1Integrate for ArcGIS

Installation Guide

Server Edition

Product version: v 2.1

Document version: v 1.9

Document date: 24/06/2019

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Contents

1 Installation Overview

> **Note:** Before proceeding with an installation, please see your Release Notes to ensure you have installed all pre-requisite software and meet all minimum system requirements.

The installation process consists of the following main steps:

1. Extract your release package
2. Install core components using the Setup Wizard
3. Configure the ArcGIS Server Manager to enable 1Integrate for ArcGIS
4. Install any required Add-ins

> **Note:** If any help is required during the installation process, please contact 1Spatial Support.

Release Package

Your release package consists of a zip file, which must be extracted to an accessible location.

The **1IFA_Server_Installer-[version].exe** file is the setup wizard that will install your components.

Other files include:

- ▶ **1IFA_Server-[version].soe** - the server extension deployed to ArcGIS Server during configuration
- ▶ plugins for each desktop application (e.g. **1IFA_ArcMap_[version]_ Plugin-[version].esriaddin**)

Installation Pre-requisites

Before proceeding with your installation, ensure you have met the system requirements and installed all necessary Esri applications.

Consult the *1Integrate for ArcGIS Release Notes* for the specific pre-requisites for your release.

Active MQ

Active MQ must be installed and running on the machine on which you are installing 1Integrate for ArcGIS.

The Active MQ software and installation instructions can be downloaded from the Apache Software Foundation website.

> **Note:** By default, Active MQ will install on port 61616. During the installation of 1Integrate for ArcGIS the port number for Active MQ will need to be specified. If the Active MQ port number is different to the default, please make a note of it.

Install Active MQ:

1. Download the Active MQ software (release 5132).

2. Unzip the Active MQ release bundle.

3. Navigate to the directory: **apache-activemq-5.1.3.2\bin\win64**

4. Run the **InstallService.bat** batch file as an Administrator.

5. Open the Task Manager and under the **Services** tab, check that Active MQ is running.

Name	PID	Description	Status
ActiveMQ	1792	ActiveMQ	Running
AdobeARMservice	1680	Adobe Acrobat Update Service	Running
AeLookupSvc		Application Experience	Stopped
ALG	4552	Application Layer Gateway Ser...	Running
AppHostSvc	1840	Application Host Helper Service	Running
AppIDSvc		Application Identity	Stopped
Appinfo	620	Application Information	Running
AppMgmt	620	Application Management	Running
AppReadiness		App Readiness	Stopped
AppXSvc		AppX Deployment Service (Ap...	Stopped
ArcGIS Server	9016	ArcGIS Server	Running

Figure 1-1: *Check the ActiveMQ service is running*

> **Note:** A restart is recommended to ensure the service and windows registry is updated correctly.

Licences

During the installation process you will be asked to specify the location of a licence folder e.g `C:/1Spatial/1IfA`.

Two directories will automatically be created by the installation wizard in this location, called **hash** and **lic**.

A file called **hardware_hash.txt** will be created in the hash folder. This file will contain a string of characters unique to the machine on which 1Integrate for ArcGIS is being installed. This file will need to be sent to 1Spatial Support and will be used to generate your licence.

When received, the licence file generated by 1Spatial Support must be placed in the **lic** folder.

> **Note:** The location of the licence folder can be changed after installation by editing the <license-folder> element within the **rules_ engine_svc-config.xml** file (typically located within C:\Program Files\1Spatial\RulesEngineService\config\)

2 Installing Components

The following components are installed via the 1Integrate for ArcGIS Setup Wizard:

▶ **Metadata Service** - stores all data related to 1Integrate for ArcGIS

▶ **Rule Author** - web application to allow the creation and publication of rules

▶ **1Integrate for ArcGIS Widget** - interface for running rules

▶ **Rules Engine Client** - a service that manages all 1Integrate for ArcGIS processing

Running the Setup Wizard

The Setup Wizard is run via the **1IFA_Server_Installer-[version].exe** file provided in your Release Package.

Run the Setup Wizard:

1. Launch the wizard by double-clicking on **1IFA_Server_Installer-[version].exe**.
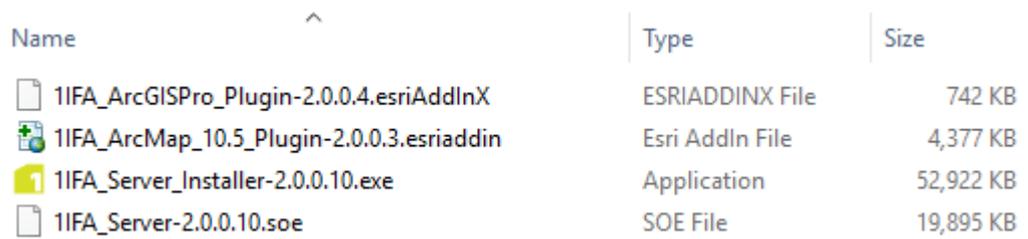
Name	Type	Size
1IFA_ArcGISPro_Plugin-2.0.0.4.esriAddlnX	ESRIADDINX File	742 KB
1IFA_ArcMap_10.5_Plugin-2.0.0.3.esriaddin	Esri Addln File	4,377 KB
1IFA_Server_Installer-2.0.0.10.exe	Application	52,922 KB
1IFA_Server-2.0.0.10.soe	SOE File	19,895 KB

Figure 2-1: *Example Release Package*

The 1Integrate for ArcGIS Setup Wizard will open.

2. Click **Install** to proceed.

Figure 2-2: *Setup Wizard Start Page*

If prompted to trust the application, click **Accept**.

3. The Setup Wizard will now run through each component to be installed, starting with the Metadata Service.
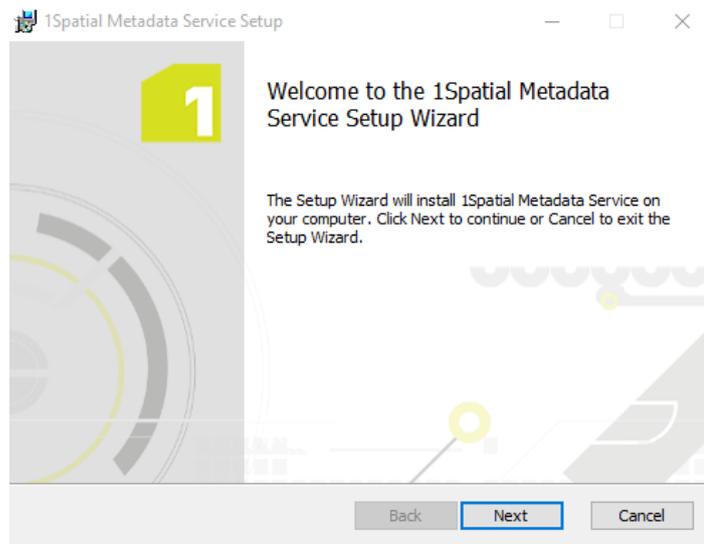
Figure 2-3: *Installing the Metadata Service*

Click **Next** to proceed.

4. If you want to change the location in which to install the Metadata Service, click **Change**.

   To accept the location and proceed, click **Next**.
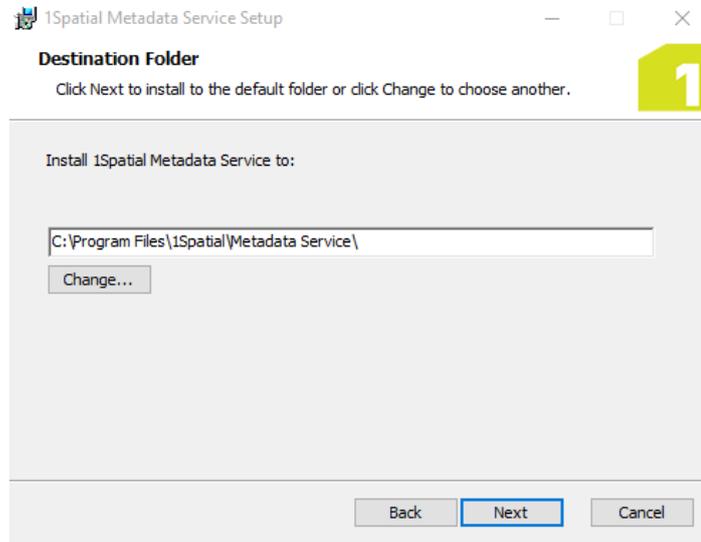
Figure 2-4: *Location for the Metadata Service*

5. Select a database option (and enter further credentials as required).
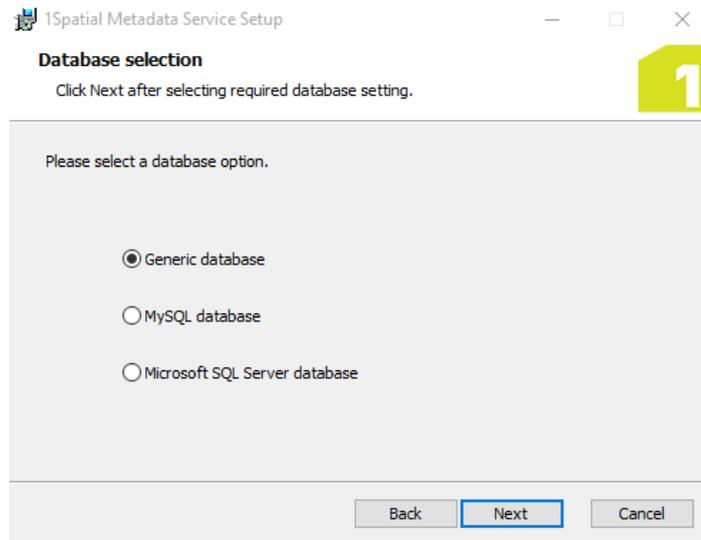
Figure 2-5: *Select a database option*

▶ **Generic database** - a lightweight file-based database option (*not* recommended for implementations requiring high usage or many users)

▶ **MySQL database**

> 🗄 **Note:** MySQL must already be installed.

Provide the following information to connect to your
MySQL database:

- ▶ Username
- ▶ Password
- ▶ Hostname
- ▶ Port number
- ▶ Database

▶ **Microsoft SQL Server database**

> 🗄 **Note:** Microsoft SQL Server must already be installed.

Provide the following information to connect to your Microsoft
SQL Server database:

- ▶ Username
- ▶ Password
- ▶ JDBC URL

Once completed, click **Next** to proceed.

6. Enter the Metadata Service endpoint port (by default this is 9998).
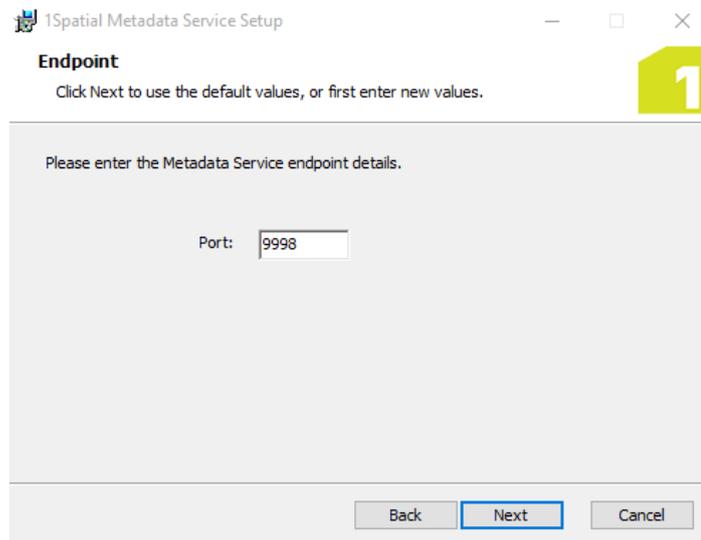
Figure 2-6: *Set the Metadata Service endpoint*

Click **Next** to proceed.

7. Enter an Administrator password, used to access the Metadata Service.

> **Note:** This will become the password corresponding to the username "admin".
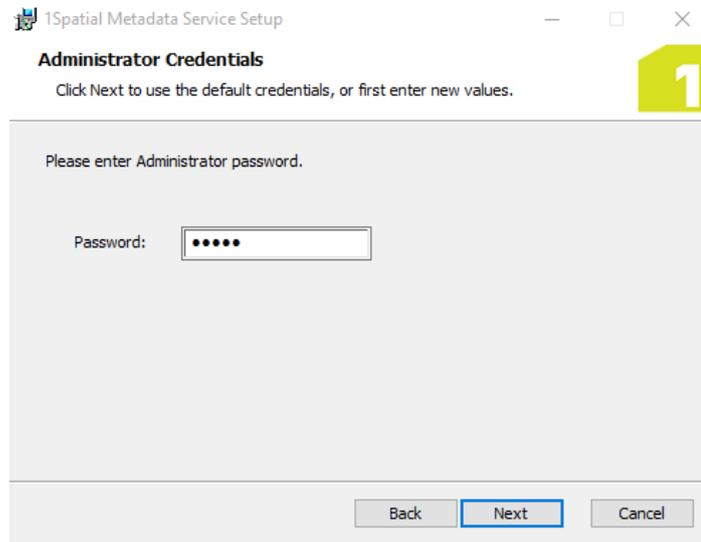
Figure 2-7: *Set the Administrator password*

> **Note:** We recommend you overwrite the default value for security purposes.

Click **Next** to proceed.

8. Select an authentication service to be used by users accessing the Metadata Service:

> **Note:** Select **Local Authenticator**, as other options are not yet supported.
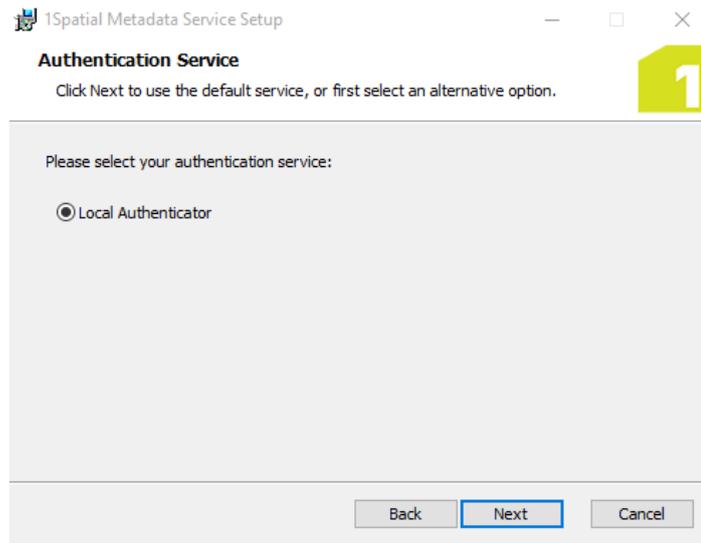
Figure 2-8: *Select Authentication Service*

Once selected, click **Next** to proceed.

9. Click **Install**.

   The Metadata Service is now installed. Click **Finish** to proceed.

10. The Setup Wizard will now install the next component, the Rule Author.

Figure 2-9: *Installing the Rule Author*

Click **Next** to proceed.

11. If you want to change the location in which to install the Rule Author, click **Change**.

    To accept the location and proceed, click **Next**.
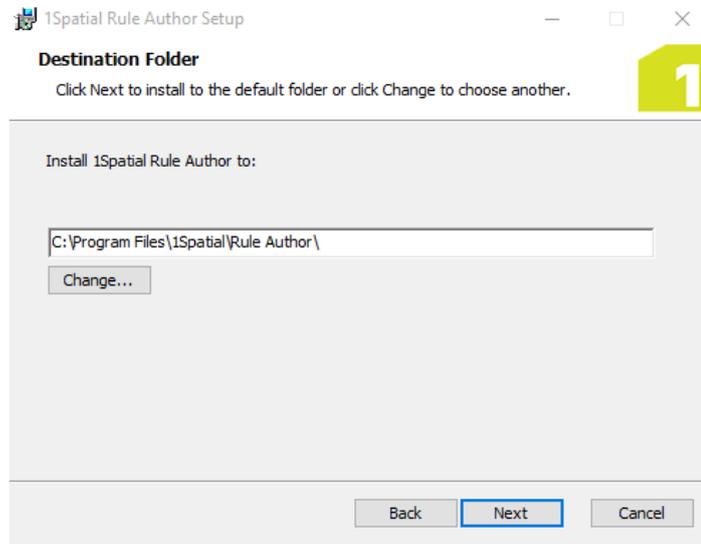
Figure 2-10: *Location for the Rule Author*

12. Enter the Rule Author endpoint port (by default this is 7878).
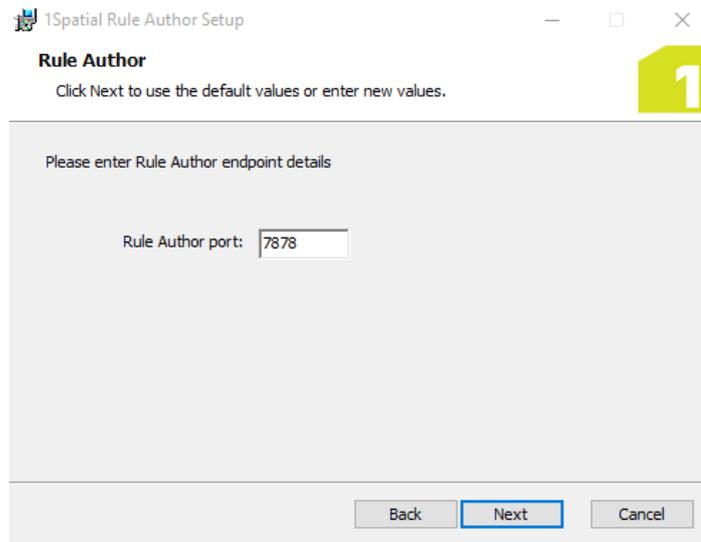
Figure 2-11: *Set the Rule Author port*

    Click **Next** to proceed.

13. Enter the Metadata Service endpoint details:

    ▶ **Metadata Service host** - the machine on which the Metadata Service is installed

▶ **Metadata Service port** - the port defined during installation (by default this was set to 9998)
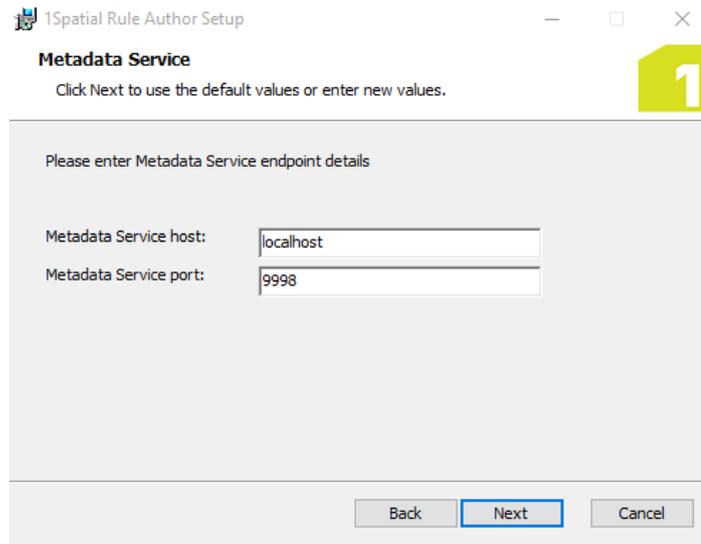
Figure 2-12: *Enter details for the Metadata Service endpoint*

Click **Next** to proceed.

14. Click **Install**.

The Rule Author is now installed. Click **Finish** to proceed.

> **Note:** You can test that the Rule Author has installed correctly by navigating to https://[host]:[port]/login.html. The login screen should appear.

15. The Setup Wizard will now install the 1Integrate for ArcGIS Widget.
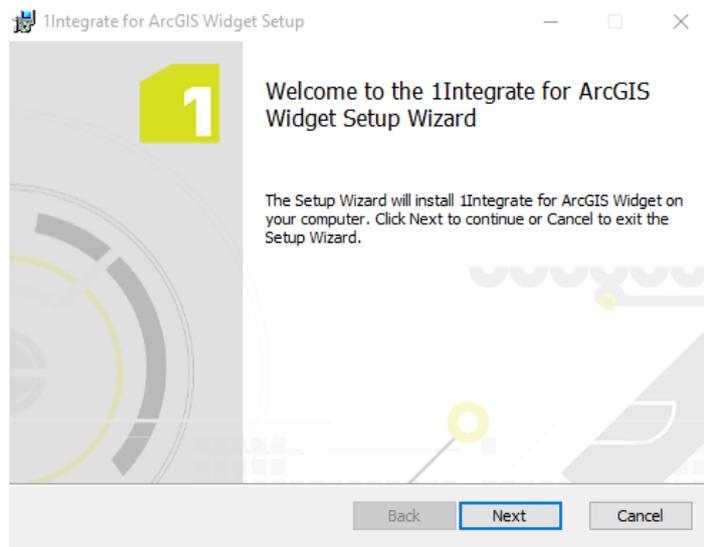
Figure 2-13: *Installing the 1Integrate for ArcGIS Widget*

Click **Next** to proceed.

16. If you want to change the location in which to install the 1Integrate for ArcGIS Widget, click **Change**.
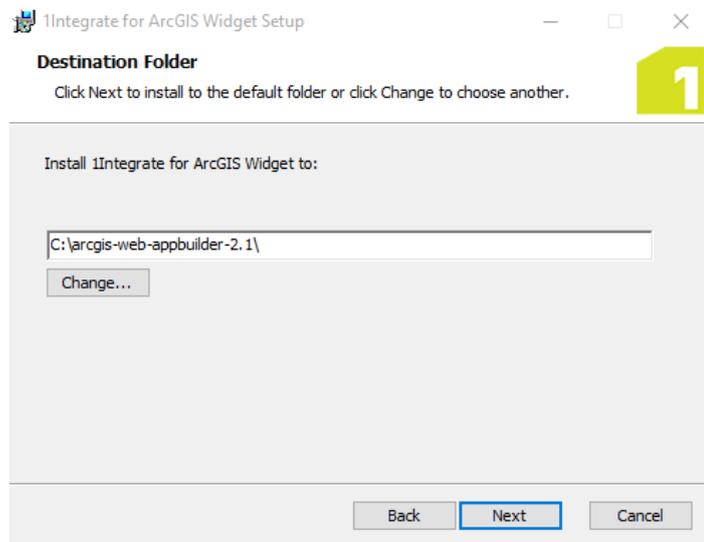
Figure 2-14: *Location for the 1Integrate for ArcGIS Widget*

To accept the location and proceed, click **Next**.

17. Click **Install**.

The 1Integrate for ArcGIS Widget is now installed. Click **Finish** to proceed.

18. The Setup Wizard will now install the final component, the Rules Engine Client.

Figure 2-15: *Installing the Rules Engine*

Click **Next** to proceed.

19. If you want to change the location in which to install the Rules Engine, click **Change**.

To accept the location and proceed, click **Next**.
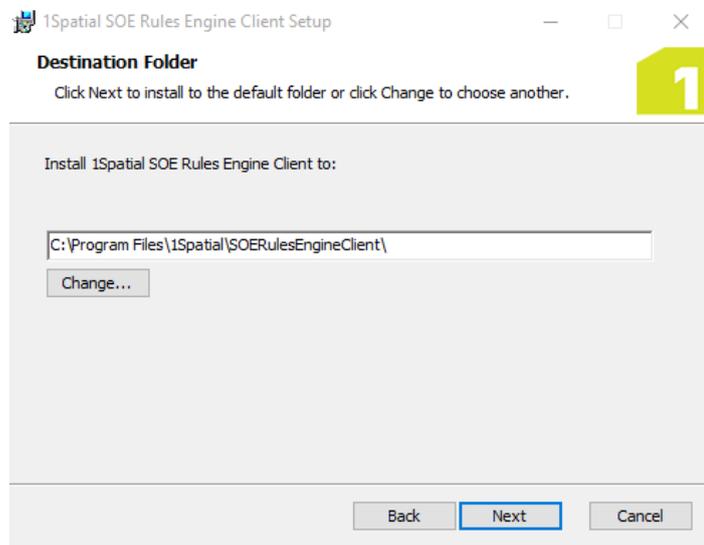
Figure 2-16: *Location for the Rules Engine*

20. Enter the SOE Rules Engine Client details:

   ▶ **ActiveMQ Host URL** - the machine and port on which Active MQ is already installed and running (see your Release Notes for

▶ system requirements).

▶ **ActiveMQ Queue Name** - the name of the Rules Engine Queue that will be used with Active MQ. We recommend you keep the default setting.

▶ **Number of Workers** - the number of concurrent 1Integrate for ArcGIS processes allowed. We recommend you keep the default setting.

▶ **License Directory** - the location where the licence folder should be created (see "Licences" on page 6).
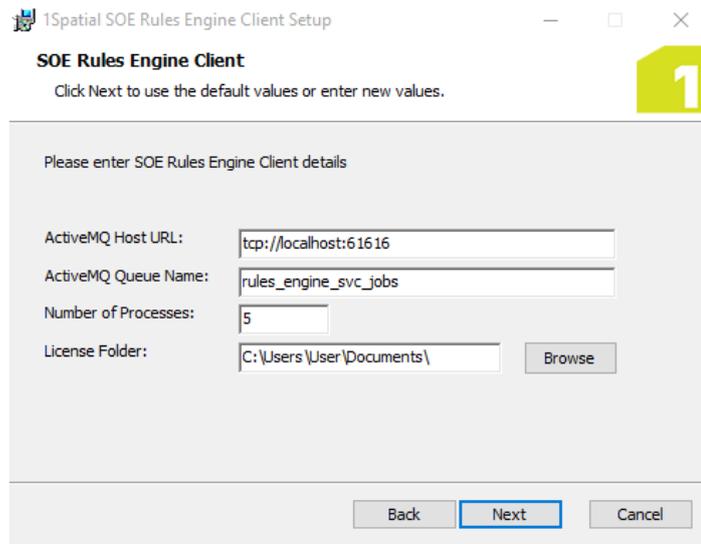
Figure 2-17: *SOE Rules Engine Client details*

Click **Next** to proceed.

21. Enter the Metadata Service endpoint details:

▶ **Metadata Service host** - the machine on which the Metadata Service is installed

▶ **Metadata Service port** - the port defined during installation (by default this was set to 9998)
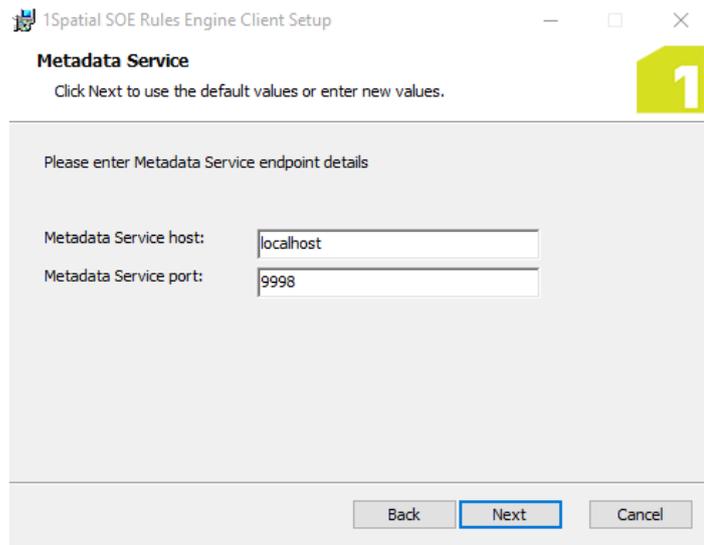
Figure 2-18: *Enter details for the Metadata Service endpoint*

Click **Next** to proceed.

22. Click **Install**.

The Rules Engine Client is now installed. Click **Finish** to exit the Setup Wizard.

3 Configuring ArcGIS Server

In order to enable 1Integrate for ArcGIS to be used for your data services, it must first be configured through the ArcGIS Server Manager.

The server extension must first be added, and then each data service must be configured to use the extension.

Adding the 1Integrate for ArcGIS Server Extension

The 1Integrate for ArcGIS Server Extension must be added to ArcGIS server before any data services can use it.

Add the Server Extension:

1. Log in to your ArcGIS Server Manager.

2. Within ArcGIS Server Manager, navigate to **Site** > **Extensions**.

Figure 3-1: *Extensions page*

3. Click **Add Extension**.

Figure 3-2: *Add Extension*

4. Click **Browse** to locate and open the 1Integrate for ArcGIS SOE package provided in your release package (**1IFA_Server-[version].soe**).

Figure 3-3: *Example Release Package*

5. Click **Add**.

A confirmation message will display, and 1Integrate for ArcGIS is now listed as an extension.

Figure 3-4: *1Integrate for ArcGIS Extension added*

Configuring a Data Service

In order for data services to be able to use the 1Integrate for ArcGIS Extension (via an Add-in or widget), they must first be configured.

Additionally, each data service must be configured to be associated with a ruleset, to determine the rules that will be available.

> **Note:** A data service can only be associated with one ruleset, but a ruleset can be associated with many data services.

Configure a Data Service:

1. Within your ArcGIS Server Manager, navigate to **Services**.
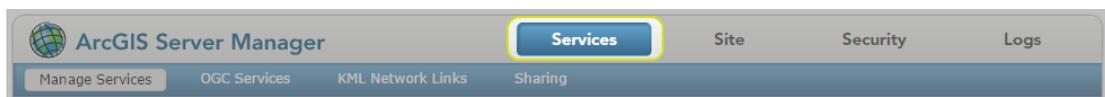
Figure 3-5: *Services tab*

2. Select the data package you wish to configure using the left hand menu.

    Open it for editing by clicking the pen icon 🖊 next to the title in your data package.

Figure 3-6: *Example data package*

3. Navigate to **Capabilities**.

4. Under "Select and configure capabilities", check the box next to **1Integrate for ArcGIS** to enable it.
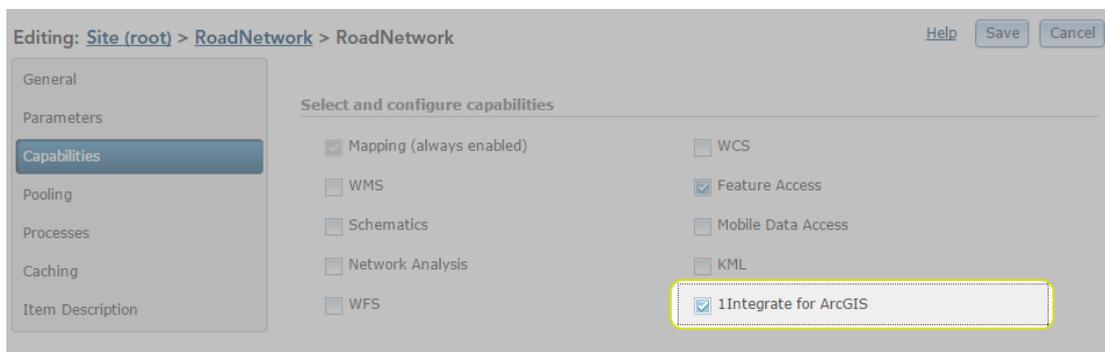
Figure 3-7: *1Integrate for ArcGIS capability enabled*

5. Upon selecting the box next to **1Integrate for ArcGIS**, the following configuration properties will be displayed:

   ▶ **Queue Host URL** - Location and port of the Active MQ service.

   ▶ **Queue Name** - Name of the Active MQ queue that was specified during the Rules Engine Client installation (the default name is recommended) .

   ▶ **URL** - URL for the metadata service (including the port as defined during installation).

   ▶ **Mode** - Select "Single User".

   ▶ **Username** - Enter "admin".

   ▶ **Password** - The password for the admin user (as defined during installation).

   ▶ **Rule Set ID** - The name of the Rule Set to be used with this Map Service.

Figure 3-8: *1Integrate for ArcGIS Configuration Properties*

6. Ensure that the box next to **Feature Access** is checked.

Figure 3-9: *Feature Access capability enabled*

7. Click **Save**.

Federated ArcGIS Server sites with Portal for ArcGIS

Federating an ArcGIS Server site with your portal is an advanced configuration for integrating the security and sharing models of your portal with one or more ArcGIS Server sites. If your site has a federated server with portal, then please set up the security of the map services to be used by 1Integrate for ArcGIS so that users authorised by portal can access them.

> **Note:** Currently if using the 1Integrate for ArcGIS add-ins in ArcGIS Pro or ArcMap to access map services in a federated ArcGIS Server, it is necessary to make the map service available to "Everyone". This is a known limitation and will be fixed in a future release.

The 1Integrate for ArcGIS web widget (for web apps) and 1Integrate for ArcGIS Mobile users (Collector) are unaffected by this, and map services used by these applications can be made available to Portal for ArcGIS users and groups within the federated ArcGIS Server.

Certification Authentication

On Federated and Secured networks, certificate authentication issues can result in the following error when trying to fetch rules in ArcGIS Desktop:

"`javax.net.ssl.SSLPeerUnverifiedException: peer not authenticated`"

To resolve this error, your self-signed certificate must be in **.cert** format.

> **Note:** There are several methods for converting certificates into the required **.cert** format. A commonly used tool is OpenSSL.

In order to use the new certificate, it needs to be imported into two Java certificate keystores, one for the ArcMap Add-in (C:\Program Files (x86)\ArcGIS\Desktop10.4\java\jre\lib) and one for the Rule Author interface (JAVA_HOME\jre\lib).

The import can be achieved using the keytool Java command line application that is available in the Java\jre..\bin directory.

Use the keytool command to import certificates (replacing the variables indicated in *<angled brackets>*):

```
keytool -import -alias
<certificate_alias>
-file
```

```
<name of the certificate which is exported in .cert
format>
-keystore
<JAVA_HOME>
/jre/lib/security/cacerts -trustcacerts"
```

Example:

For ArcMap Add-in this is imported into ArcGIS desktop's Java jre, for example.:

```
keytool -import -alias

{certificate_alias} -file {name of the certificate
to import} -keystore C:\Program Files
(x86)\ArcGIS\Desktop10.4\java\jre\lib\security\cacer
ts -trustcacerts
```

For the Rule Author interface this is imported into the 64 bit java home, for example:

```
keytool -import -alias {certificate_alias}

-file

{name of the certificate to import}

-keystore C:\Program Files\Java\jre1.8.0_
74\lib\security\cacerts -trustcacerts
```

See "Certificate Authentication" on page 28 for more information.

4 Installing Add-ins

> 📘 **Note:** The Web App Builder widget is installed during the normal installation procedure for 1Integrate for ArcGIS Server Edition.

There are a number of Add-ins available, depending on the application you are using:

- ▶ ArcMap
- ▶ ArcGIS Pro

In order to install these Add-ins, you will require the plugin, supplied in your Release Package as an Esri AddIn File (e.g. **1IFA_ArcMap_[version]_ Plugin-[version].esriaddin**).

Install an Add-in:

1. Locate the Esri AddIn File within your Release Package.
2. Double-click on the file to activate it.
3. Click **Install Add-In**.
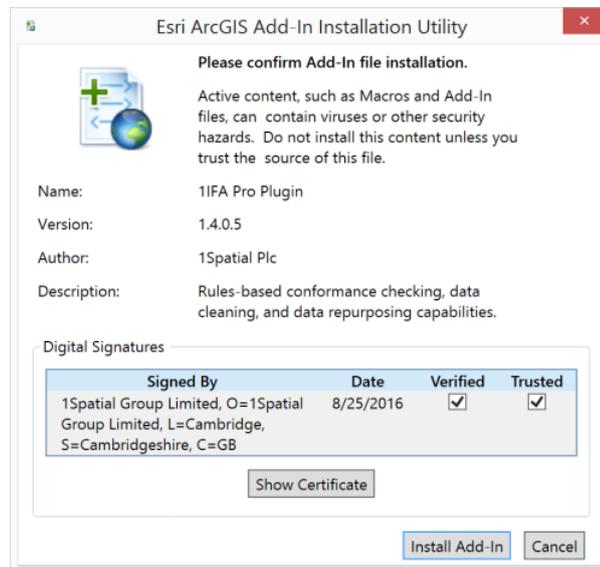
Figure 4-1: *Install Add-In*

The Esri ArcGis Add-In Installation Utility will confirm that the installation has succeeded.

Uninstalling Add-ins

The 1Integrate for ArcGIS Add-ins can be removed from ArcMap or ArcGIS Pro using the **Add-in Manager** (see the Esri documentation for further details).

5 Certificate Authentication

Certification authentication issues can occur when running 1Integrate for ArcGIS on a secure network.
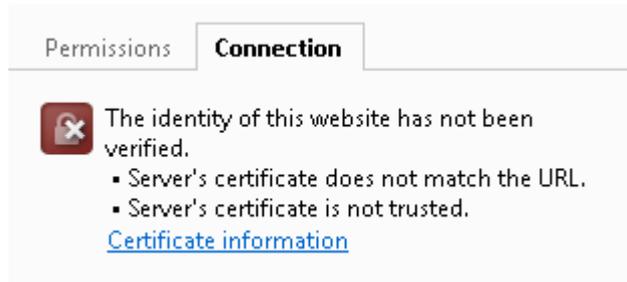
Figure 5-1: *Certificate authentication error in a browser*

Secure HTTPS communication requires two certificates that represent:

    a. A private key (on the server)

    b. A public key (for the client components)

In order to allow for secure communication between the 1Integrate for ArcGIS components, the public and private keys need to be available to the services.

For secure deployment, a private key is associated with a specific domain (e.g. www.mycompany.com) and is signed by a recognised certificate authority who confirms that the owners of the domain are who they say they are.

1Integrate for ArcGIS is shipped with some self-signed certificates which allow the product to be used immediately (but which should not be considered truly secure because the private key is not really private and is associated with the generic localhost domain).

We recommend you generate your own certificate and key files and replace those provided with 1Integrate for ArcGIS.

Generating and replacing secure certificates and private keys:

1. Generate secure certificates for use on your server, and use certificate authentication to export a **.crt** certificate and **.pksc8** private key file.

2. Rename the generated certificate and key files to **server.crt** and **server.pkcs8**.

3. Replace the placeholder files in the Rules Engine, Metadata Service

and Rules Author folders within: C:\Program Files\1Spatial\RulesEngineService\ssl.

Federated and Secured Networks (Server Edition only):

On Federated and Secured networks, certificate authentication issues can result in the following error when trying to fetch rules in ArcGIS Desktop:

"`javax.net.ssl.SSLPeerUnverifiedException: peer not authenticated`"

To resolve this error, your self-signed certificate must be in **.cert** format.

> **Note:** There are several methods for converting certificates into the required **.cert** format. A commonly used tool is OpenSSL.

In order to use the new certificate, it needs to be imported into two Java certificate keystores, one for the ArcMap Add-in (C:\Program Files (x86)\ArcGIS\Desktop10.4\java\jre\lib) and one for the Rule Author interface (JAVA_HOME\jre\lib).

The import can be achieved using the keytool Java command line application that is available in the Java\jre..\bin directory.

Use the keytool command to import certificates (replacing the variables indicated in *<angled brackets>*):

```
keytool -import -alias
<certificate_alias>
-file
<name of the certificate which is exported in .cert
format>
-keystore
<JAVA_HOME>
/jre/lib/security/cacerts -trustcacerts"
```

> **Example:**
>
> For ArcMap Add-in this is imported into ArcGIS desktop's Java jre, for example.:
>
> ```
> keytool -import -alias
> {certificate_alias} -file {name of the certificate
> to import} -keystore C:\Program Files
> (x86)\ArcGIS\Desktop10.4\java\jre\lib\security\cacer
> ts -trustcacerts
> ```
>
> For the Rule Author interface this is imported into the 64 bit java home, for example:
>
> ```
> keytool -import -alias {certificate_alias}
> ```

```
-file
{name of the certificate to import}
-keystore C:\Program Files\Java\jre1.8.0_
74\lib\security\cacerts -trustcacerts
```

-file

6 Checking the Installation

To check the installation has completed successfully, open a browser and navigate to the interface(s), using the locations determined during installation.

Component	Location
Metadata Service	https://[host]:[port]/index.html
Rule Author	https://[host]:[port]/login.html

Log in to the Rule Author using the Administrator credentials determined during installation.

Check your required Add-Ins have installed within each application.

Check that the three 1Spatial services and Active MQ are running by looking at the Services tab in Windows Task Manager.
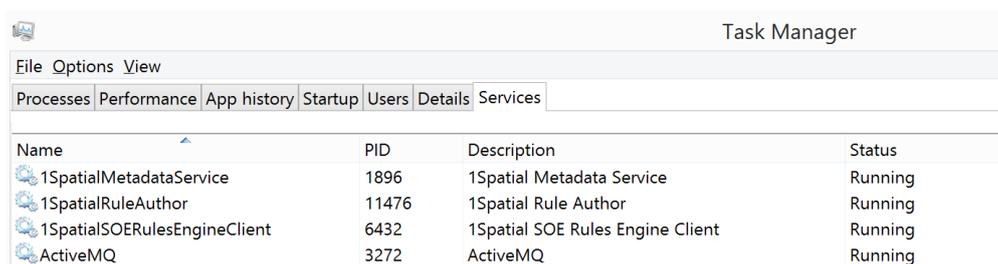
Figure 6-1: *Windows Task Manager > Services*

7 Upgrading an Installation

It is possible to upgrade an existing installation of 1Integrate for ArcGIS from an older version to a newer version.

<u>Upgrade an Installation (Server Edition):</u>

1. Back up your existing Rules and Actions.

   Access the folder where your current version of 1Integrate for ArcGIS is installed. Make a copy of the **1IFA_Server-[version].soe** file, and keep it in a safe place.

2. Uninstall the existing 1Integrate for ArcGIS installation using the Windows® Control Panel.

3. Remove the existing 1Integrate for ArcGIS SOE from within ArcGIS Server using ArcGIS Server Manager.

4. Remove the 1Integrate for ArcGIS Add-Ins for ArcMap and/or ArcGIS Pro.

5. Clear the browser cache of the web browser you will use to access ArcGIS Server Manager.

   > **Note:** If the cache is not cleared, problems will occur deploying the new SOE extension.

6. Install the latest version of 1Integrate for ArcGIS as per the installation guide, and deploy the new SOE extension.

7. Any Web Apps that were being used with the previous version of 1Integrate for ArcGIS should be re-created using the new 1Integrate for ArcGIS web widget.