FLEXEra
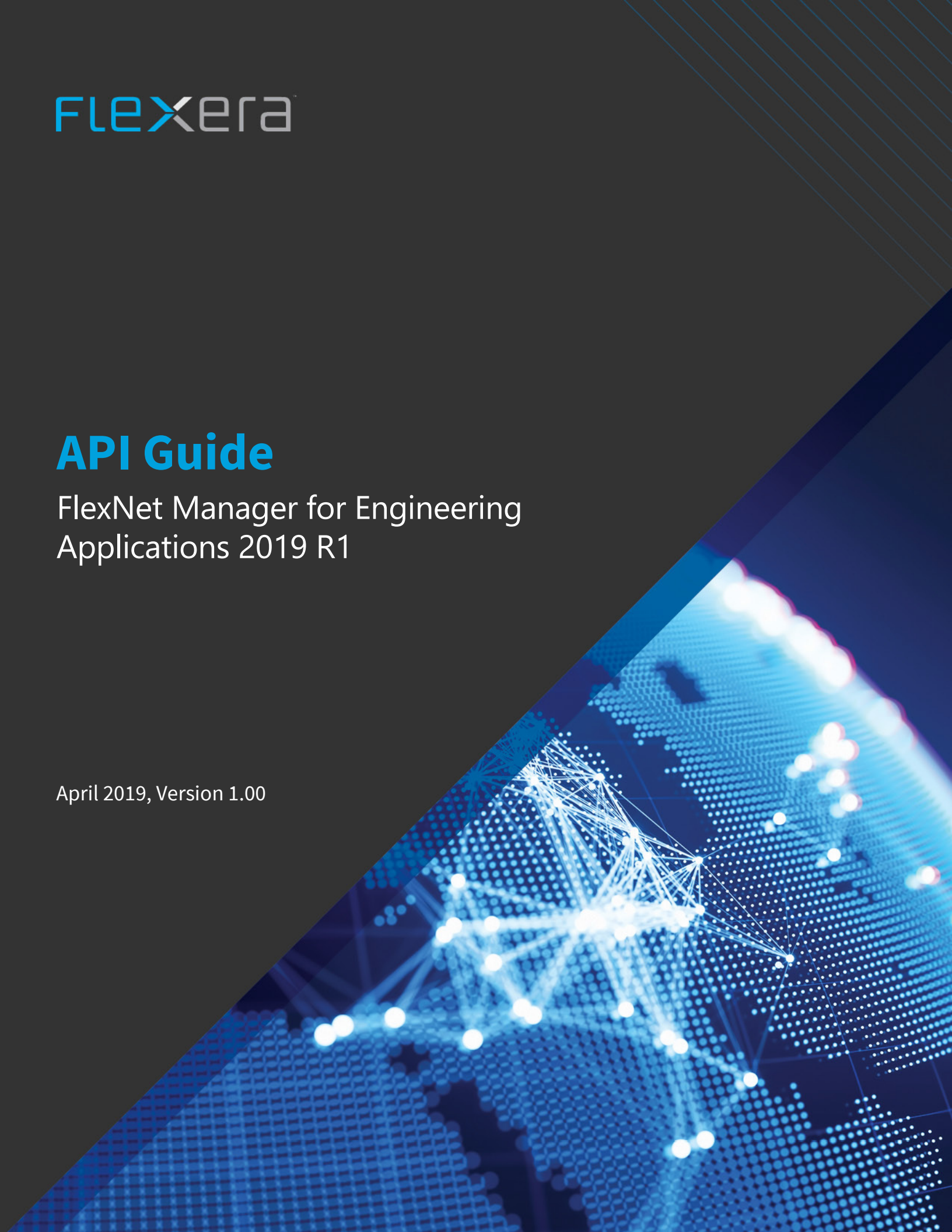
API Guide

FlexNet Manager for Engineering
Applications 2019 R1

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Legal Information

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Contents

1

Preface

This manual provides instructions and reference information for using the Application Programming Interface (API) of FlexNet Manager for Engineering Applications to set up and configure the following system components:

- FlexNet Agents

- License servers

- License files.

This document comprises the following chapters:

- Chapter 2, Overview, contains an architectural and operational overview of the API.

- Chapter 3, FlexNet Agent Configuration, describes the ways in which you can use the API to manage your FlexNet Agents.

- Chapter 4, License Server Configuration, describes the ways in which you can use the API to manage your license servers.

- Chapter 5, License File Configuration, describes the ways in which you can use the API to manage your license files.

Intended Audience

This manual is intended for license administrators of FlexNet Manager for Engineering Applications and other concurrently licensed software applications at enterprise organizations. It is assumed that you have an understanding of FlexNet Publisher licensing component configuration and operation.

This manual is also intended for developers implementing code against the FlexNet Manager for Engineering Applications API.

Additional Documentation

In addition to this API guide, Flexera Software provides a number of documentation resources to assist you in installing and configuring FlexNet Agents, understanding licensing concepts, and working with FlexNet Manager for Engineering Applications to monitor and manage license usage throughout your enterprise.

The following PDF documents are available from **Helpnet** (https://helpnet.flexerasoftware.com.

- **FlexNet Manager for Engineering Applications Installation Guide**: Provides installation and configuration information for the initial and subsequent FlexNet Manager for Engineering Applications installations, available from the Flexera Software download site.

- **FlexNet Manager for Engineering Applications Reporting Guide**: Provides information about generating FlexNet Manager for Engineering Applications Classic reports, use of the Cognos reporting facility by Flexera Analytics, and use of the command-line reporting interface.

- **FlexNet Agent Installation Guide**: Provides installation and configuration information for the initial and subsequent FlexNet Agent installations, available from the Flexera Software download site.

- **FlexNet Manager for Engineering Applications Help Library**: For context-sensitive instructions on how to use FlexNet Manager for Engineering Applications, available by clicking the Help button on each FlexNet Manager for Engineering Applications page.

- **FlexNet Publisher License Administration Guide**: For details related to FlexNet licensing component configuration and operation. This guide describes the setup and administration of a FlexNet licensing system, including starting and stopping license servers, setting up an options file, enabling report logging, and using FlexNet license administration tools. (This guide is part of the FlexNet Publisher documentation set.)

2

Overview

FlexNet Manager for Engineering Applications 2019 R1 provides an Application Programming Interface (API) which may be used as an alternative way of performing common actions relating to managing your environment.

API Functionality

The API provides functionality in the following areas:

- FlexNet Agent configuration

- License server configuration

- License file configuration.

FlexNet Agent Configuration

You can set up and configure FlexNet Agent 5.x using the API endpoints listed below.

Endpoints

The following FlexNet Agent setup and configuration endpoints are available:

- Get Agent Configuration

- Add an Agent

- Update an Agent

- Remove an Agent

Refer to Chapter 3, FlexNet Agent Configuration for full details of these endpoints.

License Server Configuration

You can configure license servers using the API endpoints listed below.

Endpoints

The following license server setup and configuration endpoints are available:

- Get all License Servers

- Add a License Server

- Update a License Server

- Remove a License Server.

Refer to Chapter 4, License Server Configuration for full details of these endpoints.

License File Configuration

You can edit (or update) license files via the API. Retrieving the details of a license file (before or after editing it) is also possible.

Endpoints

The following license file configuration endpoints are available:

- Get a License File

- Update a License File.

Refer to Chapter 5, License File Configuration for full details of these endpoints.

General Information

API "Swagger" webpage

Once you have the Admin component of FlexNet Manager for Engineering Applications installed and running, there is a webpage provided that will assist with seeing what API endpoints are available, and how to use them.

This page is constructed using Swagger UI, which is an open source project to visually render documentation for an API defined with the OpenAPI (Swagger) Specification.

The default URL for this page is:

http://serveraddress:port/flexnet/pub-api/swagger-ui.html, where:

- **serveraddress** is the name or address of the server where you have FlexNet Manager for Engineering Applications (Admin component) installed

- **port** is the same port used in the web UI (8888 by default).

A secured version is also provided at:

https://serveraddress:port/flexnet/pub-api/swagger-ui.html.

This page is provided for reference and experimentation; however, consuming the API for production purposes is more efficiently done programatically.

The OpenAPI specification for the API is available here:

http://serveraddress:port/flexnet/pub-api/v2/api-docs.

Required Permissions

In order for an account to be able to run any of the endpoints, you must first add it to the **Super Administrator** role.

Note • Accessing the Swagger UI and OpenAPI pages does not require a user to be in the Super Administrator role.

Task   ***To assign the Super Administrator role:***

1. Go to **Admin** > **Show Users**.

2. Click the required user from the list of users in the table.

3. Under the section **Role for User(s)**, select the checkbox next to **Super Administrator**.

Authorization

All requests related to FlexNet Agent, license server and license file configuration require authorization. This section details the requirements for authorization.

Details

The authorization type used for the API is **Basic**.

In Basic authorization, a request header will take the form of:

```
Authorization: Basic <credentials>
```

where <credentials> is the base64 encoding of user name and password, separated by a colon.

For example, for a user name of **admin**, and a password of **admin**, the following header will apply

```
Authorization: Basic YWRtaW46YWRtaW4=
```

For further information about Basic Authorization, refer to:

https://httpwg.org/specs/rfc7617.html.

Conventions followed by the API for HTTP methods

The API makes use of the following HTTP methods: , GET, POST, PUT and DELETE. When calling an API endpoint, it is important to specify the correct method.

GET is used to retrieve data from the system about an object, or a set of objects.

POST is used to create a new object in the system.

PUT is used to update an existing object in the system. Note that for PUT, the id of the object must be specified. This can typically be done in one of two ways:

1. The id may be specified as part of the URL:

   http[s]://serveraddress:8888/flexnet/pub-api/v1/agents/1746

2. The id may be specified as part of the xml or json payload:

   ```
   <agent port="61616" host="AgentHost2" connectionProtocol="tcp" name="TestAgent" id="1746">
   ```

   This is only possible for objects (such as the agent or license server) that use xml or json. For endpoints where the payload is provided as plain text (such as the license file), the id may only be provided via the URL.

Note • It is possible to provide the id in both of these ways at once. If this is done and the ids do not match, then the request will fail, and an error will be returned.

DELETE is used to remove an object from the system. Note that for DELETE, the id of the object must be specified.

Response codes

When an API request is submitted, you will receive a response according to what happened on the server.

Below is a list of some of the most common (but not all) responses. The standard response codes can be found here:

https://www.iana.org/assignments/http-status-codes/http-status-codes.xhtml.

Table 2-1 • Response codes

Code	Description
200 OK	This is a generic response indicating that the server has carried out the request.
201 Created	Similar to 200, when a request has been successful, however, this is the success response where an item has been created.
400 Bad request	Indicates that there is a problem with the data sent in the request. The response body will provide a detailed explanation of the problem. Example: Attempting to create an agent that already exists will return code 400.
404 Not found	The requested resource was not found. Typically, this error is the result of an incorrect URL, or the use of an incorrect object ID. Double-check the URL and try again.
405 Method not allowed	This response indicates that the server has been able to find an endpoint matching the request, however the supplied verb is not handled by that endpoint. For example, calling http[s]://serveraddress:port/flexnet/pub-api/v1/agents/ with the verb DELETE will return 405. The endpoint exists, and can process requests such as GET and POST, however, it does not allow DELETE. To resolve this, either provide a supported verb(such as GET or POST), or change the URL to one that does support DELETE (provide a valid agent ID: http[s]://serveraddress:port/flexnet/pub-api/v1/agents/222).
500 Internal server error	This is a generic response when there has been an error on the server while attempting to carry out the request. For example, attempting to perform some action requiring the agent to be up and running may return 500 if the agent is currently down.

3

FlexNet Agent Configuration

This chapter shows the endpoints and requests for setting up and configuring a Flexnet Agent via the API.

FlexNet Agent Configuration Endpoints

The following API endpoints are available for FlexNet Agents:

- Get Agent Configuration
- Add an Agent
- Update an Agent
- Remove an Agent

Full details for these methods are listed below.

Get Agent Configuration

There are two ways of retrieving the agent configuration:

- Get all agents (and associated license servers)
- Get a single agent configuration (requires that you know the id of the agent).

Table 3-1 • Details for Get Current Agent Configuration endpoint

Request Detail	Description
URL	All agents: http[s]://serveraddress:port/flexnet/pub-api/v1/agents
	Single agent: http[s]://serveraddress:port/flexnet/pub-api/v1/agents/{agentId}
Method type	GET

Table 3-1 • Details for Get Current Agent Configuration endpoint

Request Detail	Description
Headers	**Accept**
	Valid values: application/xml, application/json

Add an Agent

You can add an agent using the POST endpoint.

Table 3-2 • Details for Add an Agent endpoint

Request Detail	Description
URL	http[s]://serveraddress:port/flexnet/pub-api/v1/agents
Method type	POST
Headers	**Accept:**
	Valid values: application/xml, application/json
	Content-Type:
	Valid values: application/xml, application/json
Parameters	**connect**
	Description: Upon successfully adding the agent to the database, attempt to connect to the agent immediately.
	Required: no
	Default value: false
	Valid values: true, false
	For example: http://serveraddress:8888/flexnet/pub-api/v1/agents?connect=false
Body	A request body is mandatory for a POST.
	The format (XML or JSON) must match the Content-Type.
Notes on values	The values provided in the body of the request correspond to the fields in the **Add Agent** page in the UI. See the Online help page for **Managing FlexNet Agents** for more detail on these values.

Update an Agent

Updating an agent is similar to adding an agent, with two exceptions:

- The id field is required for an agent update

- Updating uses the PUT method instead of POST.

The id can be specified in two ways:

- In the body of the request with an attribute name of id

- In the URL of the agents endpoint.

Note • The id can be specified in the URL and in the body or the request. If this is the case, the values must match, otherwise the server will return an error.

The agent id can be obtained in two ways:

- By capturing the id attribute in the body of a successful add agent request

- By sending a get agent configuration request, which will return the full configuration of the agent, which includes the id.

Table 3-3 • Details for Update an Agent endpoint

Request Detail	Description
URL	All agents: http[s]://serveraddress:port/flexnet/pub-api/v1/agents
	Single agent: http[s]://serveraddress:port/flexnet/pub-api/v1/agents/{agentId}
Method type	PUT
Headers	**Accept**
	Valid values: application/xml, application/json
	Content-Type
	Valid values: application/xml, application/json
Parameters	**connect**
	Description: Upon successfully adding the agent to the database, attempt to connect to the agent immediately.
	Required: no
	Default value: false
	Valid values: true, false
	For example: http://serveraddress:8888/flexnet/pub-api/v1/agents?connect=false

Table 3-3 • Details for Update an Agent endpoint

Request Detail	Description
Body	A request body is mandatory for a PUT.
	The format (XML or JSON) must match the Content-Type.
Notes on values	The values provided in the body of the request correspond to the fields in the **Add Agent** page in the UI. See the Online help page for **Managing FlexNet Agents** for more detail on these values.

Remove an Agent

If you no longer want FlexNet Manager for Engineering Applications to manage a particular FlexNet Agent, you can remove the agent using this endpoint.

Note • You must stop the FlexNet Agent on the license server machine or it will continue to run.

Important • Deleting an agent will also delete any associated license servers.

Table 3-4 • Details for Remove an Agent endpoint

Request Detail	Description
URL	http[s]://serveraddress:port/flexnet/pub-api/v1/agents/{agentId}
Method type	DELETE

4

License Server Configuration

This chapter outlines the endpoints and requests for setting up and configuring a license server via the API.

License Server Configuration Endpoints

The following API endpoints are available for License Severs:

- Get all License Servers

- Add a License Server

- Update a License Server

- Remove a License Server

Full details for these endpoints are listed below.

Get all License Servers

You can retrieve the current configuration details of all license servers via the API.

Note • The Get all License Servers endpoint will return license servers that may not be returned when calling the Get all Agents endpoint. A request to the Get all Agents endpoint will only return the set of agents that you have access to, according to Agent Access Rights Management. While the Get all License Servers endpoint is subject to the License Server Administration sets, the fact that the API user must be in the Super Administrators group means that they will automatically be in the Universal License Server Admin set, and will therefore be able to retrieve all the license servers with a call to this endpoint.

Table 4-1 • Details for Get all License Servers endpoint

Request Detail	Description
URL	http[s]://serveraddress:port/flexnet/pub-api/v1/agents/licenseServers

Table 4-1 • Details for Get all License Servers endpoint

Request Detail	Description
Method type	GET
Headers	**Accept**
	Valid values: application/xml, application/json

Add a License Server

You can add a license server to an agent via the API. Only one license server can be added per request. To add multiple license servers for an agent, multiple requests must be sent.

When adding a license server via API, the agent id field is required for the request.

Note • When a new license server is created via the API, it is configured with a schedule of 'Every 15 minutes' for Automatic Status Updates, and 'Once a day at midnight' for Automatic License Files Rereads.

Table 4-2 • Details for Add a License Server endpoint

Request Detail	Description
URL	http[s]://serveraddress:port/flexnet/pub-api/v1/agents/{agentId}/licenseServers
Method type	POST
Headers	**Accept**
	Valid values: application/xml, application/json
	Content-Type
	Valid values: application/xml, application/json
Body	A request body is mandatory for a POST.
	The format (XML or JSON) must match the Content-Type.
Notes on values	The values provided in the body of the request correspond to the fields in the **Add License Server** page in the UI. See the Online help page for Adding a License Server for more detail on these values.

Update a License Server

Updating a license server is similar to adding a license server, with two exceptions:

• The id field is required for a license server update

• Updating uses the PUT method instead of POST.

The id can be specified in two ways:

- In the body of the request with an attribute name of id

- In the URL of the license server's endpoint.

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Note • The id must be provided using one of these methods for an update to be successful.

The id can be specified in the URL and in the body of the request. If this is the case, the values must match, otherwise the server will return an error and the license server will not be updated.

The license server id can be obtained in one of these ways:

- By capturing the id attribute in the body of a successful add license server request response

- By sending a get agent configuration request, which will return the full configuration of the agent, which includes the id of child license servers

- By sending a get license server configuration request, which will return the full configuration of the license server, which includes the id.

Table 4-3 • Details for Update a License Server endpoint

Request Detail	Description
URL	http[s]://serveraddress:port/flexnet/pub-api/v1/agents/licenseServers/{licenseServerId} or http[s]://serveraddress:port/flexnet/pub-api/v1/agents/licenseServers (with the license server id included in the body of the request)
Method type	PUT
Headers	**Accept** Valid values: application/xml, application/json **Content-Type** Valid values: application/xml, application/json
Body	A request body is mandatory for a PUT. The format (XML or JSON) must match the Content-Type.
Notes on values	The values provided in the body of the request correspond to the fields in the **Add License Server** page in the UI. See the Online help page for Adding a License Server for more detail on these values.

Remove a License Server

This endpoint can be used to remove a license server from an agent. Performing this action will also remove any scheduled tasks that have been created for the license server, and if the agent is contactable, will remove the license server from the agent. If the agent is not able to be contacted at the time when the license server is removed, then the license server will still be removed from the server, but the agent will maintain a reference to the license server. In this case, the license server may need to be cleaned up from the agent manually.

Table 4-4 • Details for Remove License Server endpoint

Request Detail	Description
URL	http[s]://serveraddress:port/flexnet/pub-api/v1/agents/licenseservers/{licenseServerId}
Method type	DELETE

5

License File Configuration

This chapter outlines the endpoints and requests for setting up and configuring a license file via the API.

License File Configuration Endpoints

The following API endpoints are available for license files:

- Get a License File

- Update a License File

Full details for these endpoints are listed below.

Get a License File

You can retrieve license file content via the API.

Refer to the Online Help page entitled Adding and Editing License Certificates and License Files for more information.

Table 5-1 • Details for Get a License File endpoint

Request Detail	Description
URL	http[s]://serveraddress:port/flexnet/pub-api/v1/agents/licenseServers/licensefiles/{licenseFileId}
Method type	GET
Headers	**Accept** Valid values: text/plain

Update a License File

You can update a license file via the API.

A successful call to this endpoint will update the given license file to match the information provided in the body of the request. It will also connect to the license server, and update the license file on disk there.

It is functionally equivalent to editing the license file through the UI. Refer to the Online Help page entitled Adding and Editing License Certificates and License Files for more information.

Note • Backup and restore does not apply to the API.

Table 5-2 • Details for Update a License File endpoint

Request Detail	Description
URL	http[s]://serveraddress:port/flexnet/pub-api/v1/agents/licenseServers/licensefiles/{licenseFileId}
Method type	PUT
Headers	**Accept**
	Valid values: application/xml, application/json, text/plain
	Content-Type
	Valid values: text/plain
Body	licenseFile: This is the text with which to update the license file.
	A request body is mandatory for a PUT.
	The format must match the Content-Type.