

Installation guide for AAS lab

Software that needs to be installed:

- AASX Package Explorer
- AASX Server (Blazor)
- Node-RED
- Arduino IDE

Files needed to run AAS lab:

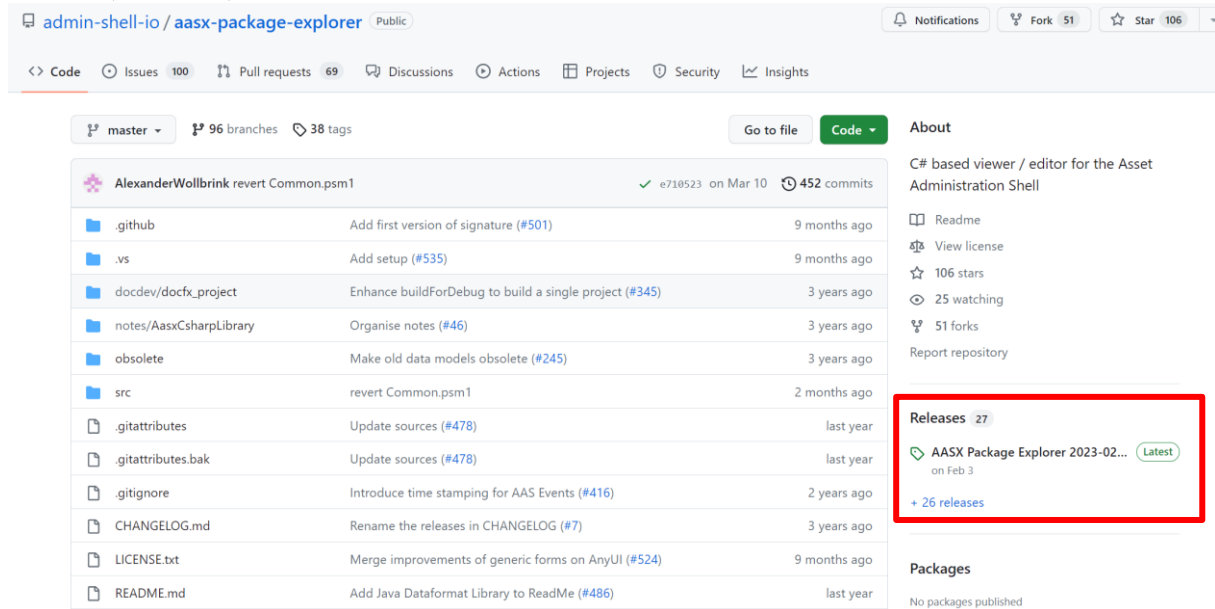
- AAS saved in aasx files
 - Composite, DCmotor, LED1, LED2, TemperatureSensor, ArduinoUNO
- Node-RED code in JSON format
 - Node-RED LAB
- Arduino code
 - Arduino_IDE_LAB

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Install AASX Package Explorer

1. Go to IDTAs GitHub <https://github.com/admin-shell-io/aasx-package-explorer>, find the newest release (see screenshot) and download zip file called aasx-package-explorer.alpha.zip (or similar)



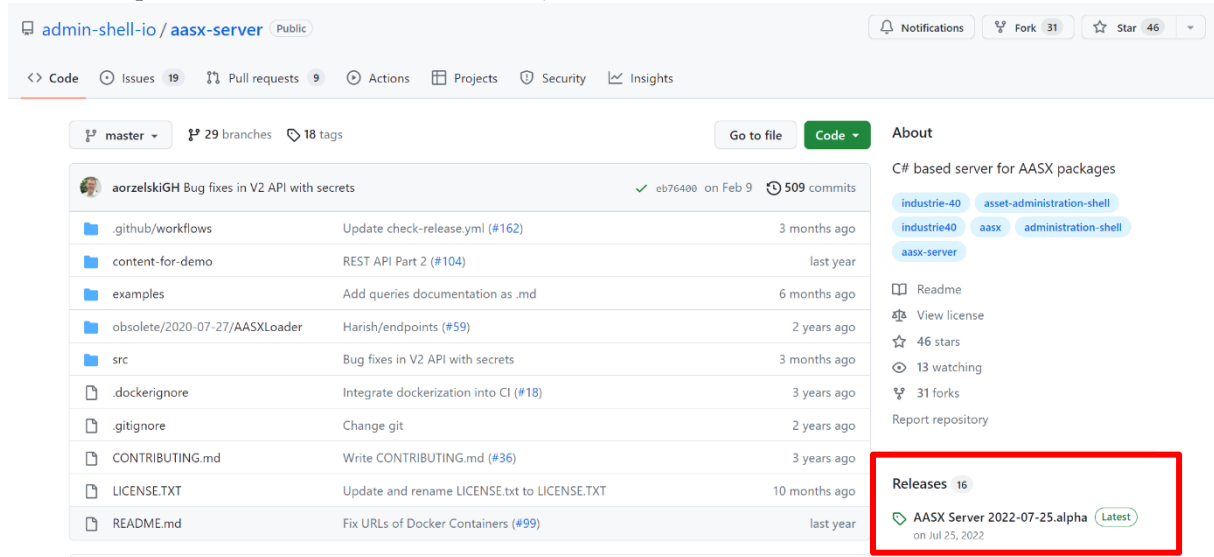
2. Unzip the folder and find the file that is named `AasxPackageExplorer`. It may be beneficial to make a shortcut to make it more accessible.

Start AASX Package Explorer

1. Open file `AasxPackageExplorer` from downloaded folder.

Install AASX Server

1. Go to IDTA's GitHub <https://github.com/admin-shell-io/aasx-server>, find the newest release (see screenshot) and download zip file called AasxServerBlazor.alpha (or similar, but it is important that it is the Blazor version)



2. Unzip the folder and find the file that is named startForDemo.bat. This file start the server with default settings.

NB!

AASX Server depends on .NET Core 3.1 runtime. If it is not already downloaded on computer, it can be done here: <https://dotnet.microsoft.com/en-us/download/dotnet/3.1>

Start AASX Server

1. Open startForDemo.bat file from the downloaded folder.
2. Server will run on <http://localhost:51310/> by default

NB!

The server will only upload the aasx files that are placed in the subfolder named "aasxs". So in order to upload your AAS, you need to place the aasx file into the aasxs folder.

Install Node-RED

1. Follow install directions on <https://nodered.org/docs/getting-started/windows> under Quick Start. Follow step 1-3
2. Installation should be done

Start Node-Red

1. Open a commando window (cmd) and write node-red. A similar response should appear.

```
C:\Users\alovf>node-red
8 May 10:51:52 - [info]

Welcome to Node-RED
=====

8 May 10:51:52 - [info] Node-RED version: v3.0.2
8 May 10:51:52 - [info] Node.js version: v18.13.0
8 May 10:51:52 - [info] Windows_NT 10.0.22621 x64 LE
8 May 10:51:53 - [info] Loading palette nodes
8 May 10:51:54 - [info] Dashboard version 3.3.1 started at /ui
8 May 10:51:54 - [info] Settings file : C:\Users\alovf\.node-red\settings.js
8 May 10:51:54 - [info] Context store : 'default' [module=memory]
8 May 10:51:54 - [info] User directory : \Users\alovf\.node-red
8 May 10:51:54 - [warn] Projects disabled : editorTheme.projects.enabled=false
8 May 10:51:54 - [info] Flows file : \Users\alovf\.node-red\flows.json
8 May 10:51:54 - [info] Server now running at http://127.0.0.1:1880/
8 May 10:51:54 - [warn]

-----
Your flow credentials file is encrypted using a system-generated key.

If the system-generated key is lost for any reason, your credentials
file will not be recoverable, you will have to delete it and re-enter
your credentials.

You should set your own key using the 'credentialSecret' option in
your settings file. Node-RED will then re-encrypt your credentials
file using your chosen key the next time you deploy a change.
-----
```

2. Click on/open link to server (<http://127.0.0.1:1880/>)
3. Node-RED editor will be opened in web browser.

Install add-in UI Dashboard

1. Start Node-RED and open editor in web browser.
2. Open menu (three lines in the upper right corner) and choose manage palette.
3. Select the install tab, search for node-red-dashboard and install it

Open UI Dashboard

1. URL <http://127.0.0.1:1880/ui/>

Install Arduino IDE

1. Follow installation instruction given by Arduino <https://www.arduino.cc/en/software>

Start AAS lab

Before starting lab make sure that the following software has been installed

- AASX Package Explorer
- AASX server (Blazor)
- Node-RED and UI Dashboard plug-in
- Arduino IDE

Preparation

Needs only be done one time:

1. Open the file called Arduino_IDE_LAB in Arduino IDE
2. Connect the Arduino to the computer using USB
3. Select correct board and (com) port
Tools → Boards → Arduino AVR Boards → Arduino UNO
Tools → Port → COM X
4. Upload to board (arrow button)
5. Close Arduino IDE
6. Start Node-RED and open editor in web browser.
7. Open menu and chose import, and import the JSON file called Node-RED LAB
8. Locate block in Node-RED code that is called Arduino Uno, and make sure that the correct com port is selected (the same as in Arduino IDE)
9. Click the Deploy button at the top right corner
10. Close web browser and command prompt that runs Node-RED

Regular start for AAS lab

1. Make sure all aasx files are placed in the aasxs folder in AasxServerBlazor
2. Start AASX server (Blazor)
3. Start Node-RED
4. Open UI Dashboard <http://127.0.0.1:1880/ui/> (or <http://localhost:1880/>)

Connect AASX Package Explorer to the AASX server

5. Open AASX Package Explorer and go to
File → AASX File Repository → Connect HTTP/REST Repository → provide endpoint
(<http://localhost:51310/> by default)
6. A new section should appear in the bottom left corner, containing a list of the AAS that are uploaded to the AASX server