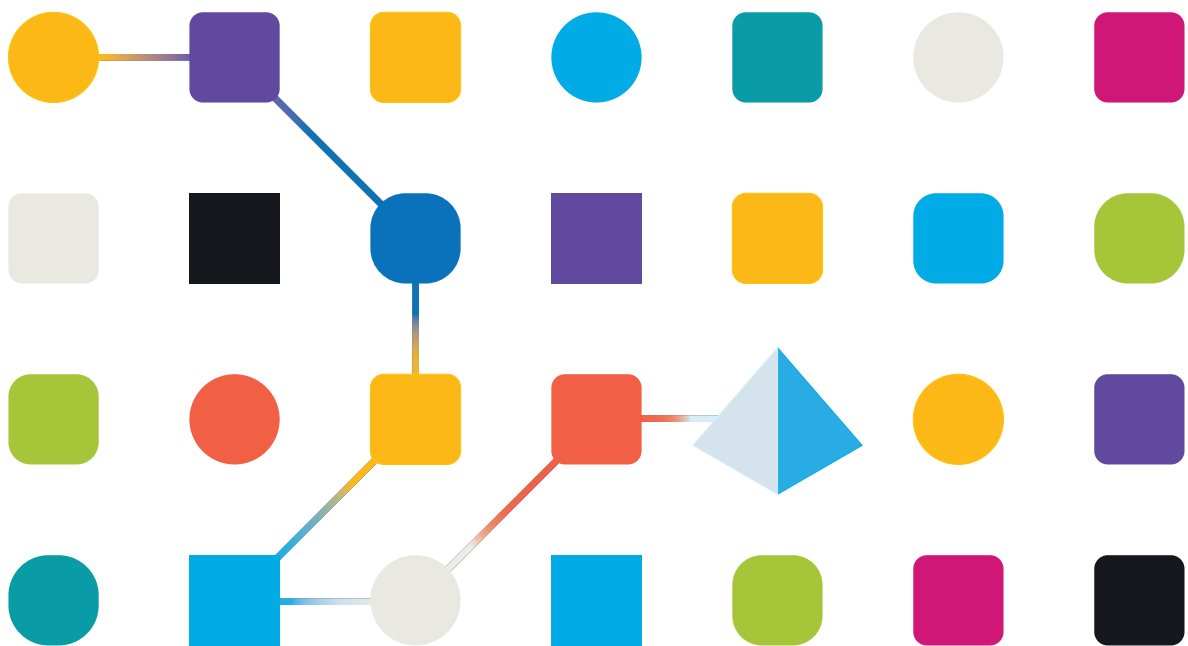




Decision 4.6

Install Guide

Document Revision: 5.0



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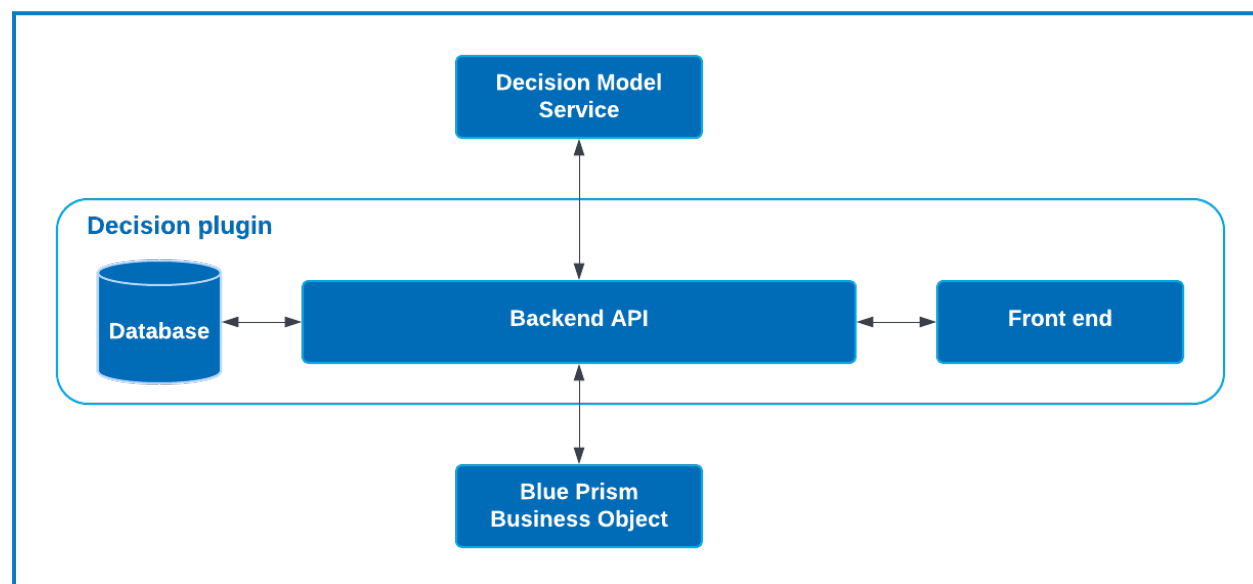
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Install Blue Prism Decision

Blue Prism® Decision is a license controlled plugin that is installed with Blue Prism® Hub, using the Blue Prism Hub installer. Decision has a prerequisite and a dependency on an additional component – the Blue Prism Decision Model Service. This is available either as a Windows service, or as a Linux container image.

The diagram below illustrates the logical architecture of Decision, showing the interaction between the plugin front end, the Decision Model Service, and the Blue Prism interactive client (Blue Prism Business Object in the diagram).



Intended audience

This guide is aimed at IT professionals with experience in configuring and managing networks, servers, and databases. The installation process requires familiarity with installing and configuring web servers and databases.

Installation overview

To install Blue Prism Decision, you must:

1. [Generate an SSL Certificate](#) for Decision.

Step prerequisites:

- This section includes information for using self-signed certificates for Proof of Concept (POC), Proof of Value (POV) and Development environments. The scripts supplied require [OpenSSL](#).

 Self-signed certificates should not be used for Production environments.

2. [Install the Blue Prism Decision Model Service](#) – This contains the Model Learning API used by Decision.

The model service is available either as a Linux container, or as a Windows service. You should choose the most compatible version based on your organization's infrastructure.

Step prerequisites for the Windows service:

- A Windows server – this can be the same server as Blue Prism Hub or a different server.
- 150 MB of disk space on the Windows server.

For more information, see [Prerequisites on page 13](#).

Step prerequisites for the Linux container:


- A Docker host that is capable of running Linux containers.
- 500 MB of disk space for the container.

For more information, see [Prerequisites on page 17](#).

3. [Install Blue Prism Hub](#) – You must provide the Model Learning API URL and SSL certificate details in the Blue Prism Hub Install wizard.

Step prerequisites:

- For the Hub prerequisites, see the [Blue Prism Hub Install Guide](#).
- The Decision SSL Certificate.
- The Model Learning API URL and port number.

 If you have already installed Hub 4.6, see [Troubleshooting on page 26](#) for information on updating your installation.

4. [Install the Decision plugin](#) in Hub

Step prerequisites:

- Administrator access to Hub.
- Decision license file.

5. [Configure access to the Decision plugin](#) – Assign users to a role that provides access to Decision.

Step prerequisites:

- Administrator access to Hub.
- List of users who require access to Decision.

6. Configure Blue Prism to use Decision

Step prerequisites:

- Administrator access to Hub.
- Blue Prism 6.4.0 or later, with sufficient privileges to configure credentials and objects on the System tab.
- Blue Prism Decision API.bprelease file.

Decision environment setup

The information below provides a simple overview of the environment configurations for Blue Prism® Decision.

 Blue Prism® Hub requires Windows Server 2016 or 2019.

Single machine – Proof of Concept or Trial environments

Small Proof of Concept (POC) or Trial environments can be configured on a single machine. Single machine installations are not suitable for Production environments.

Running Decision Model Service as a Windows service

Component	Windows Server
Hub	✓
Decision Model Service	✓

Running Decision Model Service as a container

Component	Windows Server	Linux machine
Hub	✓	N/A
Docker Desktop	✓	N/A
Docker Engine	✗	N/A


Multiple machines – Production environments

Production environments are usually configured on multiple machines, with the web server being on a different machine than the other back-end systems. Multiple machine setups can also be used for POC environments, if required.

Running Decision Model Service as a Windows service

By opting to run the Decision Model Service as a Windows service, you will only need a Microsoft infrastructure using Windows Servers:

Component	Windows Server
Hub	✓
Decision Model Service	✓

 The Decision Model Service can be installed on the same server as Blue Prism Hub, or it can be installed on a different server. If you run it on a different server, you may need to create some firewall rules to allow two-way communication, namely allow requests on the port where Decision Model Service is running.

Running Decision Model Service as a container

Microsoft infrastructure

If you only use Windows Servers, the configuration will be:

Component	Windows Server	Linux machine
Hub	✓	N/A
Docker Desktop	✓	✗
Docker Engine	✗	✗


Combined infrastructure

If your organization is running a combined infrastructure, with both Windows Servers and Linux machines, your organization can use:

Component	Windows Server	Linux machine
Hub	✓	N/A
Docker Desktop	✗	✗
Docker Engine	✗	✓

Generate an SSL Certificate

You need an SSL certificate for the Blue Prism Decision Model Service. Depending on your infrastructure and IT organization security requirements, this could be an internally created SSL certificate or a purchased certificate.


 The Blue Prism Decision Model Service requires a client key and a server key to ensure the communication between the Decision plugin in Hub and the Decision Model Service is secure.

Self-signed certificates can be used but are only recommended for POC \ POV \ Dev environments. For production environments, use certificates from your organization's approved certificate authority. It is recommended that you contact your IT Security team to check their requirements. You will need to ensure that your certificate authority provides you with the following files:


- server.crt
- server.key
- ca.crt
- client.crt

Self-signed certificate

For POC \ POV \ Dev environments, you can create a certificate using the following process. This process requires OpenSSL to be installed. These instructions are for a Windows Server. If you are using Linux, please make the necessary adjustments.

 See the [online version of this guide](#) to check the formatting and line breaks in the scripts used in the steps below.

1. If you do not already have it, install [OpenSSL](#).

 If you are running OpenSSL on Windows, you need to add the location where OpenSSL is installed to the Path environment variable. For more information, see [Troubleshooting on page 26](#).

2. Create a folder where you will run the script (in the next step) so that the output is generated in a single place.
3. In the folder you created, use one of the following scripts depending on the host operating system ([Windows](#) or [Linux](#)), entering the indicated appropriate values in the variables at the top of the script:

Enter certificate password – Replace with a password that will be used to create the certificate.

Enter CN for client certificate – Replace with a common name for the client certificate, for example, client.decision.blueprism.com.

Enter CA – Replace with the Certificate Authority common name, for example, decisionCA.

Enter CN for server certificate – Replace with a common name for the server certificate. This must match with the Decision Model Service fully-qualified domain name (FQDN), for example, decision.blueprism.com. Or, if the Model Service is on the same server as Hub, use, for example, decision.local.

Script for creating certificates in Windows

Run PowerShell as an administrator and use the following script:

```
$cred = Get-Credential -UserName 'Enter certificate password' -Message 'Enter certificate password'
$mypwd = $cred.GetNetworkCredential().password
$clientCN = Read-Host "Enter CN for client certificate"
$CA = Read-Host "Enter CA"
$serverCN = Read-Host "Enter CN for server certificate"

echo Generate CA key:
openssl genrsa -passout pass:$mypwd -des3 -out ca.key 4096

echo Generate CA certificate:
$CASubject = "/CN=" + $CA
openssl req -passin pass:$mypwd -new -x509 -days 365 -key ca.key -out ca.crt -subj $CASubject

echo Generate server key:
openssl genrsa -passout pass:$mypwd -des3 -out server.key 4096

echo Generate server signing request:
$serverSubject = "/CN=" + $serverCN
openssl req -passin pass:$mypwd -new -key server.key -out server.csr -subj $serverSubject

echo Self-sign server certificate:
openssl x509 -req -passin pass:$mypwd -days 365 -in server.csr -CA ca.crt -CAkey ca.key -set_serial 01 -out server.crt

echo Remove passphrase from server key:
openssl rsa -passin pass:$mypwd -in server.key -out server.key

echo Generate client key
openssl genrsa -passout pass:$mypwd -des3 -out client.key 4096

echo Generate client signing request:
$clientSubject = "/CN=" + $clientCN
openssl req -passin pass:$mypwd -new -key client.key -out client.csr -subj $clientSubject

echo Self-sign client certificate:
openssl x509 -passin pass:$mypwd -req -days 365 -in client.csr -CA ca.crt -CAkey ca.key -set_serial 01 -out client.crt

echo Remove passphrase from client key:
openssl rsa -passin pass:$mypwd -in client.key -out client.key

echo Generate pfx from client key:
openssl pkcs12 -export -password pass:$mypwd -out client.pfx -inkey client.key -in client.crt
```

The certificates are generated in the folder you created.

▶ To watch the Decision certification generation process, see our [Blue Prism Decision Model Service installation video](#).

Script for creating certificates in Linux

Run the following Bash script:

```
#!/bin/sh

read -s -p 'Enter certificate password: ';
CER_PWD=${REPLY};
echo "";

read -p 'Enter CN for client certificate: ';
CLIENT_CN=${REPLY};
#echo "";

read -p 'Enter CA: ';
CA=${REPLY};
#echo "";

read -p 'Enter CN for server certificate: ';
SERVER_CN=${REPLY};
#echo "";

unset REPLY;

echo Generate CA key:
openssl genrsa -passout pass:$CER_PWD -des3 -out ca.key 4096

echo Generate CA certificate:
CA_SUBJECT="/CN=${CA}"
openssl req -passin pass:$CER_PWD -new -x509 -days 365 -key ca.key -out ca.crt -subj $CA_SUBJECT

echo Generate server key:
openssl genrsa -passout pass:$CER_PWD -des3 -out server.key 4096

echo Generate server signing request:
SERVER_SUBJECT="/CN=${SERVER_CN}"
openssl req -passin pass:$CER_PWD -new -key server.key -out server.csr -subj $SERVER_SUBJECT

echo Self-sign server certificate:
openssl x509 -req -passin pass:$CER_PWD -days 365 -in server.csr -CA ca.crt -CAkey ca.key -set_serial 01 -out server.crt

echo Remove passphrase from server key:
openssl rsa -passin pass:$CER_PWD -in server.key -out server.key

echo Generate client key
openssl genrsa -passout pass:$CER_PWD -des3 -out client.key 4096

echo Generate client signing request:
CLIENT_SUBJECT="/CN=${CLIENT_CN}"
openssl req -passin pass:$CER_PWD -new -key client.key -out client.csr -subj $CLIENT_SUBJECT

echo Self-sign client certificate:
openssl x509 -req -passin pass:$CER_PWD -days 365 -in client.csr -CA ca.crt -CAkey ca.key -set_serial 01 -out client.crt

echo Remove passphrase from client key:
openssl rsa -passin pass:$CER_PWD -in client.key -out client.key

echo Generate pfx from client key:
openssl pkcs12 -export -password pass:$CER_PWD -out client.pfx -inkey client.key -in client.crt
```

The certificates are generated in the folder you created.



To watch the Decision certification generation process, see our [Blue Prism Decision Model Service installation video](#).

4. If you are using a Windows server, add the certificate as a trusted certificate on the local machine by running the following scripts:

```
$scriptPath = (Get-Item .).FullName
$crt = "$($scriptPath)\client.pfx"
$mypwd = Get-Credential -UserName 'Enter password' -Message 'Enter password'
Import-PfxCertificate -FilePath $crt -CertStoreLocation Cert:\LocalMachine\My -Password $mypwd.Password
```

```
$scriptPath = (Get-Item .).FullName
$crt = "$($scriptPath)\ca.crt"
Import-Certificate -FilePath $crt -CertStoreLocation Cert:\LocalMachine\Root
```



If you are using different machines to host the Blue Prism Decision Model Service and Blue Prism Hub, you will need to ensure that:

- The Decision Model Service host has the following files:
 - server.crt
 - server.key
 - ca.crt
- The server running Blue Prism Hub has the following files:
 - client.crt
 - ca.crt

Install the Blue Prism Decision Model Service


The Blue Prism Decision Model Service is available using two different technologies:

- As a Windows service
- As a Linux container

Only one of these needs to be installed. You should install the version that most suits your organization's technical infrastructure.

Install the Windows service

The Blue Prism Decision Model Service includes the Model Learning API that is used by the Decision plugin. The Decision Model Service installer must be used to install the Windows service before the Hub installation is carried out as you will need to enter the details into the install wizard.


 To watch the Decision Model Service installation process using the MSI, see our [Blue Prism Decision Model Service installation video](#).

Prerequisites

- A Windows server with:
 - Intel Dual Xeon Processor
 - 8 GB RAM
 - Windows Server 2016 Datacenter or 2019


This is the same specification as required by Blue Prism Hub. For more information, see the [Web Server requirements](#) in the Blue Prism Hub Install Guide.

- 150 MB of disk space on the Windows server.

 The Decision Model Service can be installed on the same server as Blue Prism Hub, or it can be installed on a different server. If you run it on a different server, you may need to create some firewall rules to allow two-way communication, namely allow requests on the port where Decision Model Service is running.

Installation steps

Download and run the Blue Prism Decision Model Service installer, available from the [Blue Prism Portal](#), and progress through the installer as shown below. The installer must be run with administrator rights. Alternatively, this can be run as a [silent install](#).

 The Blue Prism Decision Model Service installer is available in multiple languages, but the language cannot be changed from the MSI user interface.

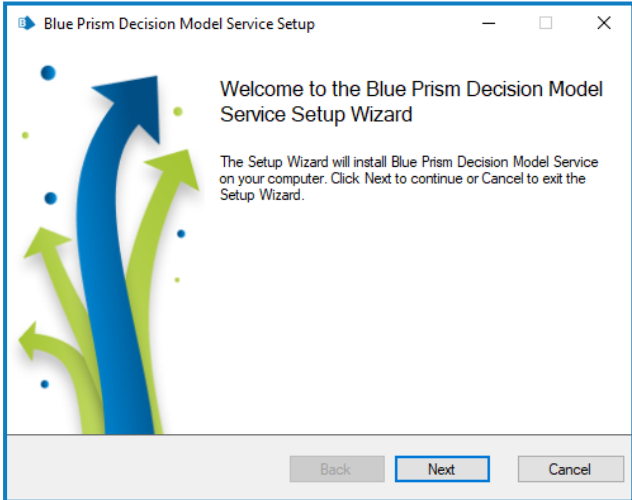
To run the installer in a language other than English:

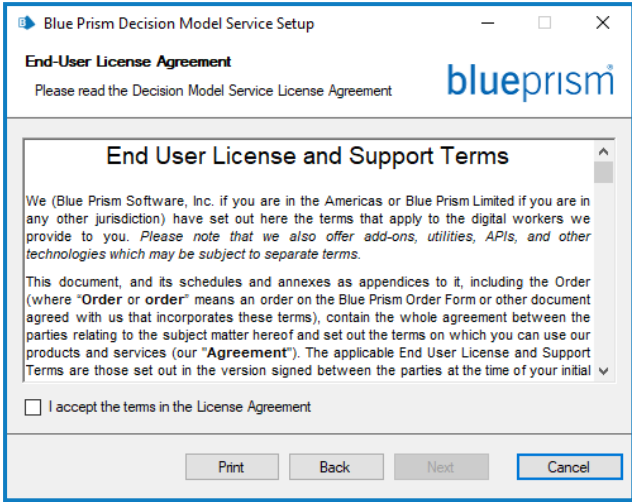
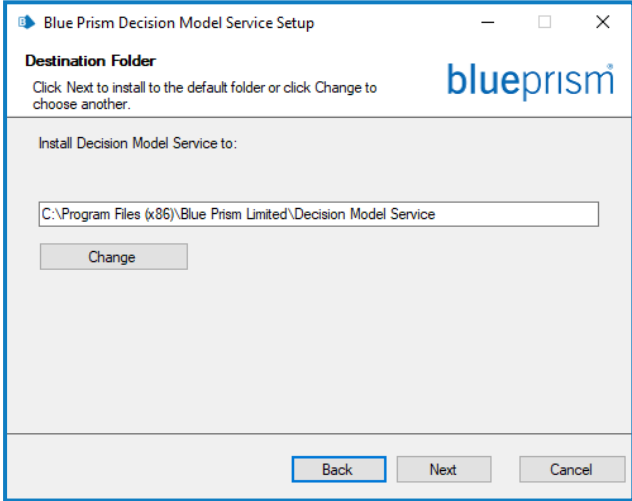
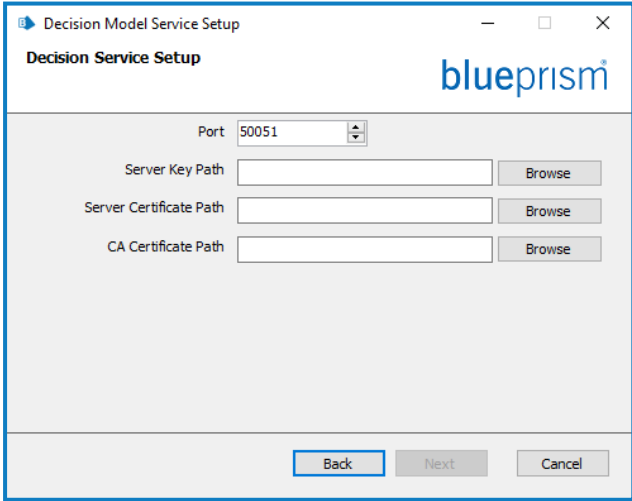
1. Open Command Prompt and change the directory to the location where the installer is stored.
2. Type the following command, changing the LOCALE value to the language you require:

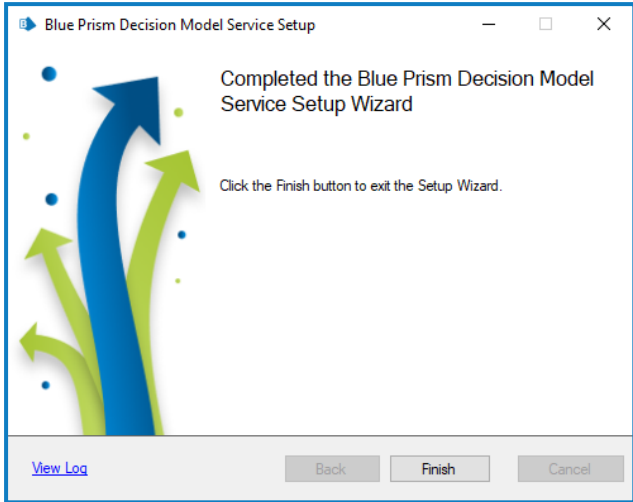

```
msiexec /i "Decision Model Service 1.2.0.msi" LOCALE="ja-JP"
```

You must ensure that the name of the MSI entered in the command line matches the MSI file name, and that the LOCALE represents the language you want to use. The example above will run the installer in Japanese. The languages available are:


- "fr-FR" – French
- "de-DE" – German
- "es-419" – Spanish
- "ja-JP" – Japanese
- "zh-Hans" – Simplified Chinese

Step	Installer page	Details
1		Welcome Click Next .


Step	Installer page	Details
2		License agreement Read the End-User License Agreement and if you agree to the terms, select the check box and click Next .
3		Destination folder Specify the required installation folder. The default location is C:\Program Files (x86)\Blue Prism Limited\Decision Model Service, but you can choose your own using the Change button. Click Next .
4		Decision Service Setup Configure the Decision Service. You need to: <ul style="list-style-type: none"> • In Port, 50051 is the default port number. If you want to use a different port, enter the port number that the service will run on. • In Server Key Path, enter the path for the server.key file for the model host. • In Server Certificate Path, enter the path for the server.crt file for the model host. • In CA Certificate Path, enter the path for the ca.crt file for the model host. Click Next to install the model service.

Step	Installer page	Details
5		<p>Installation complete</p> <p>The final completed screen displays when the installation completes successfully.</p> <p>If the installation fails, the View Log option gives details of the error that was encountered.</p> <p>Click Finish.</p> <div> If you open Services, you can see the Decision Model Service listed, with the Startup Type set to Automatic.</div>

Silent installation

 Installing the Decision Model Service by silent installation via command line acts as your acceptance of the End User License Terms.

1. Download the Blue Prism Decision Model Service installer from the [Blue Prism Portal](#).
2. Open PowerShell as an administrator.
3. Run the following command:

 The command must be on a single line – see the [online version of this guide](#).

```
msiexec /i "<msi path and filename>" /passive /l log.txt INSTALLDIR="<Enter your install directory>" DECISION_PORT=50051 DECISION_SERVER_CERTIFICATE_KEY_PATH="<path>\server.key" DECISION_SERVER_CERTIFICATE_PATH="<path>\server.crt" DECISION_CA_CERTIFICATE_PATH="<path>\ca.crt"
```

Where:

- `<msi path and filename>` is the relational path to the msi. If the command is being run from the same location as the msi, then this is just the filename.
- `<Enter your install directory>` is the location where you want to install the Decision Model Service.
- `50051` is the default port. If you want to use a different port, change this value.
- `<path>` is replaced with the full path of the certificate and related files created in [Generate an SSL Certificate on page 9](#).

Install the Linux container

The Blue Prism Decision Model Service container includes the Model Learning API that is used by the Decision plugin. This container must be deployed and running before the Hub installation is carried out as you will need to enter the details into the install wizard.

▶ To watch the Decision Model Service installation process using the container, see our [Blue Prism Decision Model Service installation video](#).

Prerequisites

- A Docker host is required that is capable of running Linux containers.
 - Blue Prism recommends that your production environment uses a Linux server as the host. [Docker Engine](#) is required to run the Decision Model Service container, for more information see the Docker help: [Install Docker Engine](#).
 - For POC or Dev environments, a Windows server can be used. [Docker Desktop](#) is required to run the Decision Model Service container, for more information see the Docker help: [Install Docker Desktop on Windows](#).
- 500 MB of disk space for the container.


Installation steps

1. Open the Decision Model Service container page on [DockerHub](#).
2. Copy the pull command from the container page and run it in the command line. For example:

```
docker pull blueprism/decision-model-service:<version>
```

Where **<version>** matches the version number shown on the Tags tab on DockerHub.

3. Set the container running using the following command:

 The command must be on a single line – see the [online version of this guide](#).

```
docker run -d -v "<Absolute path of certificate location>:/certs" -e server_key="/certs/server.key" -e server_cert="/certs/server.crt" -e ca_cert="/certs/ca.crt" --restart always -p 50051:50051 blueprism/decision-model-service:<version>
```

Where:

<Absolute path of certificate location> is replaced with the full path of the certificate created in [Generate an SSL Certificate on page 9](#).

<version> is replaced with the version number of the Decision Model Service container.

4. Check the container is running using the following command:


```
docker ps -a
```

Install Blue Prism Hub

You can now run the Hub installer, see [Install Blue Prism Hub](#). On the Blue Prism Decision Setup (Optional) screen, enter the URL of where the Decision Model Service is running followed by the port number. The URL must match the FQDN that was specified in the certificate and point to the Model Service. The port number must match that was specified when the Model Service was set to run.

The URL should be in the format `https://<FQDN>:<port number>`.

For example, `https://decision.blueprism.com:50051`, or `http://decision.local:50051`.

 If you have already installed Hub 4.6 without Decision, see [Troubleshooting on page 26](#) for information on updating your installation.

Mandatory configuration

Once Hub is installed, you also need to carry out the following configuration on the server.


Decision DNS resolution

Blue Prism applications communicate with each other using their respective machine names. It is therefore necessary to ensure that these can be resolved successfully, and that firewall rules allow appropriate communication on the defined ports.

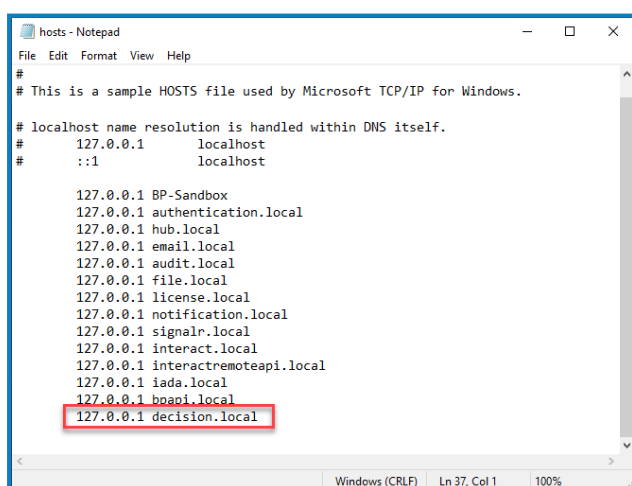
It may be necessary to set up DNS servers, Windows DNS search suffixes or local hosts file to support this.

Enterprise organizations often use formal DNS management utilities, however for tactical or experimental configurations it may be appropriate to use local host files to manipulate DNS.

1. On the Hub web server, open the hosts file using a text editor. The hosts file is typically located in `C:\Windows\System32\drivers\etc`.

 You must be logged in with administrator level access to change this file.

2. Enter the IP address and host name for Decision at the end of the list, for example:



```
hosts - Notepad
File Edit Format View Help
#
# This is a sample HOSTS file used by Microsoft TCP/IP for Windows.
#
# localhost name resolution is handled within DNS itself.
#   127.0.0.1      localhost
#   ::1           localhost

127.0.0.1 BP-Sandbox
127.0.0.1 authentication.local
127.0.0.1 hub.local
127.0.0.1 email.local
127.0.0.1 audit.local
127.0.0.1 file.local
127.0.0.1 license.local
127.0.0.1 notification.local
127.0.0.1 signalr.local
127.0.0.1 interact.local
127.0.0.1 interactremotepi.local
127.0.0.1 iada.local
127.0.0.1 bpapi.local
127.0.0.1 decision.local
```

3. Save and exit the text editor.

IIS ownership over the Decision certificates

On the Hub web server, you also need to give access for IIS users to the certificates created for Decision. To do this:

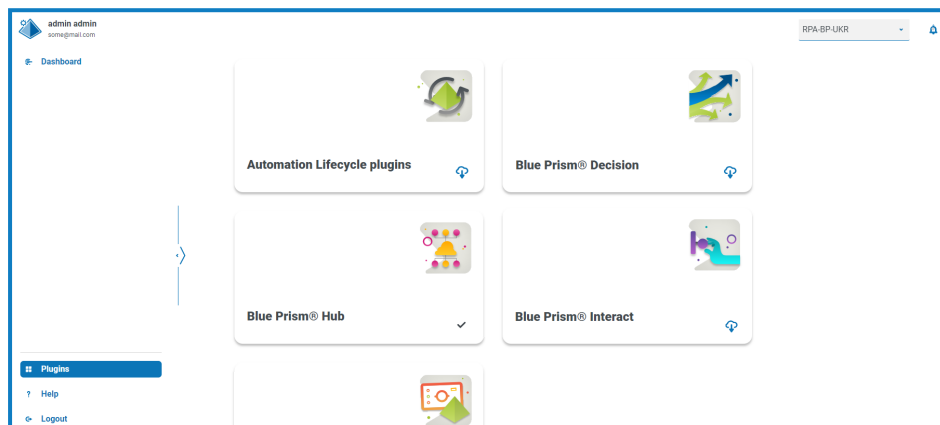
1. Open Manage Computer Certificates, and locate the required certificate.
2. Right-click the certificate, select **All Tasks**, and then **Manage Private Keys....**
3. Add **IIS_IUSRS** with the **Read** permission.
4. Click **Apply**.
5. Repeat for all the appropriate certificates. For a list, see [Generate an SSL Certificate on page 9](#).


Install the Decision plugin

The Decision plugin must be installed from the Plugin Repository by a Hub administrator.

▶ To watch the Decision plugin installation and configuration process, see our [Blue Prism Decision plugin video](#).


1. If you are a Hub administrator, log into Hub and click **Plugins** to open the plugin repository.



2. On the **Blue Prism Decision** tile, click the download icon  to initiate the install.

3. When prompted, upload the license file for Decision.

The plugin installs and a message displays informing you that the site is restarting. Once complete, the plugin repository displays and the download icon on the **Blue Prism Decision** tile is replaced with a tick.

 The site restart will affect all users who are logged into Hub. Although this does not take long, it is recommended that this is performed outside normal working hours to minimize disruption.

Configure access to the Decision plugin

The Decision plugin is automatically available to Hub administrators. Users need to be added to a role that provides access to Decision. This access can be given via a new role or added to an existing user role. If a role does not already exist, a new role can be created to grant access to the plugin:

Create role

✕ Save Delete

Role information

Role name *

Decision

Select role type

☒ Hub

☐ Interact

Role description

Role with access to the Decision plugin


Add plugin


Blue Prism Decision ✕

Add user

(test-user) Test User ✕

1. On the Roles and permissions page, click **Create role**.
The Create role section displays.
2. Enter a role name and select **Hub**.
3. If required, enter a description.
4. Select **Blue Prism Decision** from the **Add plugin** drop-down list.
5. Select the users that will be assigned this role from the **Add user** drop-down list. The list only displays Hub users and not Interact users.
6. Click **Save** to create the role and allow access to the specified users.

 This procedure and screenshot reflect a Hub environment that has not been configured to use Active Directory authentication. If your organization has implemented Active Directory authentication, you will also be able to add users to the role using Active Directory security groups. For more information, see the [Hub administrator guide](#).

 Users can be added to and removed from existing roles by selecting the required role on the Roles and permissions page and clicking **Edit**. For more information, see the [Hub administrator guide](#).

Configure Blue Prism to use Decision

To configure Blue Prism to use your Decision models, you need to:

1. [Set up a service account](#) in Hub and generate a secret key.
2. [Set up the credentials](#) for the Decision service account in Blue Prism.
3. [Import the Blue Prism Decision API Release VBO](#) to communicate with Decision.

Set up a service account

1. In Blue Prism Hub, on the Service accounts page, click **Add account**.
2. Enter a unique ID and a friendly name, for example, *Decision*.
3. Under **Permissions**, select **Decision API**.

Add a service account

ID *
Client ID which uniquely identifies the client application to the identity provider.

decision

Name *
Client name in the Authentication Server database.

decision

Permissions
The API(s) to which the client has access.

☐ Blue Prism API

☐ Authentication Server API

☐ Interact Remote API

☒ Decision API

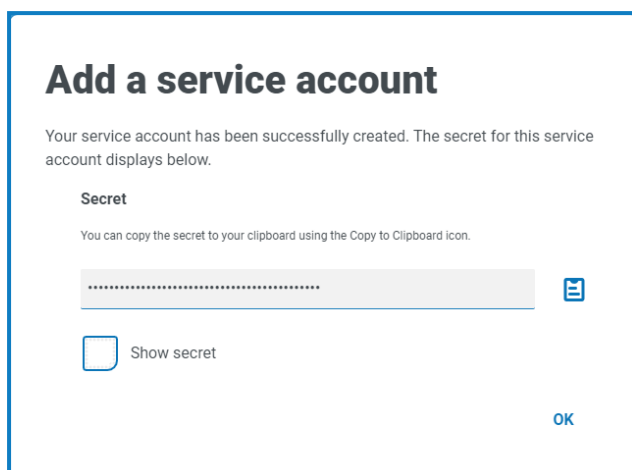
☐ Director API

Create service account

4. Click **Create service account**.

The Add a service account dialog displays with a generated secret key. You will need to enter this key into the Blue Prism interactive client when configuring the associated credential.

- Copy the generated secret to your clipboard ready to paste into the Blue Prism interactive client.



Add a service account

Your service account has been successfully created. The secret for this service account displays below.

Secret

You can copy the secret to your clipboard using the Copy to Clipboard icon.

.....

☐ Show secret

OK

- Click **OK** to close the dialog.

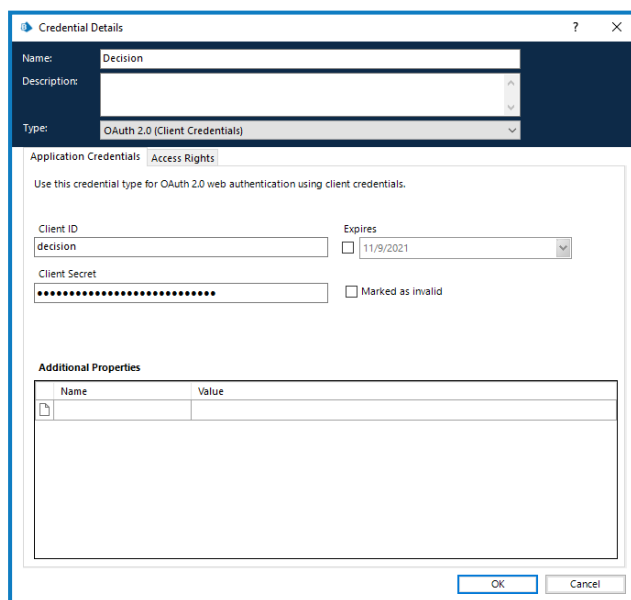
The Service accounts page displays with the newly created account shown.

Set up credentials in Blue Prism

- Log into the Blue Prism interactive client, select **System** and then click **Security > Credentials**. See [Security > Credentials](#) for additional information.
- Click **New**.

The Credential Details dialog displays.

- On the Application Credentials tab of the Credential Details dialog:
 - Enter a name.
 - Change the **Type** to **OAuth 2.0 (Client Credentials)**.
 - In **Client ID**, enter the ID that you used to create the service account above in [Set up a service account on the previous page](#).
 - In **Client Secret**, enter the secret key that was generated for the service account.



Credential Details

Name: Decision

Description:

Type: OAuth 2.0 (Client Credentials)

Application Credentials | Access Rights

Use this credential type for OAuth 2.0 web authentication using client credentials.

Client ID: decision

Expires: ☐ 11/9/2021

Client Secret:

☐ Marked as invalid

Additional Properties

Name	Value

OK Cancel

4. On the Access Rights tab of the Credential Details dialog, set up the required access permissions.
5. Click **OK**.

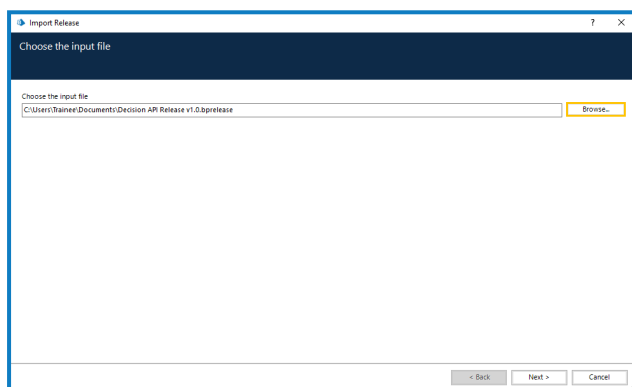
Import the Blue Prism Decision API Release VBO

1. If you haven't already, download the Decision API.bprelease file from the [Blue Prism Portal](#).
2. In Blue Prism, select **File** and click **Import > Release / Skill**.

The Import Release dialog displays.

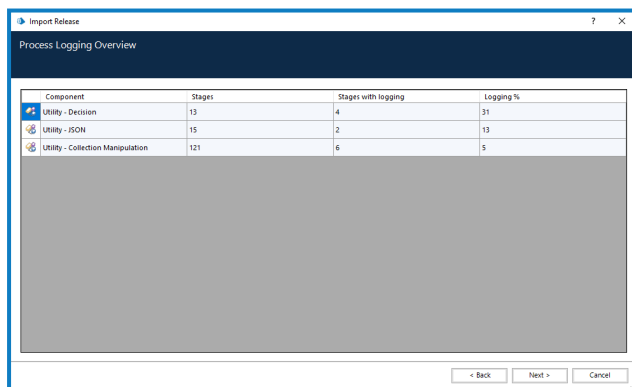
3. Click **Browse**.
4. Locate and select the Decision API.bprelease file.

For example:



5. Click **Next**.

The Process Logging Overview screen displays with a summary of the components that will be imported.



6. Click **Next**.
- A progress screen displays.
7. When the import has completed, click **Finish**.
 8. In Blue Prism, select **System** and then click **Objects > Web API Services**.
 9. Select **DecisionAPI** and click **Edit Service**.

10. On the Web API: DecisionAPI opening screen, in **Base URL**, enter the URL of the Decision API service in the format:

`<Hub host URL>:<port if specified during install>/api/blueprism-decision`

For example, `https://hub.blueprism.com:5002/api/blueprism-decision`

Or, if the default port was used, `https://hub.blueprism.com/api/blueprism-decision`.

11. Select **Common Authentication** in the navigation tree, then complete the following:

- a. Ensure that **Authentication Type** is set to **OAuth 2.0 (Client Credentials)**

- b. In **Authorization URI**, enter the Authentication Server URL in the format:

`<Authentication Server URL>:<port if specified during install>/connect/token`

For example, `https://authentication.blueprism.com:5000/connect/token`

Or, if the default port was used,

`https://authentication.blueprism.com/connect/token`.



If you have upgraded from a version earlier than 4.3, your system will still be using IMS. In this case, you should enter the information in the format:

`<IMS URL>:<port if specified>/connect/token`

For example, `https://ims.blueprism.com:5000/connect/token`.

- c. In **Credential**, select the credential you created in [Set up credentials in Blue Prism on page 23](#).


12. Click **OK** to save and complete the setup of the Web API Service.

Troubleshooting

Install Decision in an existing Hub environment


We didn't add Decision when we installed/upgraded Hub to 4.6, but we now want to use it. How do we install it?

You will need to carry out the steps in [Generate an SSL Certificate on page 9](#) and [Install the Blue Prism Decision Model Service on page 13](#). Then you need to update the Hub appsetting.json file with the Decision connection strings.

 The information below describes updating the Hub appsettings.json file. Caution must be taken to only amend the information provided, any other changes may break your existing system. Changes to the appsettings.json file should be made in conjunction with Blue Prism to ensure your system is supported.


To update the appsetting.json file to include Decision:

1. Open Windows Explorer and navigate to `C:\Program Files (x86)\Blue Prism\Hub\appsettings.json`.


 This is the default install location – adjust this if you have used a custom location.

2. Open the appsettings.json file in a text editor.
3. Locate the following section of the file:

```
"BluePrismDecision": {  
  ...  
  "ConnectionString": "",  
  ...  
}
```

 This is not the only setting you will see under `BluePrismDecision`. However, it is the only one that needs to be changed.

- Using the [Blue Prism Data Protector Tool](#) in PowerShell, create and encrypt the connection string for the Decision database, for example:

 The command should be on a single line – see the [online version of this guide](#).

If you want to use SQL Authentication:

```
.\BluePrismDataProtector.Console.exe protect -v "Data Source=[SQL Server];Initial Catalog=BluePrismDecisionDB;User Id=[user name, for example, sqladmin];Password=[password];Max Pool Size=500;MultiSubnetFailover=True;" -p ".\"
```

If you want to use Windows Authentication:

```
.\BluePrismDataProtector.Console.exe protect -v "Data Source=[SQL Server];Initial Catalog=BluePrismDecisionDB;Integrated Security=True;Max Pool Size=500;MultiSubnetFailover=True;" -p ".\"
```


Where you replace:

[SQL Server] = The SQL Server that will host the database.

[user name, for example, sqladmin] = The SQL user name (SQL Authentication only)

[password] = The password for the SQL user (SQL Authentication only)

If required, you can enter a different database name for the `Initial Catalog` parameter.
`BluePrismDecisionDB` is the default name.

 The settings above are equivalent to the values you would enter on the Configure Blue Prism Decision SQL connection screen in the Hub Install Wizard.

The Decision database will be created when you install the Decision plugin in Hub.

- Copy the encrypted string between the `"` next to the `ConnectionString` setting in the Hub `appsettings.json` file, shown in [step 3](#).
- Save the file.
- Locate the following section in the same `appsettings.json` file:

```
"BluePrismDecisionSettings": {  
  "Certificate": {  
    "CertificateThumbprint": ""  
  },  
  "DruidModelServices": {  
    "v1": ""  
  }  
}
```


- Between the `"` next to the `CertificateThumbprint` setting, enter the thumbprint for the SSL certificate.

If you are using Windows, you can find this using Manage Computer Certificates, double-click the Certificate and **Thumbprint** is on the Details tab.

- Between the `"` next to the `v1` setting, enter the URL for the Blue Prism Decision Model Service.
- Save and close the file.

11. Restart Hub:

- a. Open Internet Information Services (IIS) Manager.
- b. In the list of connections, select **Blue Prism - Hub**.

 This is the default site name – if you have used a custom site name, select the appropriate connection.

- c. Click **Restart** from the Manage Website controls.

12. Add Decision to the hosts file. For more information, see [Decision DNS resolution on page 18](#).

The next steps are to complete [Install the Decision plugin on page 20](#) and [Configure access to the Decision plugin on page 21](#). However, before you install the plugin, you will need to temporarily provide dbcreator or sysadmin SQL Server permissions to the login used for the Application Pool Blue Prism – Hub, this login will depend on the option selected when you installed Hub:

- SQL Server Authentication – The SQL user who was specified during the install.
- Windows Authentication – The Windows service account associated with the Application Pool Blue Prism – Hub.

The Decision database is created when the Decision plugin is installed in Hub. After this, the dbcreator or sysadmin permissions can be removed.

OpenSSL script fails

If the OpenSSL script fails, add OpenSSL to Path environment variable and then try running the script again.

1. From the Windows taskbar, open Control Panel.
2. Select **System and Security**, then select **System**, and then click **Advanced system settings**.
The System Properties dialog displays.
3. Click **Environmental variables**.
The Environment Variables dialog displays.
4. In the **System variables** group, select **Path**, and then click **Edit**.
The Edit environment variable dialog displays.
5. Click **New** and on the new line, enter the path to OpenSSL. The default location is C:\Program Files\OpenSSL-Win64\bin.
6. Click **OK** to save the changes.

500 error received when using Decision

This error may be seen if you are running the Decision Model Service as a Windows service on a different server to Blue Prism Hub. It indicates that communication between the servers cannot be established and is most likely due to a firewall. You need to allow requests on the port where the Decision Model Service is running to establish communication. The way to do this will depend upon the firewall you are using. The example below describes how to create an Inbound Rule for the Windows Defender Firewall:


1. Open the Group Policy Management Console to Windows Defender Firewall with Advanced Security.
2. In the navigation pane, click **Inbound Rules**.

3. Click **Action**, and then click **New rule**.

The New Inbound Rule Wizard displays.

4. On the Rule Type page, select **Port**, and click **Next**.
5. On the Protocols and Ports page, select **TCP** and enter the port that is configured for Decision Model Service, for example, 50051, and then click **Next**.
6. On the Action page, select **Allow the connection**, and then click **Next**.
7. On the Profiles page, select the network location types that should be allowed to access the service, and then click **Next**.
8. On the Name page, enter a name and a description that allows easy identification of the rule, for example, *Allow Decision Model Service Connection* and then click **Finish**.

Uninstall

 If you are using Decision models in your automated processes, uninstalling the Decision Model Service will cause these processes to break. You must ensure you only uninstall a Decision Model Service if it is no longer being used.

Uninstall the Decision Model Service Windows service

1. On the Windows server, open Services and stop the Decision Model Service.
2. Open Programs and Features, select Decision Model Service and click **Uninstall**.

A message displays asking you to confirm the uninstall.

3. Click **Yes**.

The uninstall begins.

Once the uninstall completes, Decision Model Service no longer displays in the Programs and Features list.

Uninstall the Decision Model Service container

1. On the Docker host, stop the container using the following stop command:

```
docker container stop blueprism/decision-model-service:<version>
```

Where:

<version> is replaced with the version number of the Decision Model Service container.

2. Uninstall the container using the following remove command:

```
docker container rm blueprism/decision-model-service:<version>
```

Where:

<version> is replaced with the version number of the Decision Model Service container.