

axes4 Licensing System: Set up Agent-based Licensing

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1 Understanding the basic concept

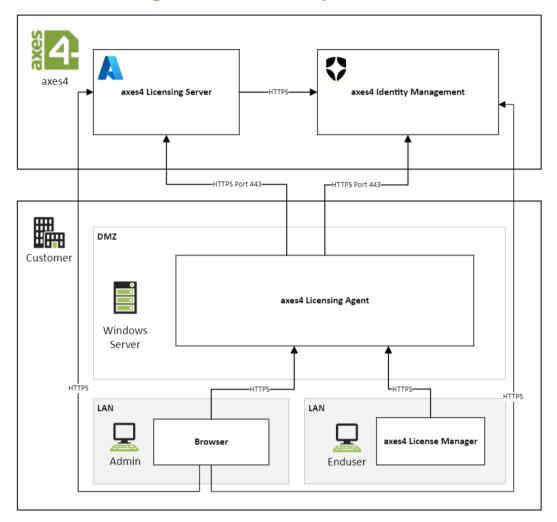


Figure 1: The 5 elements of the axes4 licensing system and their communication channels

The axes4 licensing system is made of 5 elements, starting from the user:

1. AXES4 LICENSE MANAGER:

The license manager is also installed locally on the user's machine. It is part of the setup of each axes4 application. It communicates with the licensing agent and ensures that the applications remain activated during the license term. The license manager runs in user context and is set to autostart.

2. BROWSER:

The administrator finds the license administration on a webGUI. The same is valid for the user accessing his license manager.

3. AXES4 LICENSING AGENT:

The licensing agent is installed on a customer's Windows server. It is only the licensing agent which communicates with the axes4 license server on the internet.



4. AXES4 LICENSING SERVER:

Our licensing server is hosted on Microsoft Azure.

5. AXES4 IDENTITY ADMINISTRATION:

The licensing agent authenticate itself to the licensing server, also an admin can access the licensing portal via his axes4 ID. Both processes are facilitated through Auth0.



2 Preparatory steps

2.1 General

- 1. Make sure you have your **LICENSE KEY** at hand.
- 2. Make sure you have your **AXES4 ID** on hand if you already have one. Alternatively, create an axes4 ID (in step 1 below) if you set up access to license administration.
- 3. Clarify what name you want to give to the **TEAM LICENSE ACCOUNT**—usually this will be the name of your organization.
- **4.** Make sure you have the **DOMAIN USER NAMES** of all users and / or the **DOMAINS** to which you want to assign licenses.

2.2 Server related

- 1. Have the **HOST NAME OF THE SERVER** at your demand on which to install the licensing agent
- Decide whether you want to use the DEFAULT PORT 29374 or an individual port. During the installation the port will get unlocked in the Windows Firewall.
- If necessary: CONFIGURATION OF ADDITIONAL FIREWALLS so that clients can access the licensing agent.
- 4. If not already present: Create TLS CERTIFICATE FOR THE SERVER
- 5. Make sure you have your **LICENSE KEY** at hand.



3 Steps at a glance

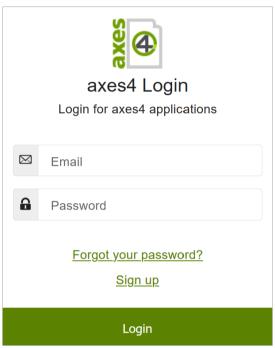
In order to use your licenses via agent, the following steps are required:

- Create access to license administration using the axes4 ID: https://licensing.axes4.com (Select the LINK: SIGN UP or just log in if you already have an axes4 ID)
- 2. In License Administration: Select or CREATE A TEAM LICENSE ACCOUNT
- 3. Install the LICENSING AGENT
- 4. Configure the TLS/SSL CERTIFICATE
- 5. Activate the LICENSING AGENT
- 6. License Administration: ADD LICENSE TO THE TEAM LICENSE ACCOUNT
- 7. License Administration: Assigning Licenses to the Licensing Agent
- 8. Licensing Agent: Assign Licenses to USERS OR DOMAINS
- 9. **INSTALL** clients on users' computers
- 10. CONFIGURE CLIENTS to communicate with LICENSING AGENT

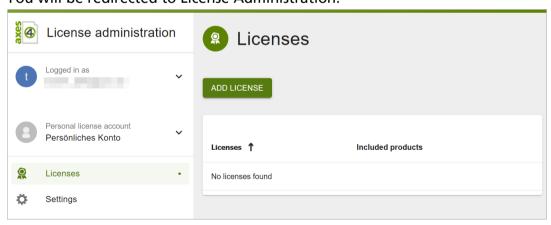


4 License Administration: Select or create a Team License Account

1. Log in to axes4's License Administration under https://licensing.axes4.com using your axes4 ID:

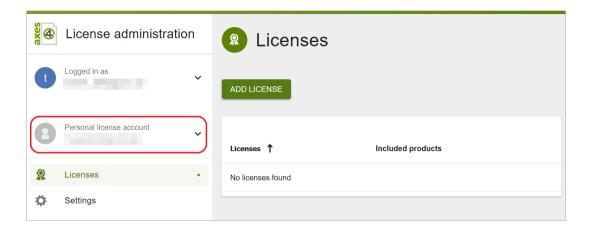


You will be redirected to License Administration:

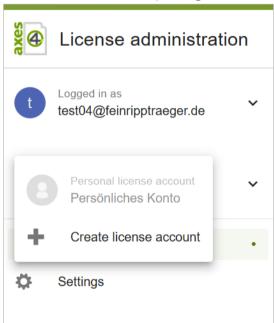


2. Tab on your personal account:

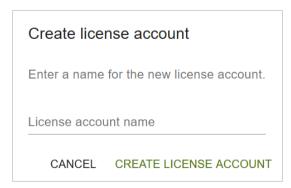




The account menu is opening:

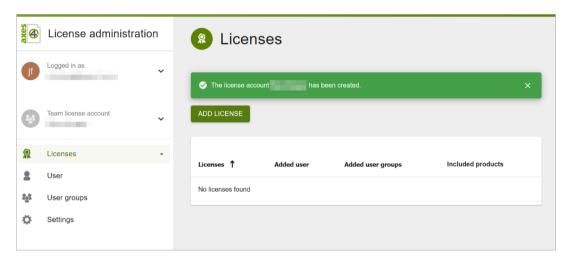


3. Tab on the Button: + Create License Account. The DIALOGUE BOX: CREATE LICENSE ACCOUNT is opening up:





4. In the INPUT FIELD: LICENSE ACCOUNT NAME, enter a self-selected name for the new Team License Account (=Team Account) and confirm with the BUTTON: CREATE LICENSE ACCOUNT. You will be directed back to the main license administration page. You will immediately see your new Team Account:





5 Installing licensing agent

5.1 Licensing Agent Functions

- BRIDGE BETWEEN APPLICATION AND AXES4 SERVER: The licensing agent represents the bridge to the outside. Client makes a request to the licensing agent, which in turn connects to the axes4 license server. The licensing agent requires an Internet connection.
- Relief of users of licensing tasks: users do not have to log in individually.
- Relieving the admin of licensing tasks: the admin does not have to configure each user individually, but can manage the usage rights at the domain level.
- Centralized administration of licenses, permissions, and ASSIGNMENTS:
 In the Licensing Agent, licenses are allocated centrally to domains or users.

5.2 System Requirements (for licensing agents)

The requirements for the agent are part of the installer and are installed automatically if necessary.

 ASP.NET Core Runtime 8 (Hosting Bundle, which also includes .NET Core Runtime 8)

Notice

.NET Core Runtime 8 has its own dependencies. See https://learn.microsoft.com/en-us/dotnet/core/install/windows?tabs=net80&pivots=os-windows

5.3 Installing licensing agent

- Download licensing agent from: www.axes4.com/licensingagent-download
- 2. Install licensing agent on your own server
- 3. Enter host name (or IP address) and port (during the installation process)

5.4 Optional Features

To enable/disable a feature, open the agent's appsettings.json and set the value to true or false.

Changes will take effect when the agent service is restarted.

5.4.1 ActivatedUserMapping

The feature is activated by default.



The agent remembers which users have a valid product activation and displays this information in the agent. This data is not transmitted to the axes4 servers.

```
"Features": {
    "EnableActivatedUserMapping": true,
    ...
},
```

5.4.2 LogPII (personal identifying information)

The feature is activated by default.

Inside the local logfile of the agent is logged, when an user requests a license from the agent.

Possible included values are: username, domain, devicename.

These informations are local on the Agent and are not transmitted anywhere.

When the feature is deactivated, these values in the local logfile are replaced with *.

```
"Features": {
    ...
    "EnableLogPII": true
},
```



6 Configure TLS/SSLCertificate

Installing the agent creates a self-signed certificate. For efficient operations, we recommend that you create your own certificate that is trusted by clients.

An **own certificate** is configured in the appsettings.json, which you can find in the agent's program directory. Basically, you can refer to the Windows Certificate Store or a PFX file.

Note

A **SELF-SIGNED CERTIFICATE** is not automatically trusted by clients. As a result, manager-to-agent communication does not work at first. If you want to use the self-signed certificate, here is a guide on how to trust the clients: https://support.axes4.com/hc/en-us/articles/7371977670930



6.1 Windows Certificate Store

Extract from appsettings.json:

```
[...]
"Kestrel": {
  "EndPoints": {
    "Https": {
      "Url": "https://*:@@PORT@@",
      "Certificate": {
        // Example: "ad.axes4.com"
        "Subject": "<subject; required>",
        // Example: "Root"
        "Store": "<certificate store; required>",
        // Example: "LocalMachine"
        "Location": "<location; defaults to CurrentUser>",
        // Example: "false"
        "AllowInvalid": "<true or false; defaults to false>"
      }
    }
 }
}
[...]
```

6.1.1 Available Stores

AddressBook	I	The X.509 certificate store for other users.
AuthRoot	2	The X.509 certificate store for third-party certificate authorities (CAs).
CertificateAuthority	3	The X.509 certificate store for intermediate certificate authorities (CAs).
Disallowed	4	The X.509 certificate store for revoked certificates.
Му	5	The X.509 certificate store for personal certificates.



Root	6	The X.509 certificate store for trusted root certificate authorities (CAs).
TrustedPeople	7	The X.509 certificate store for directly trusted people and resources.
TrustedPublisher	8	The X.509 certificate store for directly trusted publishers.

6.1.2 Available Locations

CurrentUser	I	The X.509 certificate store used by the current user.
LocalMachine	2	The X.509 certificate store assigned to the local machine.

6.2 PFX File

Extract from appsettings.json:

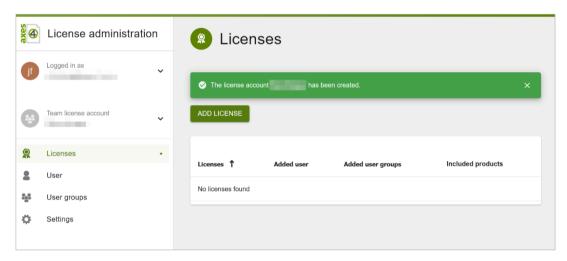
7 Activate licensing agent

- **1.** Go to the licensing agent at the configured address in the browser: https://<hostname>:<port>/admin
- 2. Log into the licensing agent with the axes4 ID of the team license account's administrator.
- 3. Activate the licensing agent via the button: Activate Licensing Agent
- **4.** Set the name of the licensing agent. We recommend to make the word "Agent" a part of the name.

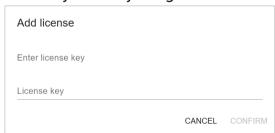


8 License Administration: Add License to the Team License Account

- 1. Log into the axes4 License Administration under https://licensing.axes4.com
- 2. Open the relevant team account:
- **3.** Be sure, that you really are in the right **TEAM LICENSE ACCOUNT** (and not in your Personal License Account).
- 4. Press the **BUTTON: ADD LICENSE:**



5. In the **DIALOG BOX: ADD LICENSE**, enter your license key in the input field. Confirm your entry using the button **CONFIRM:**

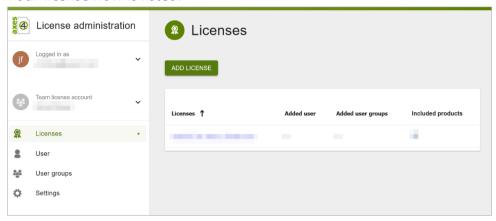


6. In the next dialog box, you will be asked to confirm your entry, as you only can enter the license key once. PRESS THE BUTTON: CONFIRM:



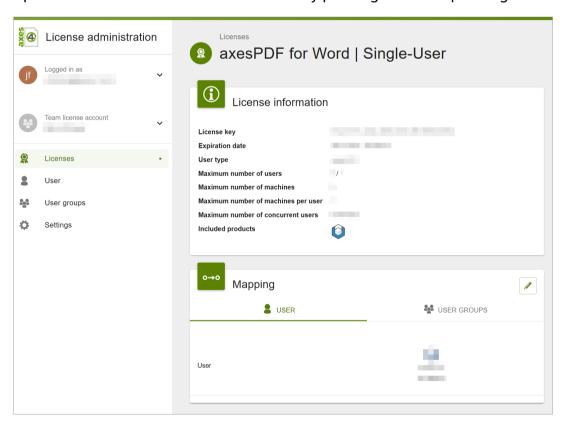


Your license now is listed:



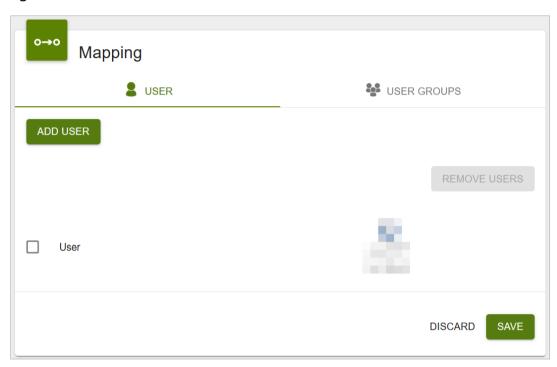
9 License Administration: Assign the License(s) to the Licensing Agent

1. Open the detail view of the added license by pressing the corresponding link.





2. In the CARD: MAPPING, switch to edit mode via the pen button in the upper right corner:



3. Press the button ADD USER:



- 4. Start typing the name of the agent and select it.
- 5. Press BUTTON: ADD USER.
- 6. Press button: Save.

10 Licensing Agent: Assign licenses to users

- Open the licensing agent in the browser: https://<hostname>:<port>/admin
- Select LICENSES from the main menu
- Assign users or domains to the desired applications from the purchased licenses. The CARD: ASSIGNMENTS can be edited using the pen icon in the upper right corner.



11 Installing clients on users' machines

11.1 System Requirements (for Clients)

All the necessary components are installed with the respective setup. This includes the axes4 license manager and all required .NET components.

Please note

The axes4 license manager is not a service, but an application that runs in the background in the user context. By default, the axes4 license manager is installed accordingly and stored for the autostart. You should always take this into account when making adjustments to the setup.

With our setups, so-called silent installations or headless installations are also possible. More information can be found in the appendix: 17.4 Silent Installation.

11.2 Install current axesPDF software on the clients

The latest client versions for distributing and installing can be found below:

11.2.1 Download axesWord

https://www.axes4.com/en/products-services/axesword/download

11.2.2 Download axesPDF

https://www.axes4.com/en/products-services/axespdf/download

12 Configure clients to communicate with the licensing agent

12.1 Deposit registry entries

For the client to find the agent, you must store in the registry where the licensing agent can be found.

12.1.1 Required settings are:

- ActiveConnections: agent
- AgentBaseUri: [Enter the address of the licensing agent]

A complete overview of all settings can be found in the appendix: 17.1Registry settings on client computers.



12.1.2 Complete overview of all settings

A complete overview of all settings can be found in Annex: 17.1

12.1.3 Add registry entries manually

If you want to add the registry entries manually, you will find instructions in the following article: https://support.axes4.com/hc/en-us/articles/7371970991762

13 Communication channels

communication.

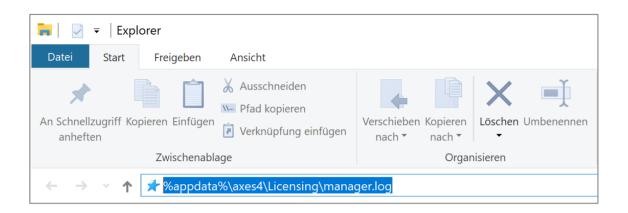
- Requests to the axes4 license server are only made by the local licensing agent and only to the same address: https://api.axes4.com
- Authorization requests always go to the same address: https://auth.axes4.com
- To enable the Licensing Administrator to log in to the Licensing Agent, the following URI must be accessible: https://id.axes4.com
- Incoming connections can be 100% blocked: The licensing agent itself does not receive any external communication. He only receives answers to requests he has made himself. Our recommendation is therefore to completely block any kind of externally initiated
- The axes4 software (client) does not necessarily have to establish a connection to the Internet. All communication to the outside can be done via the licensing agent.

14 Log files

Log files help to find out the cause faster and easier in case of malfunctions. The log files for the agent and the manager are located in different locations.

Simply enter the corresponding path in the address line of the file explorer and the corresponding log file opens.





14.1 For the agent

The log for the axes4 licensing agent can be found at:

C:\Windows\System32\config\systemprofile\AppData\Local\axes4\Licensing
Agent\agent.log

14.2 For the manager

The log for the axes4 license manager can be found at:

%appdata%\axes4\Licensing\manager.log



15 Windows Task Manager: Find licensing agents or license managers

15.1 Details tab

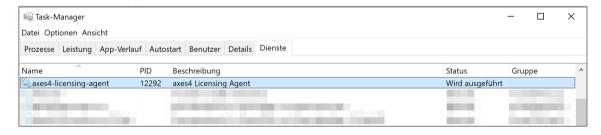
If necessary, you can also find the axes4 licensing agent or the axes4 license manager in the Details tab in the Windows Task Manager under the following names:

- A4LicenseManager.exe
- A4LicensingAgent.exe



15.2 Services tab

In the Services tab, you can find the axes4 licensing agent (axes4-licensing-agent). You can exit and start it there from the context menu (right mouse button).





16 Glossary

Order after appearing in the text

Agent-based licensing	Licensing type in which the agent installed locally at the customer authenticates to the axes4 license server. The end user remains anonymous and does not need to be logged in to his axes4 ID.	
Application	A single axes4 program as well as web-based axes4 applications	
Client	axes4 Software	
License manager	The license manager installed locally on the end user's computer manages the activations of the axes4 software. The activation information relevant to the end-user can also be viewed there.	
Licensing agent	The locally installed license server, which forms the bridge between axes4 software / license manager and axes4 license server. The agent specifies which domains or domain users are allowed to use which licenses.	
License administration	In License Administration, you can administer your license accounts. There are personal accounts and team licenses accounts.	
License server	The axes4 license server is at the heart of the license system. Licenses and activations are regulated there.	
Admin / Administrator	Users with administrative rights to the appropriate license account	
axes4 ID	Axes4 ID is your central access to all axes4 services and applications. It consists of your e-mail address and your personalized password.	
License key	The code (GUID) to identify your license. It is required for unlocking your purchased axes4 software.	
Team license account	The team license account (short: Team Account) is for licenses that you use in the team.	



17 Annex

17.1 Registry settings on client computers

17.1.1 Select Hive

The necessary entries can be made according to preference in one of the following 4 Hives. The locations are sorted by priority. The first place where an entry is found is taken by the axes4 application:

- HKEY LocalMachine\Software\Policies\axes4\Licensing (Admin rights necessary)
- HKEY CurrentUser\Software\Policies\axes4\Licensing (Admin rights necessary)
- HKEY LocalMachine\Software\axes4\Licensing (Admin rights necessary)
- HKEY CurrentUser\Software\axes4\Licensing

FAQ

What is the difference between LocalMachine and CurrentUser?

- "LocalMachine" means: for the local machine
- "CurrentUser" means: for the currently logged-in user

When is it useful to add the entries to the "Policies" key (places 1 or 2)?

- If you want to centrally manage policies
- If you want to prevent the entries from being changed by the users

17.1.2 Adding entries

Mandatory entries

ActiveConnections

Description	The active connections in the preferred order.	
Data Type	REG_SZ	
Registry Key	\Manager\ActiveConnections	
Default Value	origin	
Example	agent,origin	

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AgentBaseUri

Description	The base URI of the Licensing Agent.
Data Type	REG_SZ
Registry Key	\Manager\AgentBaseUri
Default Value	(none)
Example	https://srv0123456:29374

Optional Entries

DisplayAgentConnection

Description	Enable or disable the display of the connection status to the agent.
Data Type	REG_DWORD
Registry Key	\Manager\DisplayAgentConnection
Default Value	1
Example	0

DisplayOriginConnection

Description	Enable or disable the display of the connection status to the origin.
Data Type	REG_DWORD
Registry Key	\Manager\DisplayOriginConnection
Default Value	1
Example	0

17.2 Proxy Configuration

The agent supports the following proxy settings:

- WinINet (Default)
- WinHTTP
- Custom

Accordingly, you need to customize the appsettings.json as follows. You can find the appsettings.json in the agent's program directory.



Alternatively, you can exclude the use of the system proxy:

None (No proxy - even if a proxy is set up in the system)

17.2.1 Policy

No Proxy

```
[...]

"proxy": {
    "policy": "noproxy"
    }

[...]
```

WinINet Proxy (default)

```
[...]

"proxy": {
    "policy": "wininet"
    }

[...]
```

WinHTTP Proxy

```
[...]

"proxy": {
    "policy": "winhttp"
    }

[...]
```

Custom Proxy

```
[...]
    "proxy": {
        "policy": "custom",
        "address": "https://<host>:<port>"
    }
[...]
```



17.2.2 Credentials

No Credentials

```
[...]
    "proxy": {
        "credentials": {
            "policy": "none"
        }
     }
[...]
```

Default Credentials (default)

```
[...]
    "proxy": {
        "credentials": {
            "policy": "default"
        }
     }
[...]
```

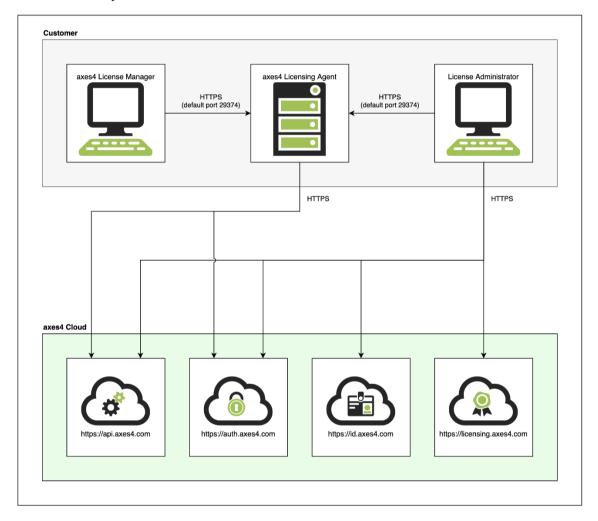
Custom Credentials

```
[...]
  "proxy": {
     "credentials": {
        "policy": "custom",
        "username": "<username>",
        "password": "<password>",
        "domain": "<domain>"
     }
  }
[...]
```



17.3 Configure Firewall(s)

It is important to ensure that communication via the port stored in the agent is not blocked by a firewall.



Basically, there are 2 communication channels:

17.3.1 Incoming Connections (Inbound)

Description	UDP	TCP
HTTPS	-	Selected Port (Default Port: 29374)

17.3.2 Outbound connections (Outbound)

Description	UDP	ТСР
HTTPS	-	443



Called Domains

- auth.axes4.com
- api.axes4.com
- id.axes4.com
- licensing.axes4.com (not by the licensing agent itself, only through the license administrator)

17.4 Silent Installation

17.4.1 Support of standard command line options

For axesPdf, a headless or quiet installation is possible. The standard Microsoft parameters for Commandline Options are supported (the same parameters apply as for MSI):

https://docs.microsoft.com/en-us/windows/win32/msi/command-line-options

17.4.2 Configure axesPdf specific properties

The following 7 axesPDF specific properties can also be configured via the command line. Please note the correct syntax in the command line in the form of Property=Value.

UsePolicies

Description	Write Registry Entries into Policies: Yes or No
Туре	string
Default Value	no
Example	UsePolicies=no

ActiveConnections

Description	The active connections in the preferred order.
Туре	string
Default Value	origin
Example	ActiveConnections=agent,origin

AgentBaseUri

Description	The base URI of the Licensing Agent.
Туре	string
Default Value	(none)

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Example	AgentBaseUri=https://srv0123456:29374
---------	---------------------------------------

DisplayAgentConnection

Description	Enable or disable the display of the connection status to the agent.
Туре	string
Default Value	yes
Example	DisplayAgentConnection=no

DisplayOriginConnection

Description	Enable or disable the display of the connection status to the origin.
Туре	string
Default Value	yes
Example	DisplayOriginConnection=no

ActivationsEditable01

Description	Enable or disable the display of the button "Select Applications".
Туре	string
Default Value	yes
Example	Activations Editable = no

ShowTraylcon

Description	Enable or disable the display of the axes4 Manager icon in the Windows tray.
Туре	string
Default Value	yes
Example	ShowTraylcon=no



17.5 Agent: Definition des Loglevels

17.5.1 Valid for

Version 1.3 or higher

17.5.2 Settings

The entry in the appsettings is:

```
"Logging": {
    "LogLevel": {
        "Default": "Information",
        "Microsoft": "Warning",
        "Microsoft.Hosting.Lifetime": "Information",
        "System.Net.Http": "Information"
    }
}
```

Hiermit kann das Loglevel gesteuert werden.

17.5.3 Valid values

- Trace
- Debug
- Information
- Warning
- Error
- Critical
- None

17.5.4 Log intensity: how much is logged?

The scale of the log intensity goes according to the order of the values above from

- Trace → very much to
- None → nothing