU	Gets one or more Cloud OUs.
30	Get-DelegationAssignments	Get one or more delegation Assignments.
31	Get-DiffReport	Generates a report that compares two versions of a Universal Policy.
32	Get-GPSettings	Gets the policy settings for a Universal Policy.
33	Get-HAPIConnection	Logs in the user with the credentials specified.
34	Get-HapiGPO	Gets one or more Group Policy objects from Active Directory.
35	Get-HapiGPOLinks	Gets the Scopes a GPO is linked to, or the GPOs linked to a specified scope.
36	Get-HapiGPOPermissions	Gets the Scopes a GPO is linked to, or the GPOs linked to a specified scope.
37	Get-HapiGPOReport	Gets the Settings report for the specified GPO.
38	Get-HapiGPORSOPReport	Generates an RSOP report for the specified Computer and/or User.
39	Get-HapiGPOSettings	Gets the Policy Settings that are defined in the specified GPO.
40	Get-JobProgress	Retrieves the completion percentage for a given job.
41	Get-LinkSites	Gets the set of objects a Universal Policy can be linked to.
42	Get-LinkSiteType	Gets the types of scopes a specified policy type can be linked to.
43	Get-MaxPermissions	Gets the set of permissions that are supported by a HAPI Provider.
44	Get-MigrationMap	Gets one or more Migration Maps from storage.
45	Get-Notification	Gets the configured notifications that match the specified criteria.
46	Get-NotificationAction	Gets the list of Actions for which Notifications can be configured.
47	Get-OUChild	Gets the child objects in a Cloud or Repository OU.
48	Get-OULinks	Gets the Universal Policies and/or Agents that are linked to a Cloud or Repository OU.
49	Get-PolicyAssignment	Gets the Policy Assignments for a Universal Policy, or Assignee.
50	Get-PolicyLink	Gets the Policy Links for a Universal Policy, or Assignee.
51	Get-PosixUsers	Gets posix attributes for one or more Active Directory users.
52	Get-RepositoryOU	Gets one or more Repository OUs.
53	Get-RepWMIFilter	Retrieves one or more WMI filters from storage.
54	Get-Roles	Gets the list of Roles.

55	Get-RolesForUsers	Get the delegation Roles that the currently logged on user has been granted.
56	Get-RSOPReport	Generates an RSOP report for a Universal Policy.
57	Get-SettingsReport	Generates a Settings report for a Universal Policy.
58	Get-UnassignedGlobalPolicies	Retrieves all unassigned Universal Policies.
59	Get-UniversalPolicy	Gets the properties for a specified Universal Policy, or all Universal Policies.
60	Get-ViewScopes	Get one or more delegation Views.
61	Get-WMIFilter	Gets one or more WMI Filters from Active Directory.
62	Get-WMINamespaces	Gets the set of WMI Namespaces.
63	Import-UniversalPolicy	Imports a Universal Policy.
64	Link-UniversalPolicy	Updates all the AD OU Links that the given Universal Policy is linked to.
65	Load-ADRepository	The name of the domain to load into the Repository.
66	Lock-Policy	The Lock-Policy cmdlet helps insure that the settings in a GPO match the settings in the associated Universal Policy.
67	Merge-UniversalPolicies	Merges two Universal Policies into a new Universal Policy.
68	New-AgentComputer	The name of the agent computer to add.
69	New-GPONameFilter	Creates a filter that allows you to search for a Group Policy object by name.
70	New-Group	Creates a new Active Directory group.
71	New-LdapFilter	Creates a filter that allows you to search for a User, Group, or Computer based on its properties.
72	New-LdapPropertyValue	Creates an LdapPropertyValue object.
73	New-PolicyLink	Links a Universal Policy to a Scope.
74	New-UniversalPolicy	Creates a new Universal Policy in the repository.
75	New-User	Creates a new Active Directory user.
76	New-WMIFilter	Creates a new WMI Filter in Active Directory.
77	Remove-AgentComputer	Removes an agent.
78	Remove-DelegationAssignment	Deletes a delegation Assignment.
79	Remove-Group	Deletes a group from Active Directory.
80	Remove-GroupMember	Removes a member from a group in Active Directory.
81	Remove-HapiGPO	Removes a GPO from Active Directory.
82	Remove-HapiGPOLink	Removes a GPO Link from Active Directory.

83	Remove-HapiGPOPermission	Removes the specified permission entry from a GPO's permissions.
84	Remove-MigrationMap	Removes one or more Migration Maps from storage.
85	Remove-OU	Removes a Cloud or Repository OU.
86	Remove-OUChild	Removes one or more children from a Cloud or Repository OU.
87	Remove-PolicyAssignment	Removes one or more children from a Cloud or Repository OU.
88	Remove-RepWMIFilter	Removes a WMI Filter from the Repository.
89	Remove-Role	Deletes a delegation Role.
90	Remove-UniversalPolicy	Removes a Universal Policy.
91	Remove-User	Deletes a user from Active Directory.
92	Remove-ViewScope	Deletes a delegation View.
93	Remove-WMIFilter	Removes a WMI Filter from Active Directory.
94	Rename-OU	Renames a Cloud or Delegation OU.
95	Revert-PolicyCheckout	Reverts the Checkout of a Universal Policy.
96	Rollback-UniversalPolicy	Rolls back a Universal Policy to a previous version
97	Set-DomainCredential	Specifies credentials to manage a domain.
98	Set-Group	Updates an Active Directory group.
99	Set-HapiGPOProperties	Sets the properties of a GPO in Active Directory.
100	Set-HapiGPOSettings	Updates the Policy Settings defined in the specified GPO.
101	Set-MigrationMap	Creates or updates a Migration Map in storage.
102	Set-PolicyActivation	Activates or Deactivates a Policy Assignment.
103	Set-RepWMIFilter	Creates or Updates a WMI Filter in the Repository.
104	Set-User	Updates an Active Directory user.
105	Set-WMIFilter	Updates a WMI Filter in Active Directory.
106	Stop-LoadRepositoryJob	Stops a job that is loading AD OUs and GPOs into the repository.
107	Submit-UniversalPolicy	Checks out a Universal Policy.
108	Test-WMIFilter	Runs a WMI Filter to determine whether the filter is valid.
109	Unlink-PolicyFromScope	Unlinks a Policy from a Scope.
110	Update-DelegationAssignment	Updates an existing delegation Assignment.
111	Update-HapiGPOLink	Updates the settings of a GPO Link.
112	Update-HapiGPOPermissions	Updates the Permissions for the specified GPO.
113	Update-Role	Updates an existing delegation Role.

114	Update-OULinkOrder	Updates the link order for a child Universal Policy to a Cloud or Repository OU.
115	Update-UniversalPolicy	Updates the properties of a Universal Policy.
116	Update-UPPolicy	Updates a Policy within a Universal Policy.
117	Update-UPSection	Updates a Policy Section within a Universal Policy.
118	Update-ViewScope	Updates an existing delegation View.