NetBrain® Integrated Edition 10.1

System Setup Guide

All-in-One Deployment

Version 10.1 | Last Updated 2023-02-09

Contents

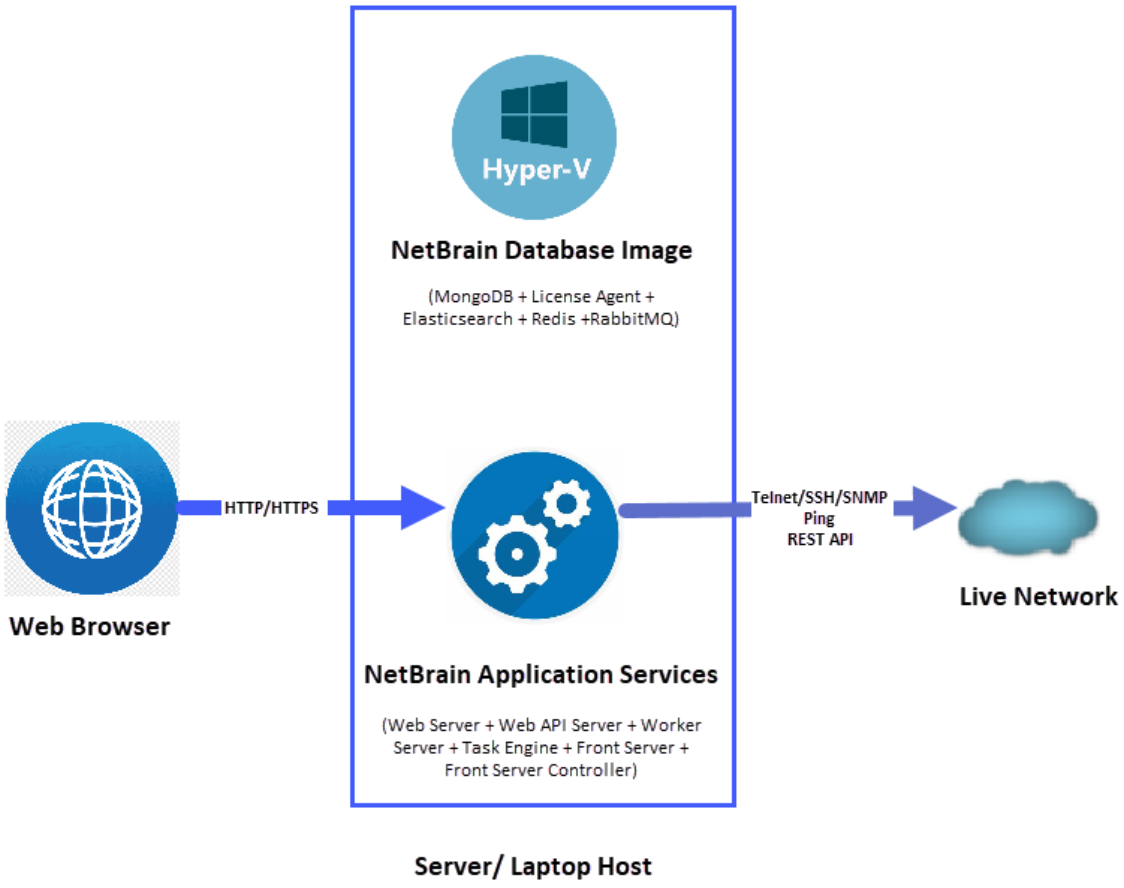
1. System Overview

NetBrain Integrated Edition is an adaptive automation platform, where you can integrate with your existing Network Management System (NMS) tools and IT workflows to automate documentation, troubleshooting, network change, and defense. It serves as an operating system of your whole network to relieve network professionals from manual CLI-digging and also empowers team collaboration to elevate productivity.

The browser-based interface of NetBrain Integrated Edition is backed by a full-stack architecture, adopting advanced distributed technologies to support large-scale networks with more expansion possibilities.

All-in-One is the simplified deployment for NetBrain Integrated Edition.

The system architecture is as follows:



The system components include:

Component	Description
Browser-based Thin Client	provides a user interface for end users to access the system.
MongoDB	The database that stores user data (e.g., Map, site definition) and network data.
License Agent	provides services that validate and activate licenses.
Elasticsearch	serves as a full-text search and analytics engine in a distributed multi-user environment.
Redis	provides memory cache for the system.
RabbitMQ	translates messages from a component to another component.
Web Server	serves static content such as HTML, JavaScript, and CSS resources, which serves as the user interface of the Thin Client.
Web API Server	serves RESTful API calls from browsers and third-party applications for integration.
Worker Server	serves parallel computing tasks on multiple servers. It relies on both Redis and RabbitMQ.
Task Engine	coordinates computing tasks.
Front Server Controller	serves to coordinate and communicate with Front Servers and other components.
Front Server	serves as a polling server to collect and parse live network data. It is the only component required to access the live network.
Service Monitor Agent	monitors the health of your NetBrain Servers with operations management of related services.
Ansible Agent (add-on)	integrates with Ansible to define, execute playbooks and visualize results in Change Management Runbooks. See Ansible Integration for more details.
Smart CLI (add-on)	provides a Telnet/SSH client to connect to devices from Windows and can be integrated with NetBrain workflows. See Smart CLI for more details.

2. System Requirement

This section introduces the hardware requirements, network connectivity requirements, and more prerequisites for deploying NetBrain system by using the All-in-One solution, which will be installed on Windows and the Linux components will be installed using a tailored Hyper-V appliance.

Reference Specification

> **Note:** The following specifications only apply to traditional network. Refer to Public Cloud System Specification if you have activated the public cloud (AWS/Azure) license.

The All-in-One deployment requires one Windows server.

Environment	Machine Count	CPU[3)]	Memory	Hard Disk[2)]	Operating System
≤500 nodes ≤ 2 users	1	4 Physical Cores [1)]	16GB	125GB ▪ SSD	▪ Windows Server 2016/2019/2022 (Standard/Datacenter Edition), 64-bit[4)] ▪ Windows 10 (Pro/Pro N/Pro for Workstations Edition), 64-bit[4)]

> **Notes:**
>
> [1)] If hyper-threading is enabled, one physical core equals to two logical processors; in a virtual environment, the number of vCPUs required is twice the number of physical cores (as listed in the table).
>
> [2)] The required hard disk space must be exclusively reserved for NetBrain. For better performance, it is required to install the NetBrain on a machine equipped with Solid State Drive (SSD).

[3] CPU support for VM Monitor Mode Extension (VT-c on Intel CPU's).

[4] 64-bit Processor with Second Level Address Translation (SLAT).

Network Connectivity Requirements

Source	Destination	Protocol *) and Port Number **)
Thin Client Service Monitor Agent	Web/Web API Services	HTTP/HTTPS (80/443)
Front Server	Live Network	ICMP/SNMP/Telnet/SSH/REST API

Note: **). The default port numbers are used for installation and no customization is needed.

Deployment Prerequisites

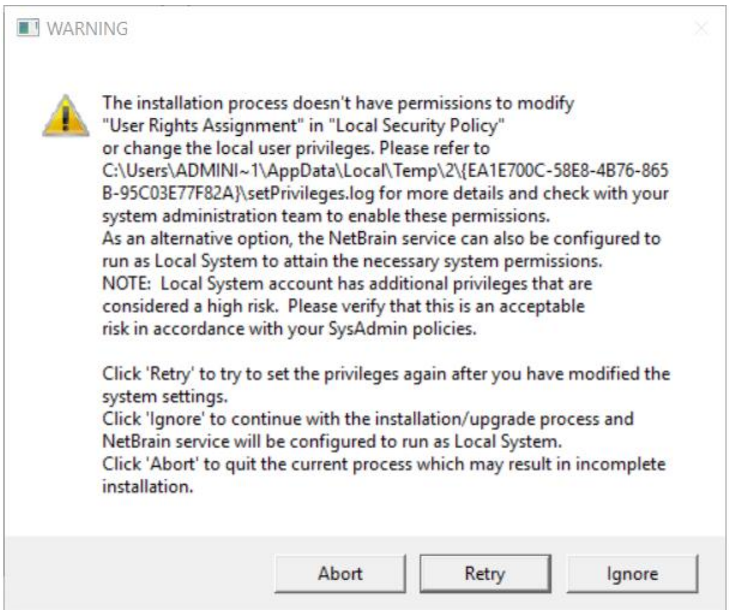
The following requirements must be satisfied before setting up your NetBrain system:

- The operating system must be installed with an English-language version (not language packs).
- When installing NetBrain servers, comply with your company security policy to set the passwords and archive them for further reference.
- NetBrain servers use hostnames to identify and communicate with each other. Make sure each server has a unique hostname.
- Add all the NetBrain installation folders and files (on both Windows and Linux) to the allow list of antivirus software for routine scans and keep the TCP connections unblocked between NetBrain components.
- If the machine's firewall is turned on, make sure the firewall rules allow traffics to all the ports and protocols that will be used by the NetBrain system.
- The Service Monitor Agent running on the Linux server(s) uses "netbrainadmin" user, and this user needs sudoers privilege to monitor other NetBrain components as well as to execute the system update tasks.

- **Special Requirements for Client Machine**

- It is recommended to deploy the NetBrain Smart CLI on the same machine where the browser-based thin client is used, and the machine needs to meet the following minimum system specifications:
  - 4 Physical CPU Cores (If hyper-threading is enabled, one physical core equals to two logical processors; in a virtual environment, the number of vCPUs required is twice the number of physical cores)
  - 8GB RAM
- Ensure to reserve at least 50% system capacity for the satisfactory performance of NetBrain Browser-based Thin Client and Smart CLI Application.

- **Special Requirements for Windows Server**
  - Users with administrative privileges of the machine are required to implement the installation.
  - NetBrain Integrated Edition should not be installed on the same server as an existing NetBrain Enterprise Edition (6.2 or earlier version), except that Front Server and Network Server (EEv6.2) can be installed on the same machine.
  - There must be more than **5GB** free space in the system drive (for example, C drive) to complete the installation no matter which drives the NetBrain system will be installed on.
  - There must be more than **180GB** free space for the Front Server PostgreSQL data path.
  - Temporarily disable antivirus software during the installation process.
  - Ensure the NetBrain installation process using administrator account has the necessary permissions to modify “User Rights Assignment” in “Local Security Policy” or change the local user privileges. Otherwise, the following error message will prompt when installing each Windows component.



- Click **Ignore** to continue with installation/upgrade process and NetBrain service will be configured to run as Local System.
- If you have security concerns, click **Abort** to quit the installation/upgrade process.
- Click **Retry** after you have modified the system settings.

> **Note**: Local System accounts have additional privileges that are considered a high risk. Please verify that this is an acceptable risk in accordance with your SysAdmin policies.
>
> **Note**: After clicking **Abort**, please check with your system administration team to enable the relevant permissions, uninstall the affected component(s) and reinstall. Contact NetBrain support team if you need any assistance during the process.

3. Installing System

The All-in-One deployment requires one Windows server for application services and one virtual machine for the database. When the package is installed, the Linux virtual machine will be created and configured. Follow the steps to enable Hyper-V and Install the system components:

1. Enable Hyper-V
2. Install NetBrain Application Services and Database

> **Note:** Before the installation, run the `Set-ExecutionPolicy -ExecutionPolicy Unrestricted` Powershell command as administrator to permit all Powershell scripts to be run on the device.

3.1. Enabling Hyper-V

To enable Hyper-V on a physical machine:

- How to enable Hyper-V on Windows

Or to enable Hyper-V on a virtual machine:

- How to enable nested Hyper-V on vSphere Client (Windows)
- How to enable nested Hyper-V on Hyper-V

Enable Hyper-V on Windows

- Enable Hyper-V on Windows 10

  > **Note**: Only Windows 10 Enterprise and Windows 10 Pro are supported.

- Enable Hyper-V on Windows 2016/2019/2022

Enable Hyper-V on Windows 10 Enterprise/ Windows 10 Pro

You can select one of the following ways to enable Hyper-V.

- Enable Hyper-V using PowerShell:
    1. Press Windows logo +**X** and select **Windows PowerShell (Admin)**.
    2. Run the command: `Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All`
- Enable Hyper-V role through Control Panel:
    1. Open the control panel: press Windows logo +**R** to open a Run dialog, type **control panel** and press **Enter**.
    2. Select **Program** then select **Programs and Features**>**Turn Windows features on or off**
    3. On the **Windows Features** window, select **Hyper-V** and click **OK**.

Enable Hyper-V on Windows 2016/2019/2022

You can select one of the following ways to enable Hyper-V.

- Enable Hyper-V using PowerShell:
    1. Press Windows logo +**X** and select **Windows PowerShell (Admin)**.
    2. Run the command: `Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All`
- Enable Hyper-V role through Server Manager:
    1. Start up the virtual machine and login to it with an administrator account
    2. Open Server Manager, select **task**.
    3. Select **Add Roles and Features**.
    4. Add the role of **Hyper-V**.

> **Note**: The **Ethernet0** checkbox needs to be enabled on the **Create Virtual Switches** page.
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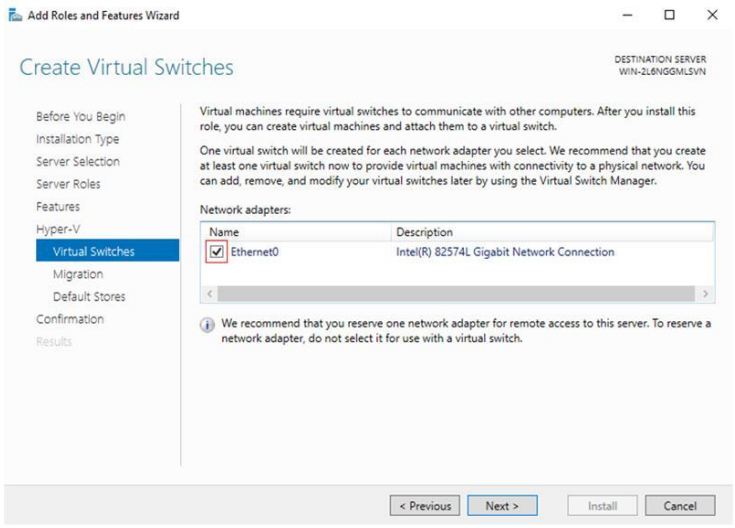
> 
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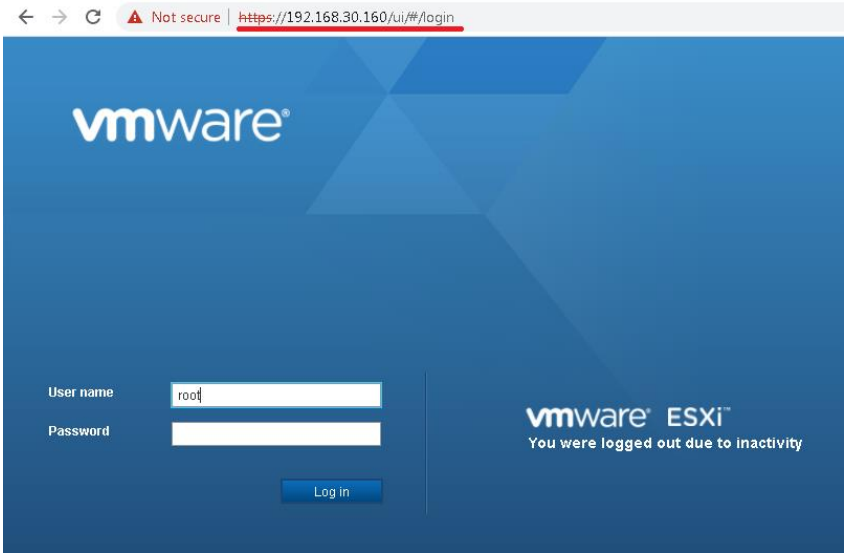
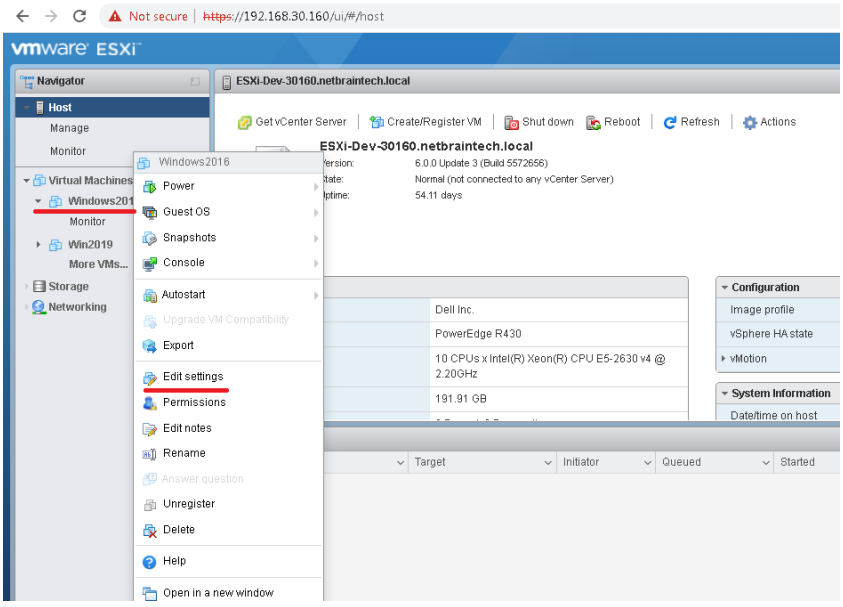
Enable Nested Hyper-V on vSphere Client (Windows)

To enable Hyper-V on Windows that is in a VMware environment, follow the steps:

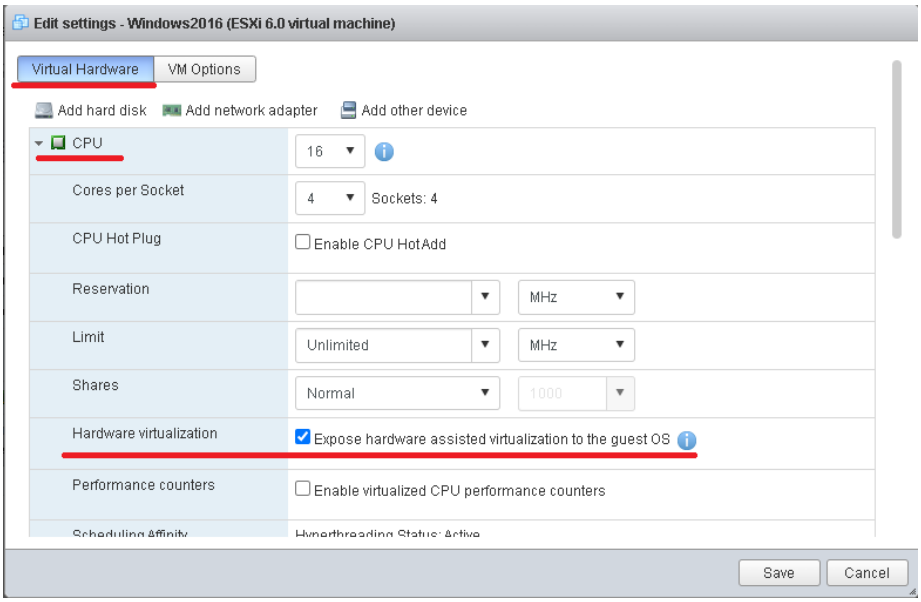
1. Stop the virtual machine.
2. Go to the vSphere Web Client and login.



3. Select the virtual machine and click **Edit Settings**.



4. Go to **Virtual Hardware** > **CPU** > **Hardware Virtualization** and check **Expose hardware assisted virtualization to the guest OS**.



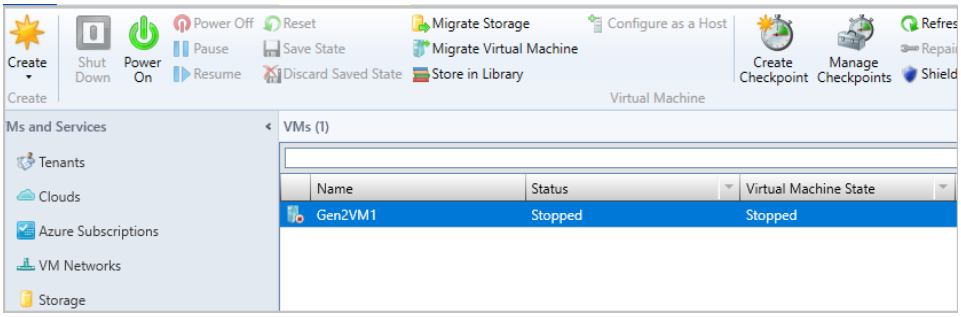
5. Go to **Virtual Hardware** > **CPU**> **CPU/MMU Virtualization**, select **Hardware CPU and MMU** and click **Save**.
6. Start up the virtual machine and login to it with an administrator account.
7. Based on the Windows version in the VMware environment, select one of the followings to enable Hyper-V:
   - Windows 10 Enterprise/ Windows 10 Pro
   - Windows 2016/2019/2022

Enable nested Hyper-V on Hyper-V

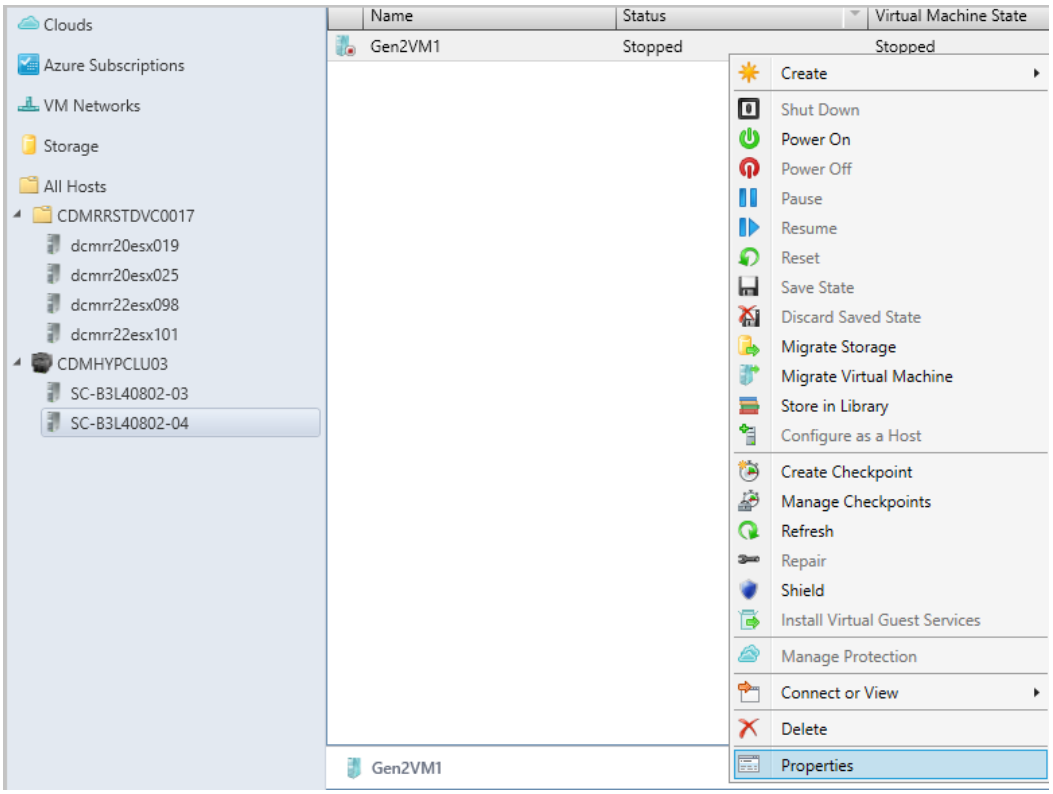
To enable Hyper-V inside a Hyper-V virtual machine, follow the steps:

> **Note:** The Intel processor on the physical machine should be with VT-x and EPT technology.

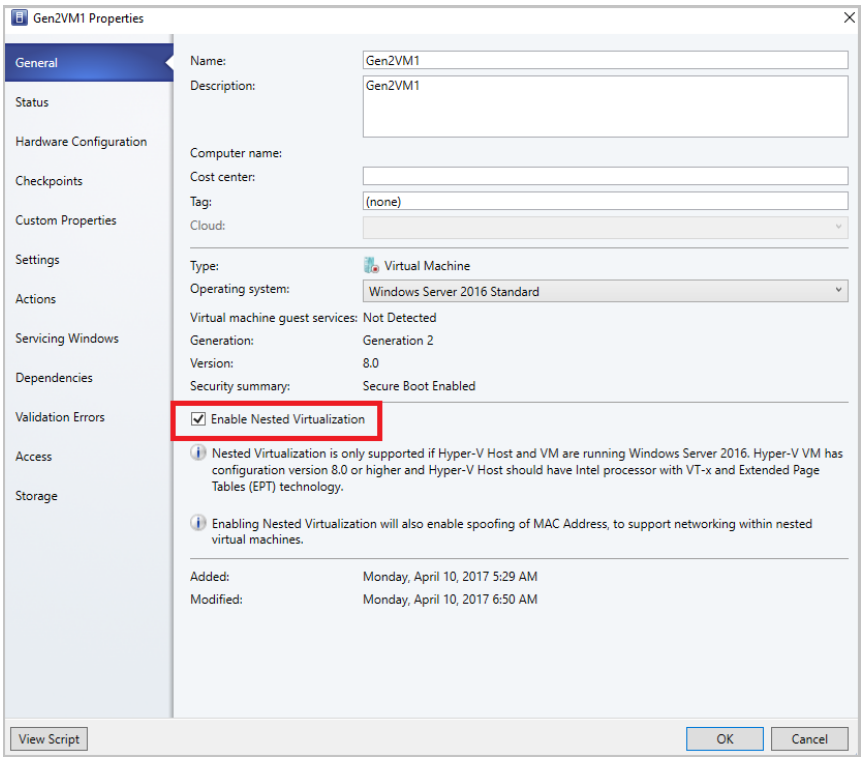
1. Stop the virtual machine.



2. Navigate to its properties.



3. Go to **General**, check **Enable Nested Virtualization**.



4. Start up the virtual machine and login to it with an administrator account.

5. Based on the Windows version, follow the steps to enable Hyper-V:
    - Windows 10 Enterprise/ Windows 10 Pro
    - Windows 2016/2019/2022

3.2. Installing NetBrain Application Services and Database

Example: Install on Windows Server 10 Pro.

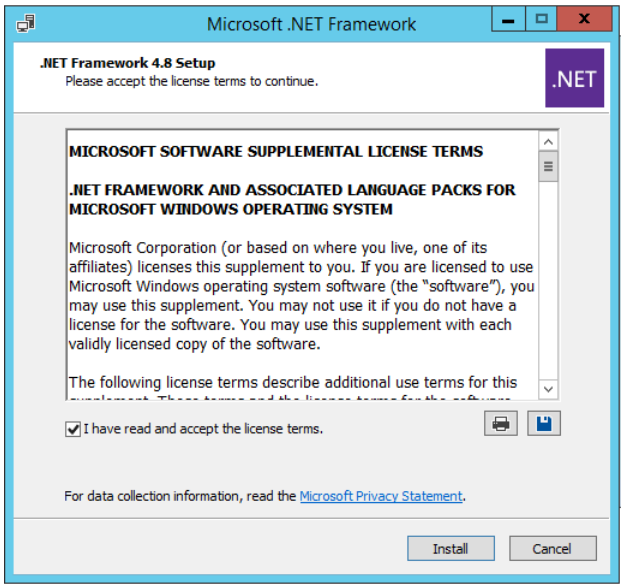
1. Download the **netbrain-all-in-one-windows-x86_64-10.1 zip** file and save it in your local folder.

    > **Tip:** Contact NetBrain Support Team to get the download link.

2. Extract the **netbrain-all-in-one-windows-x86_64-10.1 zip** file to your local disk.
3. Right-click the **netbrain-application-10.1.exe** file, and then select **Run as administrator** to start the Installation Wizard.
4. Follow the Installation Wizard to complete the installation step by step:

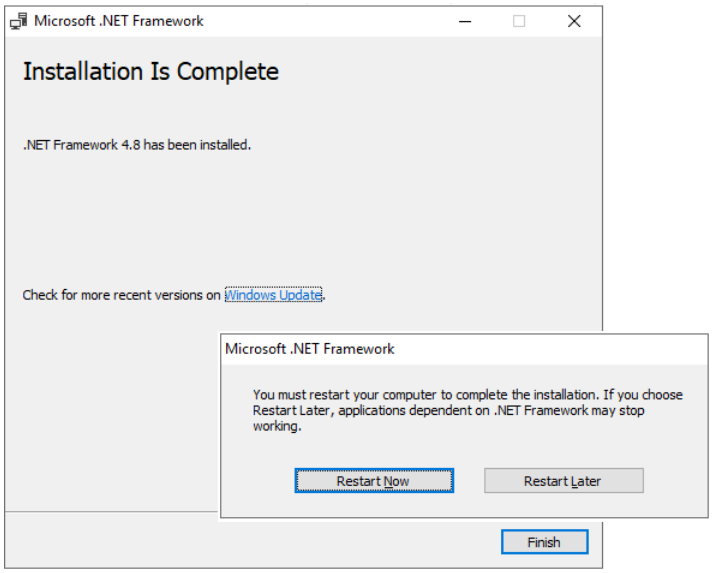
    1) .NET Framework 4.8 must be pre-installed on this machine before you install the NetBrain Server. The Installation Wizard will automatically check this dependency. If it has not been installed, the wizard will guide you through the installation as follows; If it has been installed, the wizard will directly go to step 2).
        a) Click **Install**.
        b) Read the license agreement of Microsoft .NET Framework 4.8, select the **I agree to the license terms and conditions** check box and click **Install**. It might take a few minutes for the installation to be

completed.



> **Note:** Some running applications must be closed during the installation of .NET Framework 4.8, such as Server Manager.

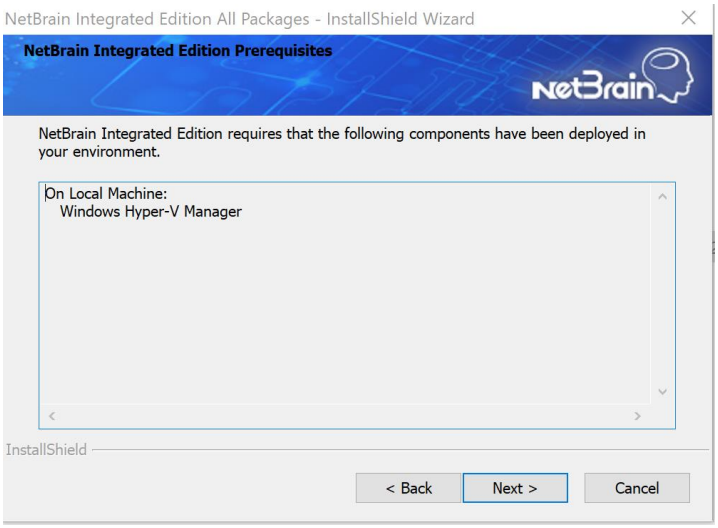
c) You must click **Restart Now** to restart the machine immediately. Otherwise, the upgrade will fail due to the failure of upgrading the new .Net Framework. After the machine reboots, continue with step 2).



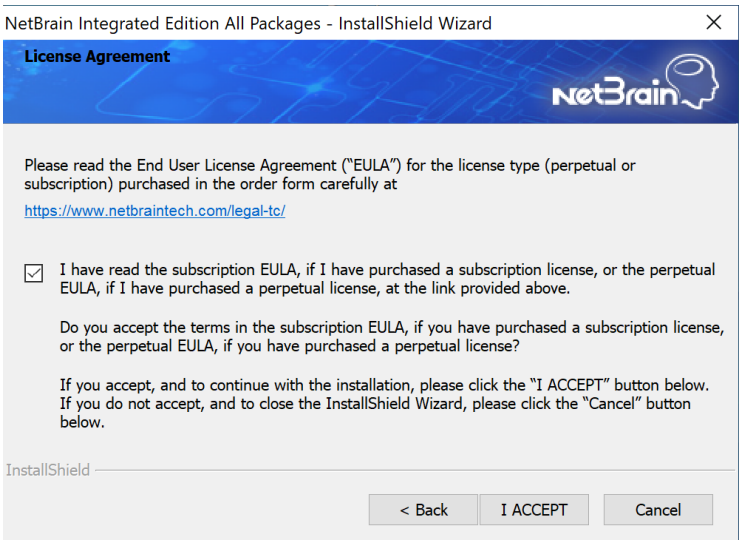
> **Note:** The interface above may not appear if the .NET Framework has never been installed on the server. In such case, it is still highly recommended to reboot the server after the installation of the .NET Framework completes.

> **Note:** Ensure the FIPS is disabled after restarting the machine. To disable the FIPS setting, modify the **Enabled** value to **0** under the **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Lsa\FipsAlgorithmPolicy** directory of Windows registry

2) On the Welcome page, click **Next**.
3) On the NetBrain Integrated Edition Prerequisites page, read the components that must be set up in your environment beforehand and click **Next**.

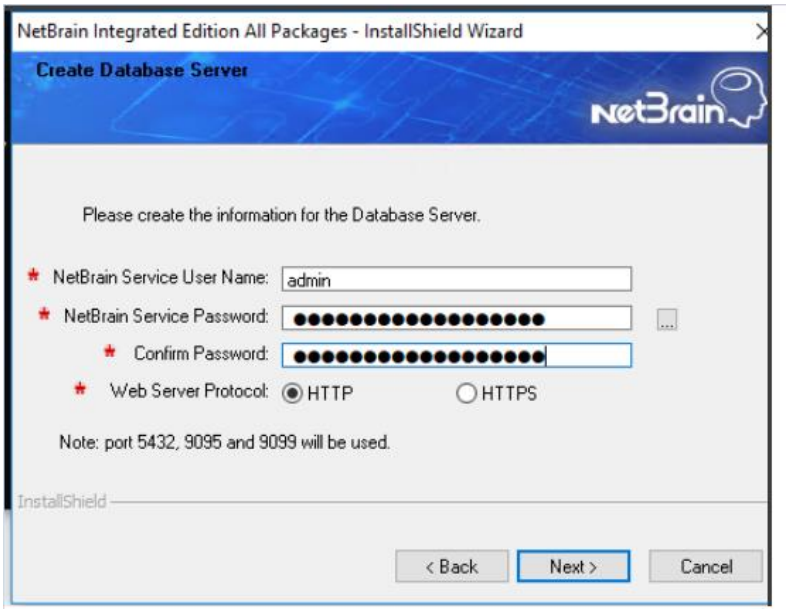


4) On the System Configuration page, review the system configuration summary and click **Next**.
5) On the License Agreement page, read the license agreements, select the **I have read the subscription EULA...** check box and then click **I ACCEPT**.



6) On the Customer Information page, create your user name and company name, and then click **Next**.
7) On the Create Database Server page, create the NetBrain Service user name and password, then re-enter the password. And select a Web Server protocol. Click **Next**.

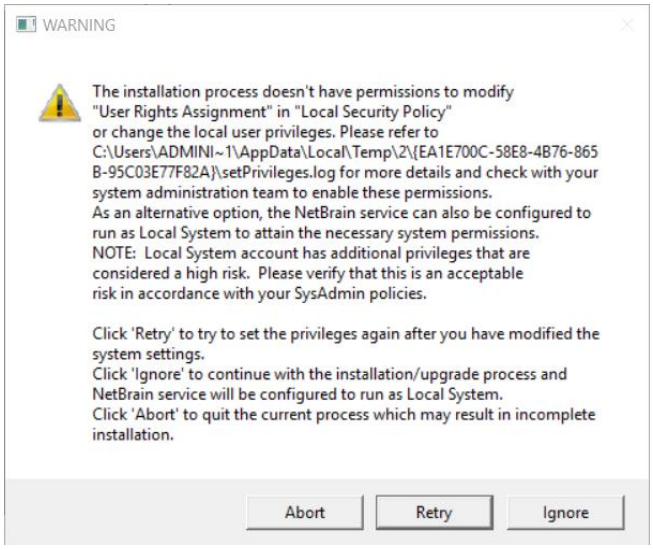
> **Note**: If HTTPS protocol is selected, you need to configure IIS in IIS Manager.



8) On the Destination Location page, click **Next** to install the NetBrain Server under the default directory **C:\Program Files\NetBrain**. If you want to install them under another location, click **Change**.

9) Review the summary of the current installation settings and click **Install**.

10) (Optional) Ensure the NetBrain installation process using administrator account has the necessary permissions to modify "User Rights Assignment" in "Local Security Policy" or change the local user privileges. Otherwise, the following error message will prompt when installing each Windows component.

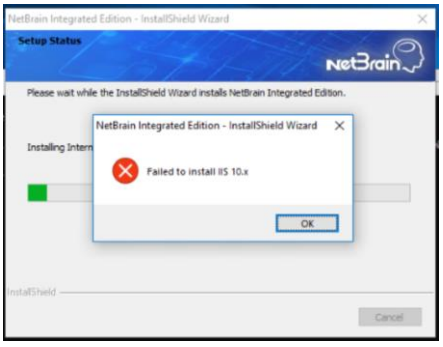


- Click **Ignore** to continue with installation/upgrade process and NetBrain service will be configured to run as Local System.
- If you have security concerns, click **Abort** to quit the installation/upgrade process.

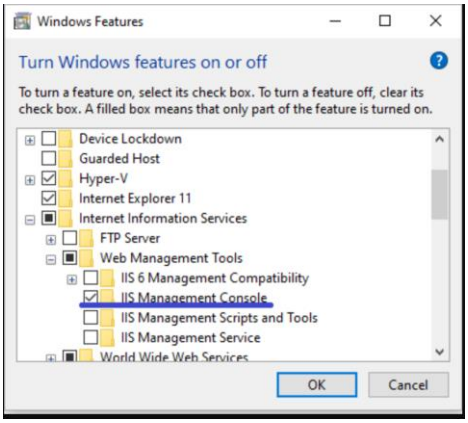
- Click **Retry** after you have modified the system settings.

> **Note**: Local System accounts have additional privileges that are considered a high risk. Please verify that this is an acceptable risk in accordance with your SysAdmin policies.
>
> **Note**: After clicking **Abort**, please check with your system administration team to enable the relevant permissions, uninstall the affected component(s) and reinstall. Contact NetBrain support team if you need any assistance during the process.

11) (For Windows 10 Pro) When the **Failed to install IIS 10.x** error pops up during installation like below, click **OK** button to exit the installation. Follow the steps below to resolve the issue.



a) For Windows 10 Pro, navigate to **Control Panel** > **Programs** > **Program and Features** > **Turn Windows features on or off**, select **Internet Information Services**, and check **IIS Management Console**.



b) Stop and delete the Linux Virtual Machine **netbrain-database-appliance**.

c) Remove the OVA folder. If the installation path is **C:\Program Files\NetBrain**, the path of the folder would be **C:\Program Files\NetBrain\OVA**.

d) Re-extract the **netbrain-all-in-one-windows-x86_64-10.1** zip file to your local disk, right-click the **netbrain-application-10.1.exe** file, and select **Run as administrator** to start the Installation Wizard.

12) After all the components are successfully installed, click **Finish** to complete the installation process and exit the Installation Wizard.

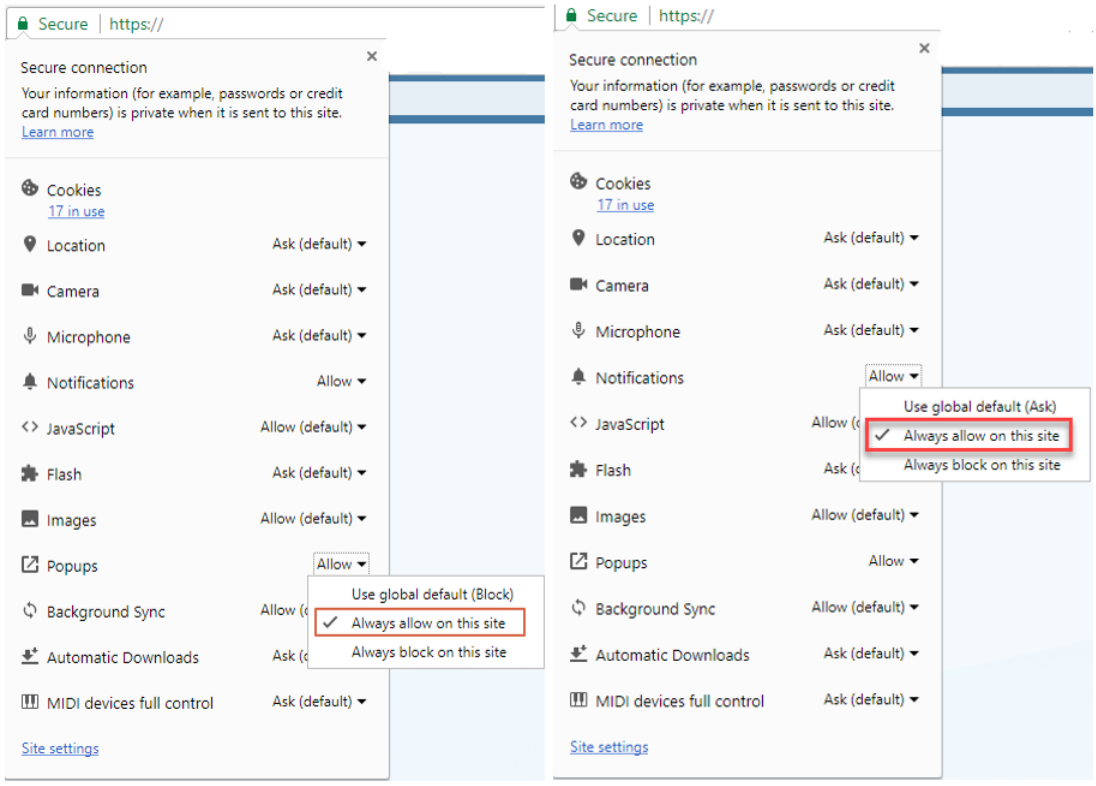
> **Note**: To enable HTTPS for the NetBrain End User Interface after installation, refer to Enable HTTPS for NetBrain Web Server.

4. Setting Up Your System

Complete the following steps to set up your system:

1. Log in to System Management Page.
2. Activate Your License.
3. Create System Users Accounts.
4. Allocate the Tenant to a Front Server Controller.
5. Add a Front Server to the Tenant.
6. Register the Front Server.
7. Configuring Auto Upgrade Settings.
8. Monitor Server and Service Metrics.

> **Note:** The system is designed to work with a minimum screen resolution of 1440x900 pixels. Make sure the Notifications and Popups are allowed for the Web Server URL in your web browser and zoom it at 100% to get the best view.



4.1. Logging in to System Management Page

1. In your web browser, navigate to **http(s)://<Hostname or IP address of NetBrain Application Server>/admin.html** or example, `https://10.10.3.141/admin.html` or `http://10.10.3.141/admin.html`.
2. In the login page, enter your username or email address, and password. The initial username/password is **admin/admin**.
3. Click **Log In**.
4. Modify your password first and then complete your user profile in the pop-up dialog, by entering the email address, first name, and last name, and then click **Save**.

4.2. Activating a Subscription License

1. In the System Management page, click **Activate** under the **License** tab. The activation wizard prompts.
2. Activate your subscription license:
   1) Select **Activate Subscription License** and click **Next**.
   2) Enter the license ID and activation key that you received from NetBrain, with your first name, last name, and email address.
   3) Select the activation method based on your situation.
      - **Online** (recommended) — click **Activate** to connect to NetBrain License Server and validate your license information immediately.

        > **Note:** If your NetBrain Web/Web API Server is not allowed to access the Internet, you can configure a proxy server. Click the  icon at the upper-right corner, select the **Use a proxy server to access the internet** check box and enter the required information.

      - **Via Email** — validate your license information by sending an email to NetBrain.

        > **Note:** Only use this activation method when your NetBrain Web/Web API Server is not allowed to access the Internet.

a) Follow the instructions to generate your license file. Attach the file to your email and send it to NetBrain Support Team. After receiving your email, the NetBrain team will fill in the license information on NetBrain License Server and generate the corresponding activation file, and then send it back to you.

b) Click **Browse** to select the activation file that you received from the NetBrain team, and then click **Activate**.

4) A message box will prompt you the subscription license has been activated successfully. Click **OK**.

3. A confirmation dialog box prompts to ask you whether to generate an initial tenant. Click **Yes** and the initial tenant will be created automatically with all purchased nodes assigned.

4. Check the tenant and domain nodes. If there is more than one domain, you need to allocate the domain.

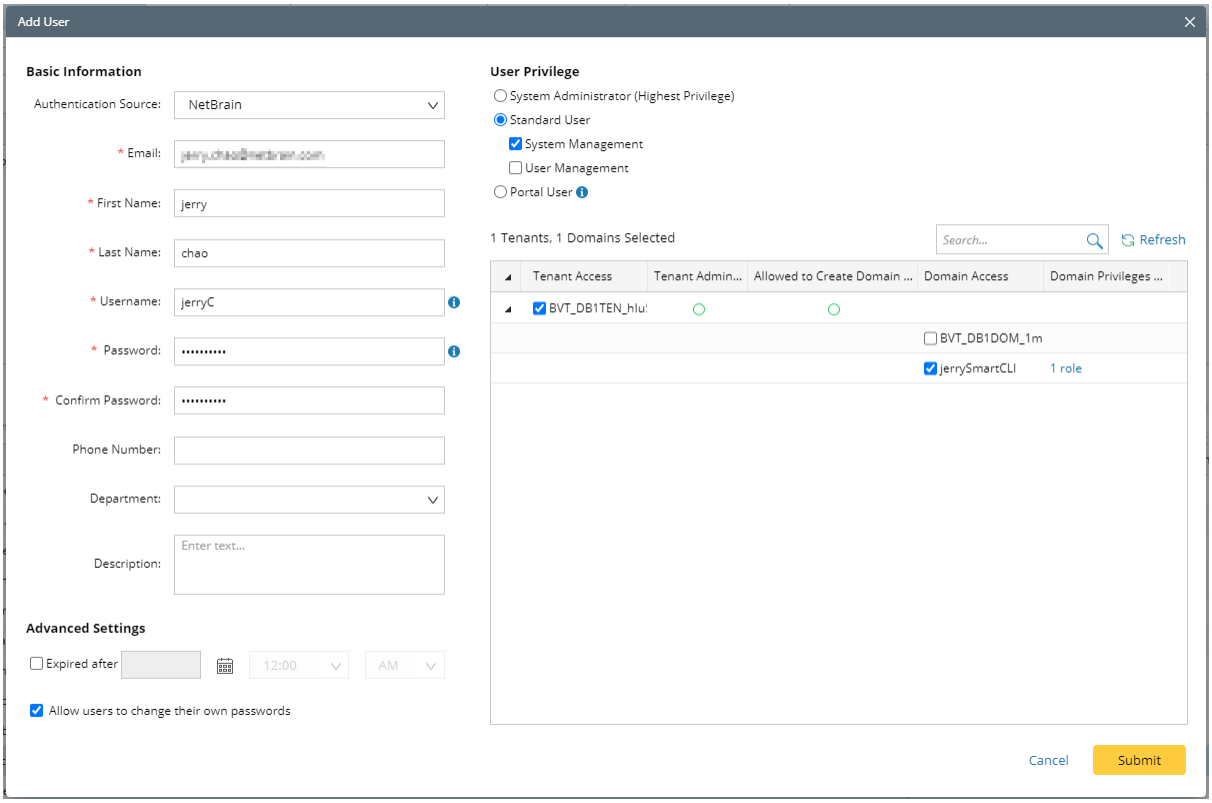
4.3. Creating User Accounts

> **Tip:** To synchronize authenticated user accounts that are managed in third-party user management servers, refer to Third-Party User Authentication.

To manually create a user account, do the following:

1. In the System Management page, select the **User Accounts** tab.

2. Click **Add** at the upper-left corner, and complete the settings. This is an example:



1) Enter basic information. The fields marked with asterisks are mandatory.
2) Assign user rights, including access permissions and user roles. See online help for more details.

> **Note:** For authenticated users account from external servers (LDAP/AD/TACACS+), their roles and privileges can be locked as follows. After being locked, the roles and privileges will not be synced with any changed settings of external authentication.
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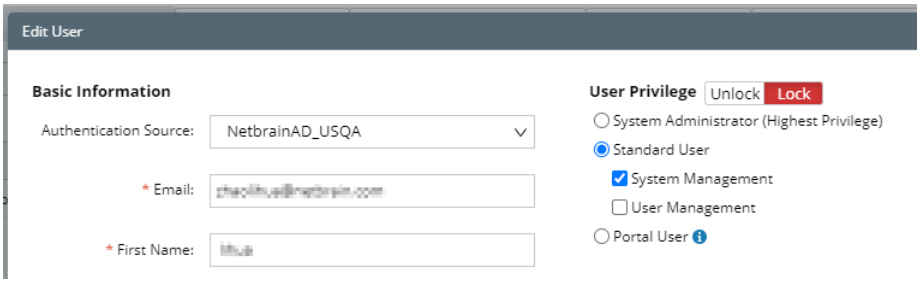
> 
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3) Configure the advanced settings if required, including account expiration and privilege to modify/reset password.

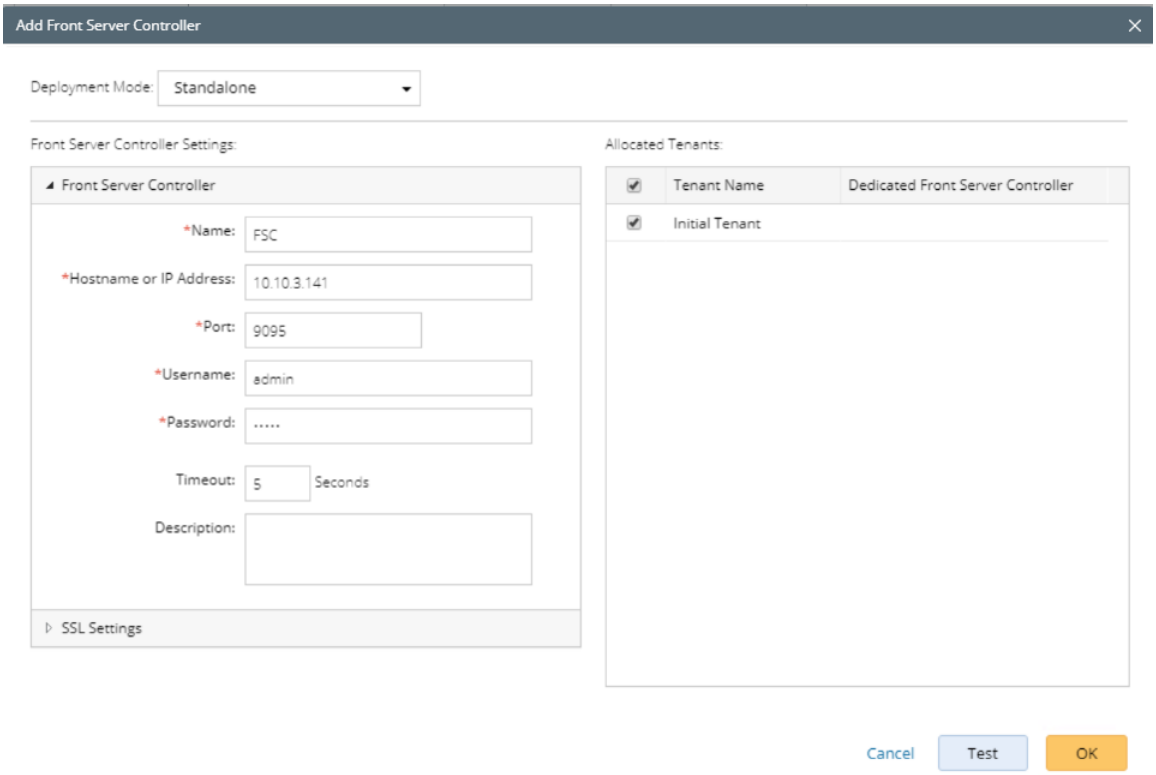
3. Click **Submit**. The user account will be added to the Existing User List.

4.4. Allocating Tenants to Front Server Controller

1. In the System Management page, select the **Front Server Controllers** tab, and then click **Add Front Server Controller**.

2. In the **Add Front Server Controller** dialog, configure the settings for the Front Server Controller, and then allocate tenants to it.

   1) Select the deployment mode, and then specify the basic information about the Front Server Controller. See FSC Settings for more details.



   - **Standalone** — applicable to a single Front Server Controller deployment.
   - **Group** — applicable to a failover deployment of Front Server Controller.

   2) (Optional) Configure the SSL settings.

      a) If SSL is enabled on Front Server Controller, select the **Use SSL** check box to encrypt the connections established from the Worker Server and Front Server with SSL. Otherwise, leave it unchecked.

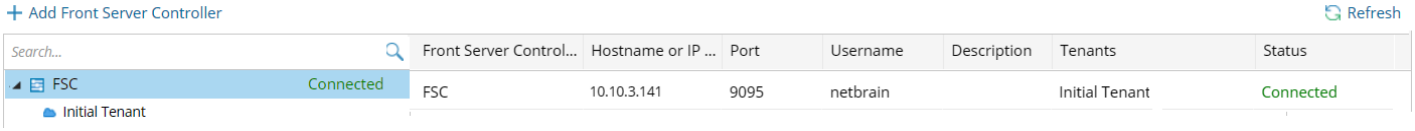
      b) To authenticate the Certificate Authority (CA) certificate on the Front Server Controller, select the **Conduct Certificate Authority verification** check box.

      c) If CA has not been installed on the Worker Server and Task Engine, click **Browse** to upload the CA file, for example, **ca.pem**.

> **Note:** Only certificates in the **Base-64 encoded X.509 PEM** format are supported.

3) Click **Test** to verify whether the Web API Server can establish a connection to Front Server Controller with the configurations.
4) In the **Allocated Tenants** area, select the target tenants to allocate them to the controller.
5) Click **OK** to save the settings.

The Front Server Controller is added.



Front Server Controller Settings

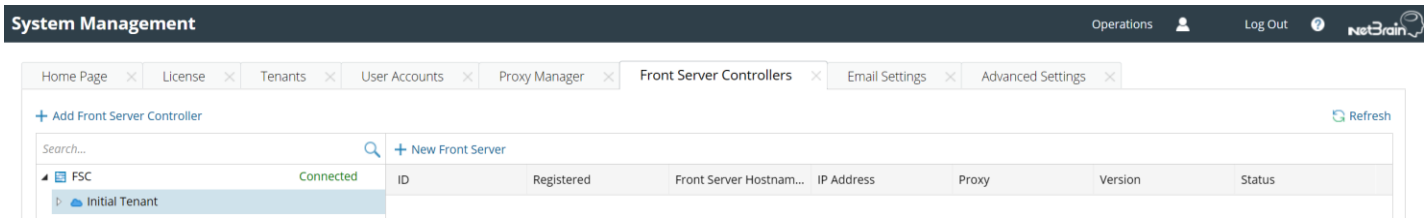
The following items (except **Timeout** and **Description**) are required to be consistent with those configured during the installation of NetBrain Application Server.

Field	Description
Name	Keep the default value **FSC** as it is.
Hostname or IP Address	Enter the IP address of NetBrain Application Server.
Port	The port number created when you install the Front Server Controller for listening to the connections from Worker Server. By default, it is **9095**.
Username	The user name created for NetBrain service when creating NetBrain Database Server.
Password	The password created for NetBrain service when creating NetBrain Database Server
Timeout	The maximum waiting time for establishing a connection from Worker Server to this Front Server Controller. By default, it is **5** seconds.
Description	The brief description to help you add more information about the Front Server Controller.

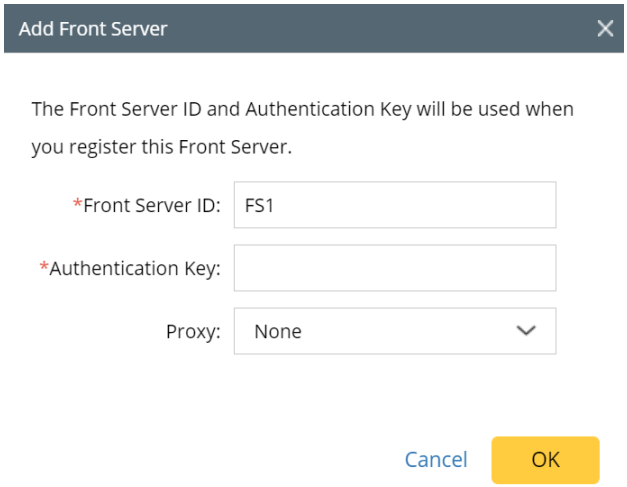
4.5. Adding a Front Server for a Tenant

1. In the Front Server Controller Manager, select the target tenant and click **New Front Server**.

> **Tip**: It is recommended that only one tenant is set up for all domains, so these domains can access the network via a single Front Server.



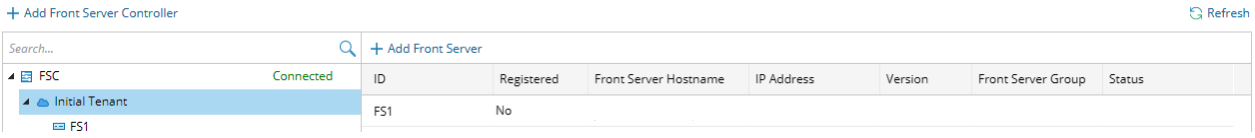
2. Enter the following properties of the Front Server.



- **Front Server ID** — keep the default value **FS1** as it is.
- **Authentication Key** — create an authentication key for the Front Server.

> **Tip**: Keep notes of the Authentication Key because it is required when you register this Front Server.

3. Click **OK**. The Front Server is added to the Front Server list.

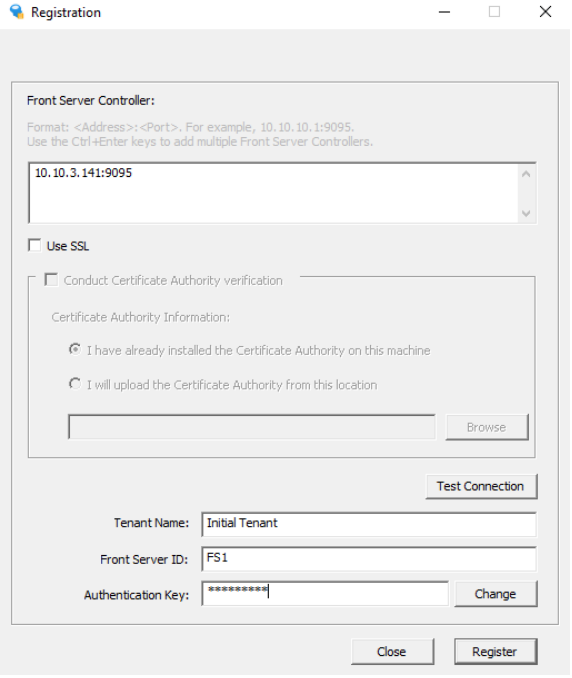


4.6. Registering a Front Server

Example: Register a Front Server on Windows Server 2016.

Complete the following steps with administrative privileges.

1. On the machine where the Front Server is installed, click the Windows start menu and then click the icon to open the **Apps** pane.
2. Under the **NetBrain** category, right-click **Registration** and then select **Run as administrator** from the drop-down list.
   1) In the **Registration** dialog, complete the registration form.



   Enter the following information about the Front Server Controller.

   - **Hostname or IP address with port** — the IP address of NetBrain Application Server and the port number (defaults to **9095**).

   2) (Optional) Configure the SSL settings.
      a) Select the **Use SSL** check box to encrypt the connections to Front Server Controller with SSL. If SSL is disabled on Front Server Controller, leave it unchecked and skip step b) to c).

      > **Note:** Select the **Use SSL** check box only if you enabled SSL on Front Server Controller.

b) To authenticate the Certificate Authority (CA) of SSL certificates on Front Server Controller, select the **Conduct Certificate Authority verification** check box.

c) If the CA has not been installed on this machine, click **Browse** to upload the CA file, for example, **ca.pem**; otherwise, select **I have installed the Certificate Authority on this machine**.

> **Note:** Only the certificate in **Base-64 encoded X.509 PEM** format is supported.

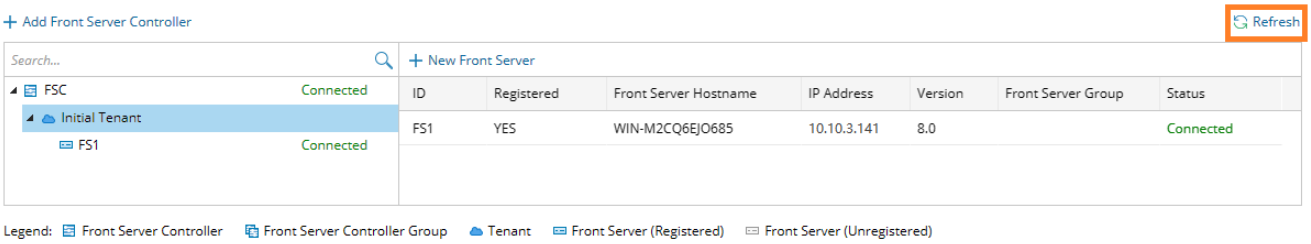
3) Click **Test** to verify whether this Front Server can establish a connection with Front Server Controller.

4) Keep all default values, and then enter the authentication key created when you add this Front Server to a tenant.

4. Click **Register**.

> **Tip:** After registering the Front Server successfully, you can open the Task Manager and navigate to the **Services** panel to check whether the **NetBrainFrontServer** service is running.

5. Click **Close** after the registration is finished. The Front Server information in the Front Server Controller Manager will be synchronized by clicking **Refresh**.



4.7. Configuring Auto Upgrade Settings

Knowledge Cloud (KC) manages both the framework components and the platform resources and allows NetBrain Workstation to automatically upgrade a patch or minor release. Besides replacing the files, the auto-upgrade process may restart services, execute the database upgrading, check the system health and roll back the release if the update fails.

Due to security considerations, there will be no direct connection between KC and NetBrain Workstation. NetBrain System Administrator must download the software update package from NetBrain Customer Portal, manually upload the package into the system and then schedule system updates accordingly.

NetBrain Workstation Auto Upgrade flow consists of the following steps:

> **Note:** Only user with System Management permissions can perform the following actions.

1. Check the Latest Version
2. Download Package from NetBrain Customer Portal
3. Upload Package to NetBrain Workstation
4. Schedule Update
5. View Update Status
6. View Update History

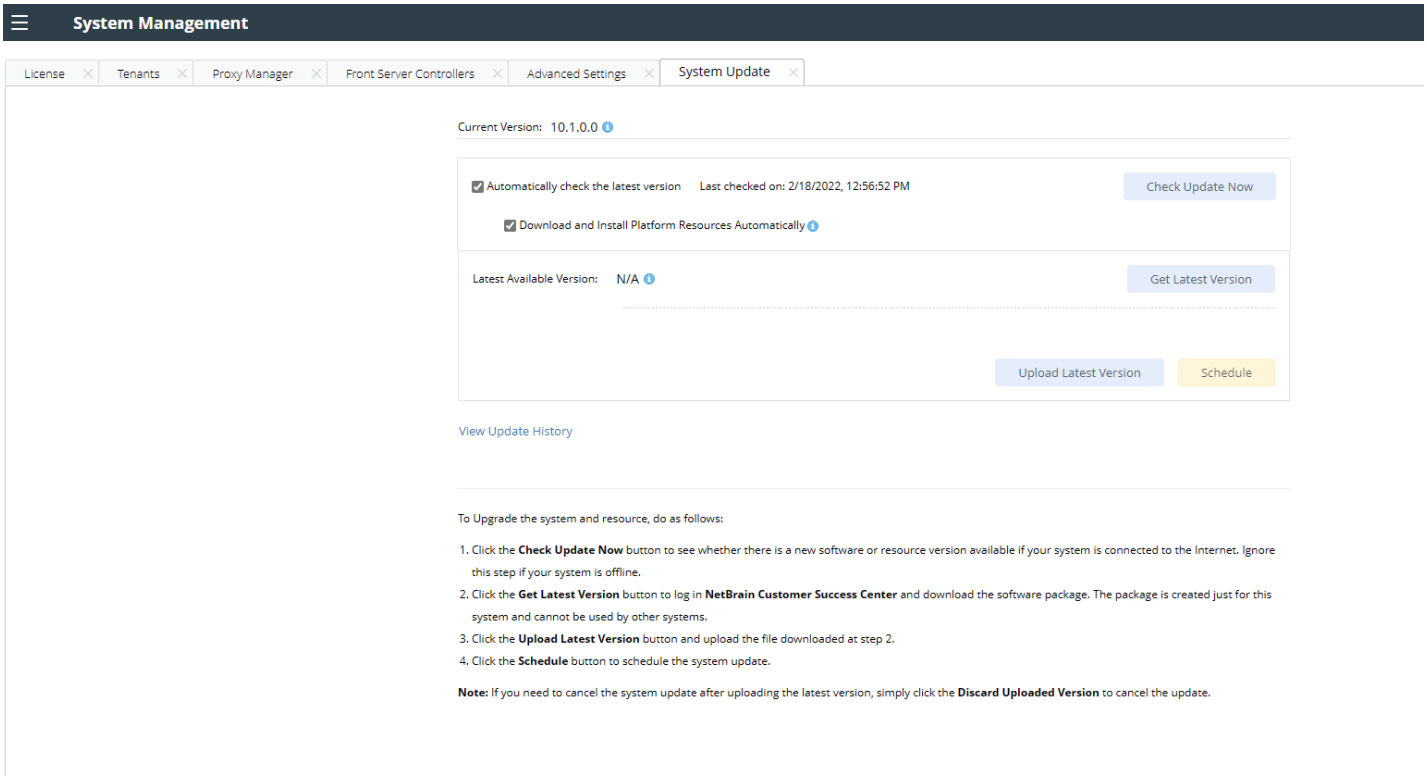
Check the Latest Version

Follow the steps below to check the available releases from NetBrain:

> **Note:** The following steps only apply to the online auto upgrade procedures.

1. In the System Management page, click the  start menu> **System Update**.
2. By default, the **Automatically check the latest version** check box is enabled. You can click **Check Update Now** to see if there is a new version available.

   > **Note:** After the check box **Automatically check the latest version** is enabled, users with 'sys admin' role will receive auto notification via email when a new version becomes available.
   >
   > **Note:** The Web API Server is required to have internet access with NetBrain public License Server in order to perform the function of **Automatically check the latest version** and **Check Update Now**.
   >
   > **Note:** In order to download and install platform resources automatically, you need to enable the **Automatically check the latest version** check box, as well as the **Download and Install Platform Resources Automatically** check box.



3. When this check is enabled, NetBrain Workstation will check whether a minor release, a patch, a customized built-in, a customized resource or common platform resource updates have been published since the last time check (either auto or manual check). The latest available version will be displayed with the release note.
4. If the respective release or patch is available, after reviewing the Release Note, click **Get Latest Version** to Download Package from NetBrain Customer Portal.

Download Package from NetBrain Customer Portal

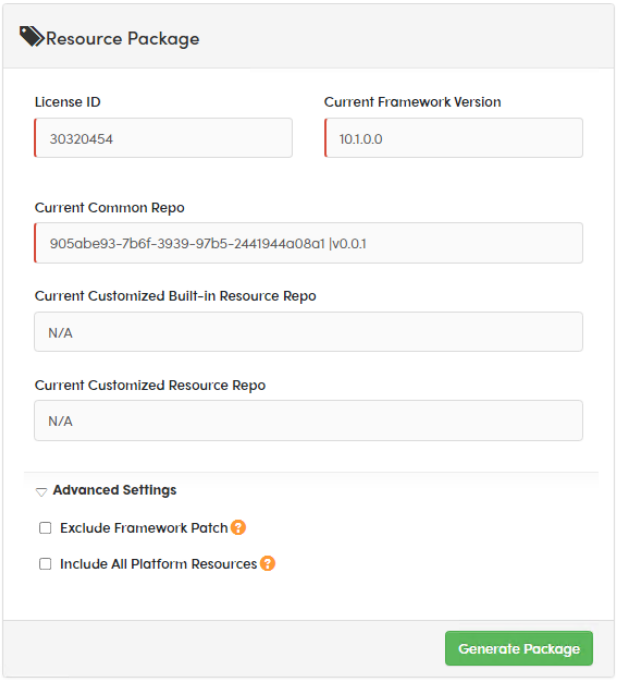
Follow the steps below to download the system upgrade package from NetBrain Customer Portal:

1. Log into the NetBrain Customer Portal with your username and password.

> **Note:** After clicking **Get Latest Version** in NetBrain Workstation, you will be redirected to the NetBrain Customer Portal. The portal account credentials are required by the web browser to grant access to the NetBrain Customer Portal.

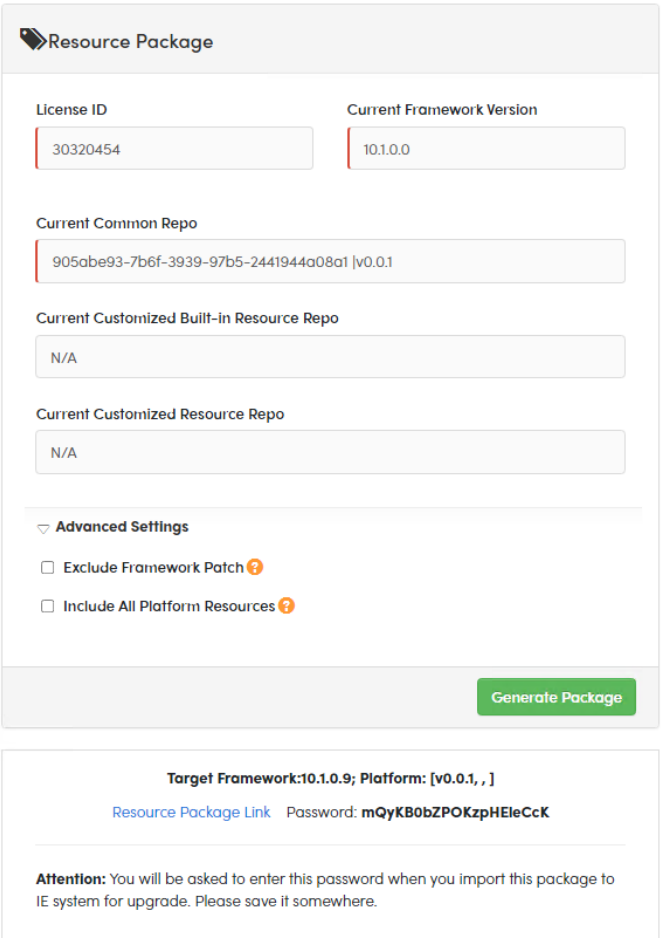
2. Confirm the required info and click **Generate Package**.

> **Tip:** Required info includes the License ID, Framework Version, Common Repo Version, Customized Built-in Resource Repo, Customized Resource Repo.
>
> **Tip:** If you don't want to download framework components, enable the **Exclude Framework Patch** check box.



3. Click **Resource Package Link** to download the package to your local drive.

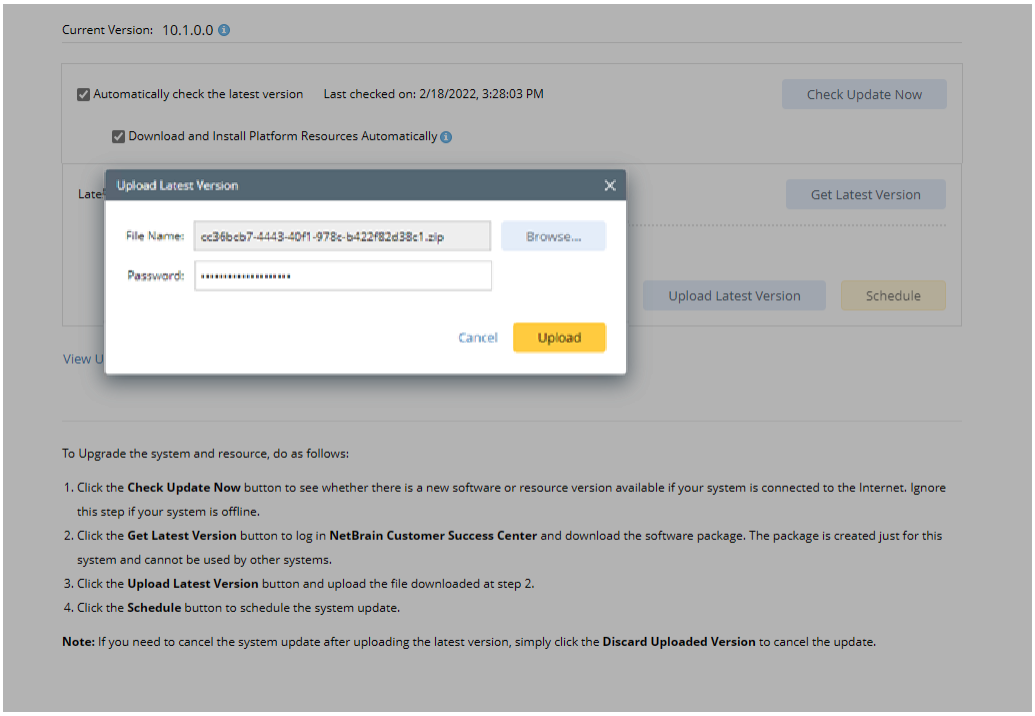
4. Keep note of the password for next step- Upload Package to NetBrain Workstation.



Upload Package to NetBrain Workstation

Follow the steps below to upload the system upgrade package to NetBrain Workstation:

1. In the System Management page, click the ☰ start menu> **System Update**.
2. Click **Upload Latest Version**.
3. Click **Browse** and select the system upgrade package (.zip file).
4. Enter the password and click **Upload**.

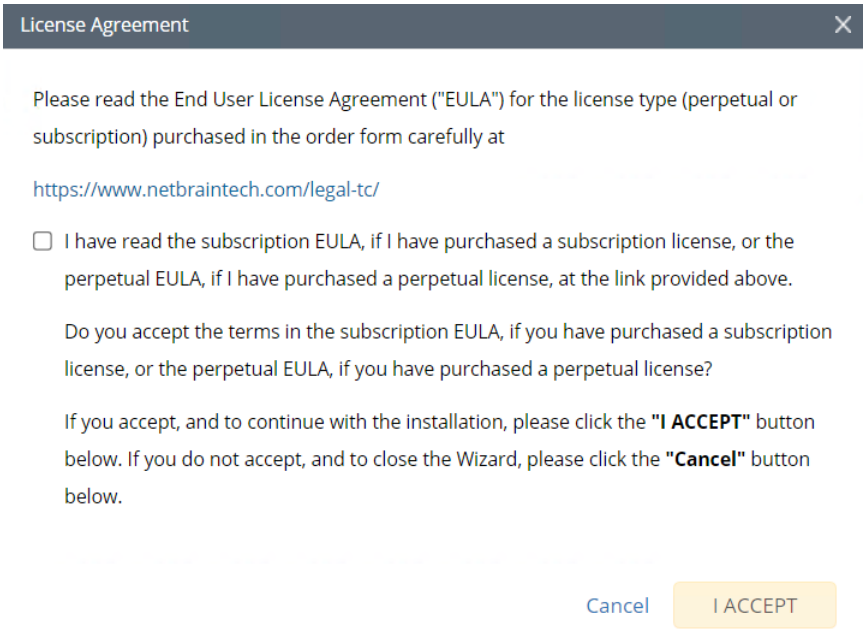


> **Tip:** With the **Discard Uploaded Version** button, you can discard the previous uploaded update package before it is scheduled and delete the system update task before the scheduled task is executed.

Schedule Update

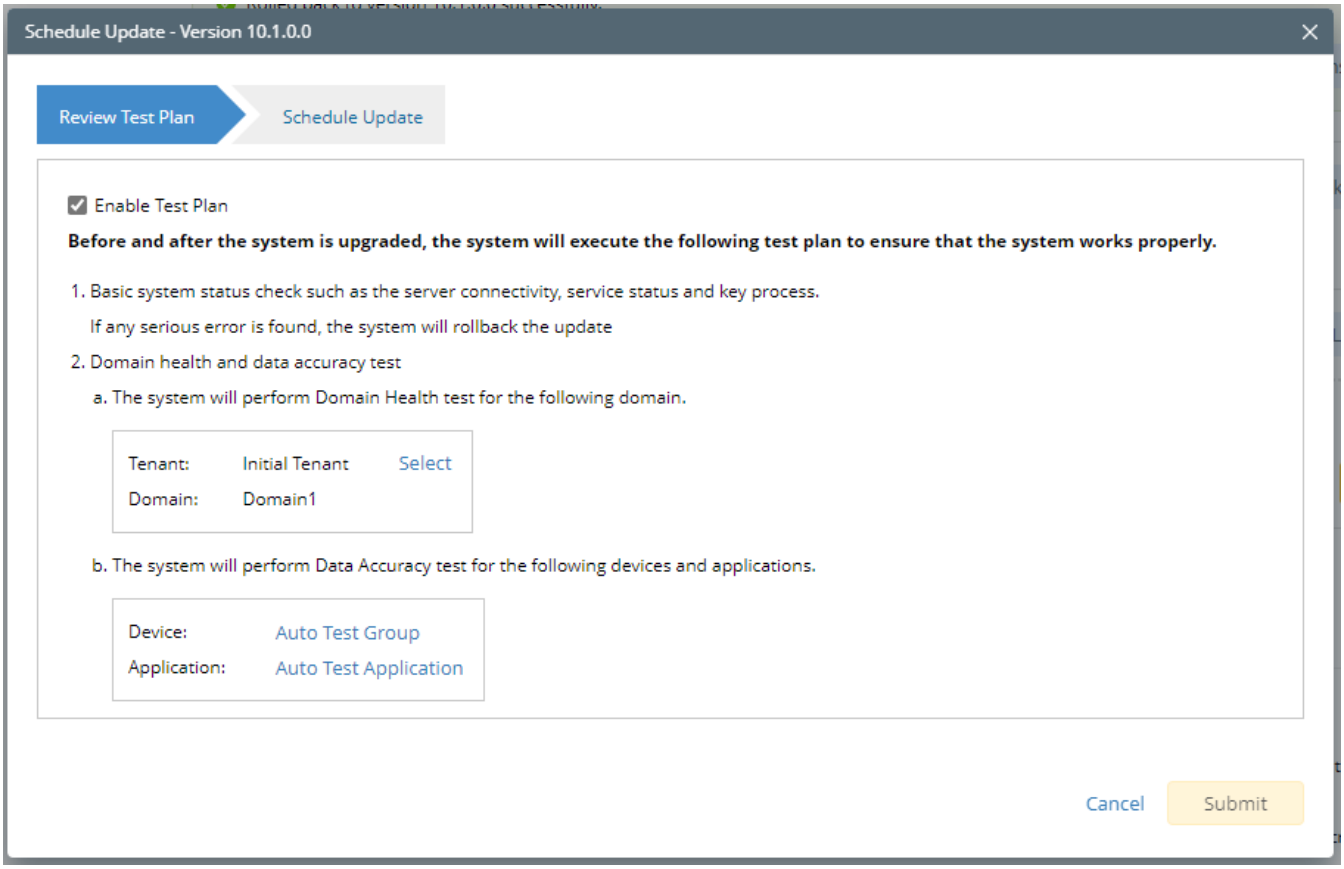
Follow the steps below to schedule the system update:

1. Run the system update pre-check tool to verify the environment readiness for the auto-update.
2. In the System Management page, click the ☰ start menu> **System Update**.
2. Click **Schedule**.
3. Review the license agreement, select the **I have read the subscription EULA** check box and click **I ACCEPT**.



4. **(Optional)** Check the **Enable Test Plan** checkbox.

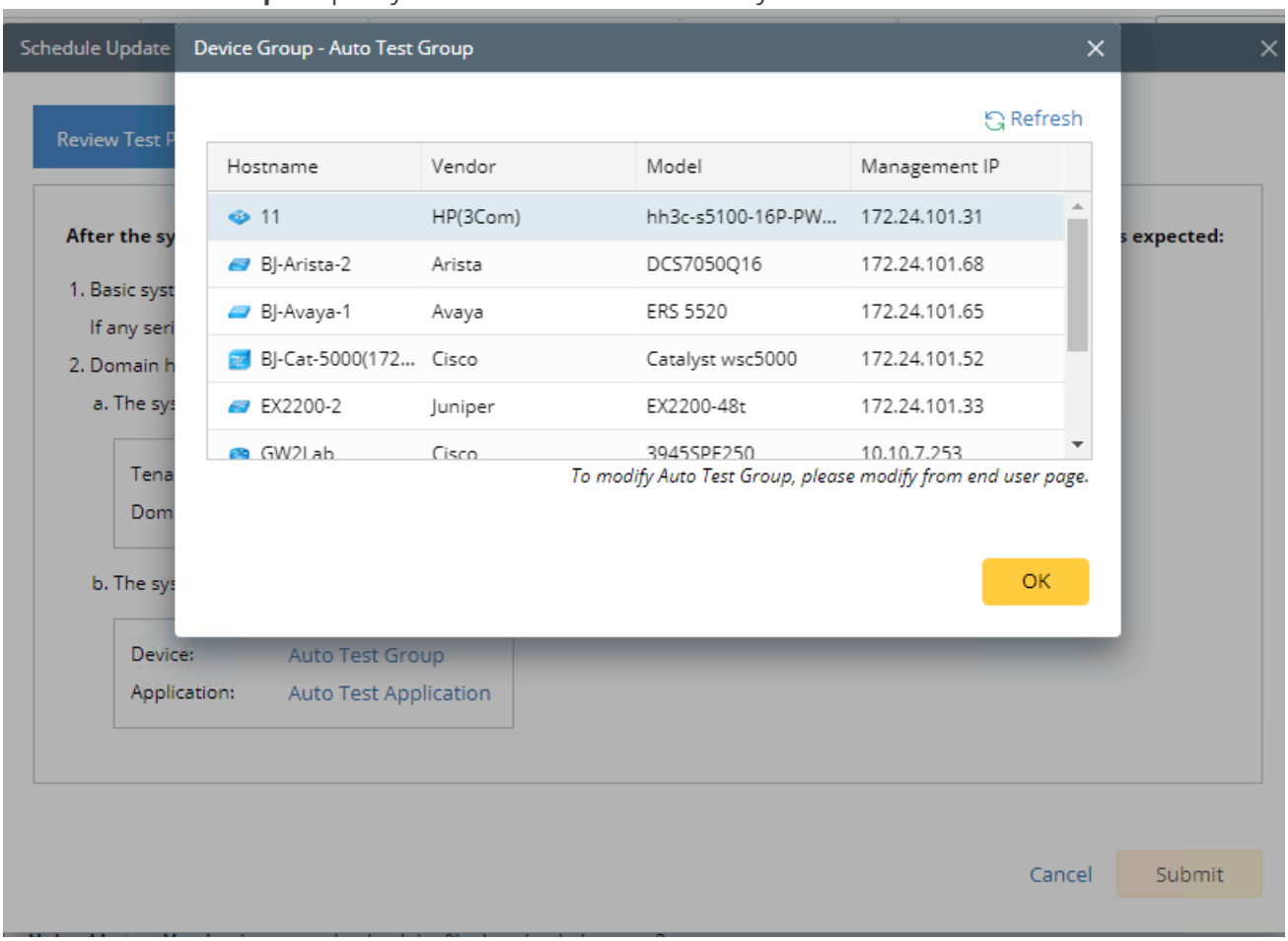
> **Tip:** You can leave the **Enable Test Plan** checkbox unchecked to skip the test plan.
>
> **Note:** Only user with domain and tenant access will be granted permission to run the test plan.



1) Click **Select** and specify the desired Tenant/Domain to perform Domain Health Check.

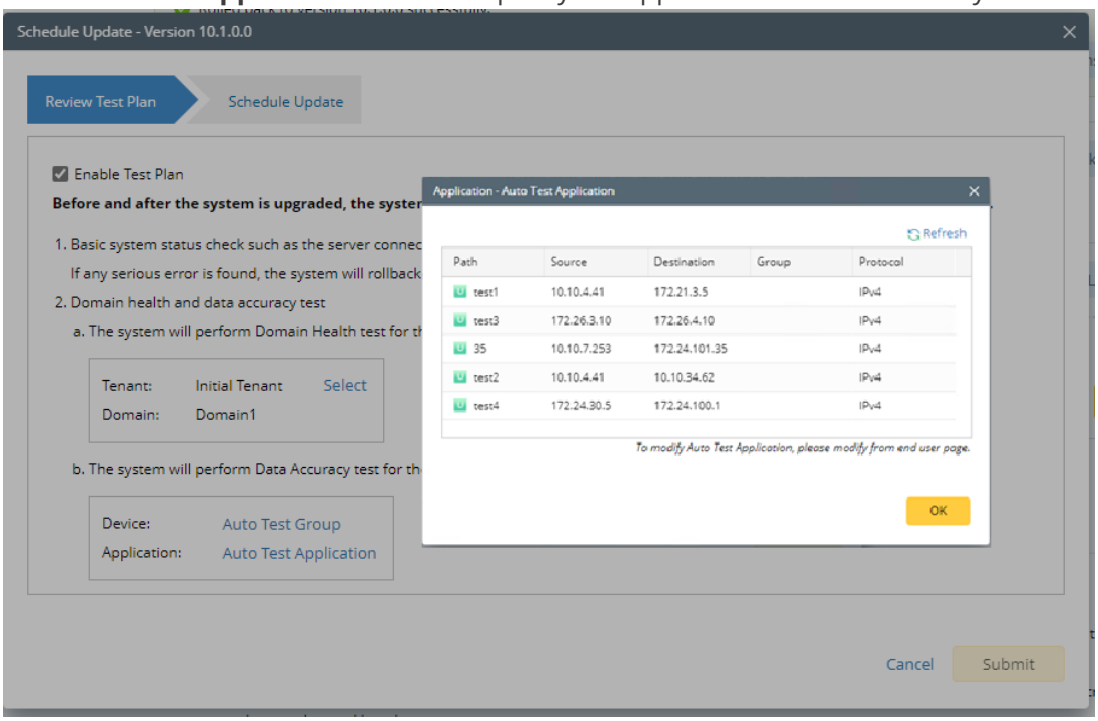
> **Note**: If there are more than one tenant or domain, step 1) must be completed before proceeding to step 2).
>
> **Note**: If there is only one tenant and domain, the Initial Tenant will be automatically selected and you can directly proceed to step 2).

2) Click **Auto Test Group** to specify the devices for Data Accuracy Test.



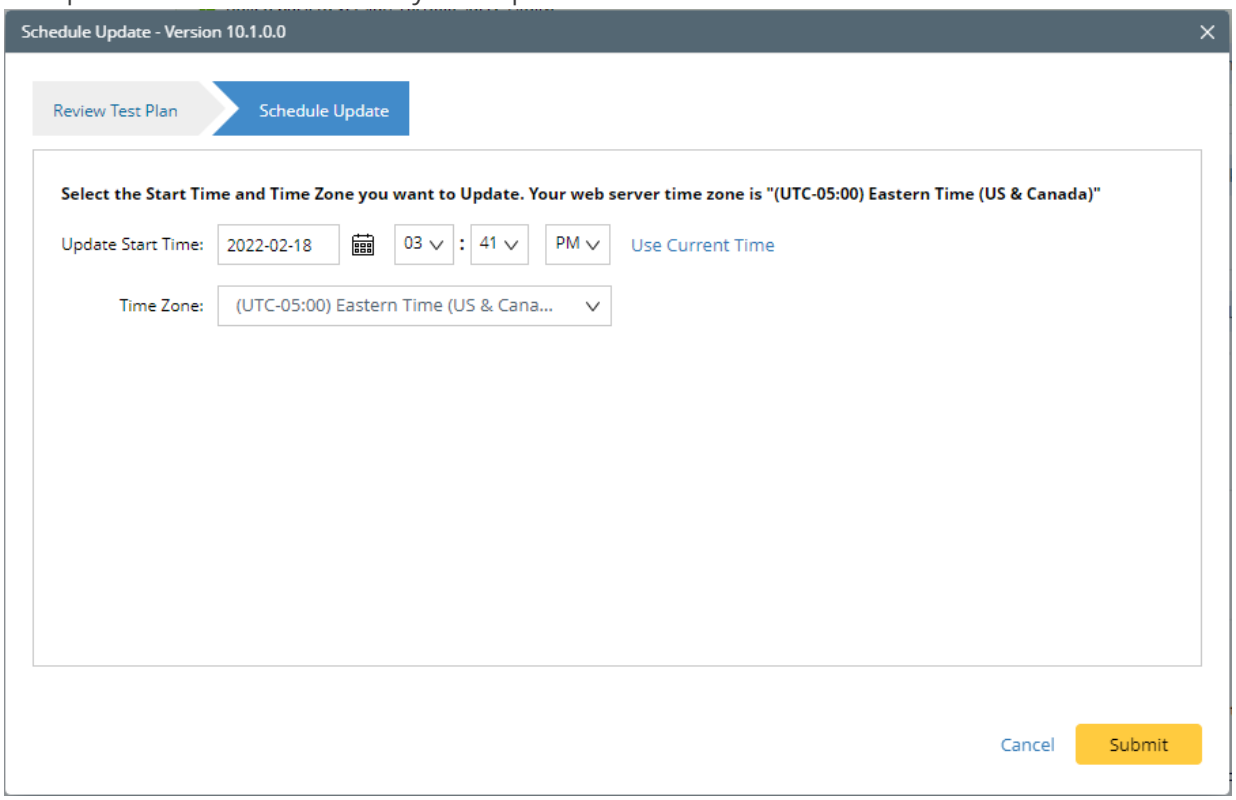
> **Tip**: The devices in the Auto Test Group are automatically selected according to the device type discovered by the system. You can also manually edit or delete any devices to suit your specific needs.

3) Click **Auto Test Application Folder** to specify the application for Data Accuracy Test.



> **Note**: The last used Application Paths (up to 5 paths) will be automatically copied to the Auto Test Application Folder. You can also manually change the auto selected path in Application Manager.

6. Set up the schedule to start the system update.



> **Tip:** You can edit or remove the system update once it is scheduled.

7. Click **Submit** to apply the above settings.

> **Note**: A confirmation message will prompt if the selected tenant/domain does not have application path, you can click Yes to dismiss the message and continue with the update process.

View Update Status

The possible status of auto update are as follows:

Stage of the Auto Update	Possible Status
Before the execution of Auto Update	• Ready for schedule. • Ready for running.
During the execution of Auto Update	• Running.

After the execution of Auto Update	• The system is successfully updated to the new version. • The system is successfully updated to the latest version, but the user performs a manual rollback and the rollback succeeds. • The system is successfully updated to the latest version, but the user performs a manual rollback and the rollback fails. • The update fails, and the system is rolled back to the old version. • The update fails at the beginning (due to insufficient disk space to perform auto-upgrade, unavailable component and etc.) and the roll back is not executed.

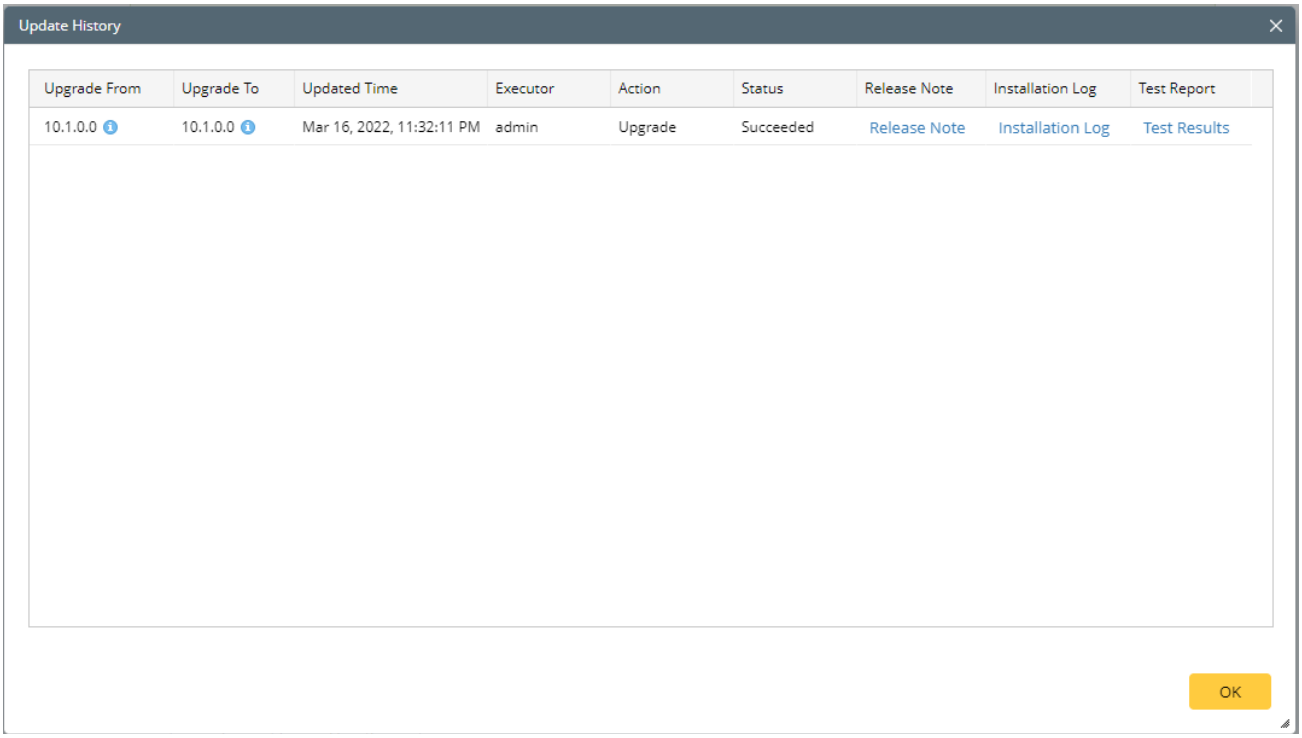
View Update History

Follow the steps below to view the update history:

1. In the System Management page, click the start menu> **System Update**.
2. Click **View Update History**.

The update history only records the releases the system is scheduled to update with. The update history table provides the following information:

- **Update From:** the release number from which the system is updated.
- **Update To:** the release number to which the system is updated.
- **Update Time:** when the system finished the update.
- **Executor:** the person to schedule the update
- **Action:** upgrade or user roll back.
- **Status:** one of the statuses in View Update Status.
- **Release Note:** the link of the release note.
- **Installation Log:** the link of the installation log.
- **Test Report:** the link of the test results.



4.8. Monitoring Server and Service Metrics

NetBrain Service Monitor provides a portal for administrators to observe the health of deployed Windows and Linux servers, with operations management of related services. It collects various types of metrics data from these deployed servers and visualizes them in tables or line charts.

> **Note:** The Service Monitor Agent must be installed on the servers that you want to monitor.
>
> **Note:** System upgrade feature heavily relies on all the NetBrain servers and service metrics, therefore it is required to ensure all the NetBrain servers and component metrics can be viewed in the Service Monitor page.

To monitor server and service metrics:

1. In the System Management page, click the ☰ start menu> **Service Monitor**.
2. In the Service Monitor home page, you can monitor key server metrics, server connectivity, resource utilization, service status and so on.
3. Customize the conditions for when to send out alert emails and take more actions for low disk space on MongoDB by clicking **Alert Rules**. See Managing Alert Rules for more details.

5. Appendix: Third-Party User Authentication

In addition to creating user accounts manually, the system supports integrating with the following third-party user management systems for authentication.

- LDAP Authentication
- AD Authentication
- TACACS+ Authentication
- SSO Authentication