

Deploying Projects on Raspberry Pi

Projects can be deployed on **Raspberry Pi** in order to collect, store, forward, and visualize data. The steps for the installation/configuration and an Overview guide to installing the application on Raspberry Pi can be found below. An alternative option would be to download an image of Raspbian OS with Mono and the application already installed from [HERE](#). After downloading the .zip file, it's necessary to extract the .img file and write it to a SD drive using a tool such as **Win32 Disk Imager**.

Installation Procedure

Installing Mono on Raspberry Pi

Raspberry Pi 2 uses Linux/Debian. In order to run the application, we need to install **Mono Framework**.

Mono is an open source implementation of Microsoft's .NET Framework based on the ECMA standards for C# and the Common Language Runtime.

A summary of the commands that need to be used in Terminal to install Mono on Raspberry Pi can be found below:

```
sudo apt-key adv --keyserver keyserver.ubuntu.com --recv-keys
3FA7E0328081BFF6A14DA29AA6A19B38D3D831EF

echo "deb http://download.mono-project.com/repo/debian wheezy main"
|sudo tee /etc/apt/sources.list.d/mono-xamarin.list

echo "deb http://download.mono-project.com/repo/debian wheezy-apache24-compat main"
|sudo tee -a /etc/apt/sources.list.d/mono-xamarin.list

sudo apt-get update
sudo apt-get upgrade
sudo apt-get install mono-devel
sudo apt-get install mono-complete
sudo apt-get install referenceassemblies-pcl
```

Installing The Application on Raspberry Pi

The steps for installing Raspberry Pi are very similar to the steps for Windows CE.

For complete information regarding the installation and configuration, including How-To videos, please refer to [This URL](#).

The overview of the installation and configuration can be found below:

- Ensure you have the latest version of the application installed on a computer connected to the same network as the Raspberry Pi
- On the computer with the application installed, go to the installation folder: E.g.: *C:\Program Files (x86) \<CompanyName>\<ProductName>\<ProductVersion>*

Open the **IoT** directory and copy the **ProjectServer** folder containing the ProjectServer.exe, T.Library.Files.dll, Tatsoft.4.dll and T.Library.dll files to the user's Home folder in Raspberry Pi.

It is advisable that FTP is used in order to copy the folder from the PC to Raspberry Pi.

- In the **ProjectServer** folder in Raspberry Pi, ensure that the owner of the folder is the current user.

If it is not the case, you can change it by using the following command in Terminal:

```
sudo chown -R pi /home/pi/ProjectServer
```

Considering 'pi' as the username.

Deploying Projects to Raspberry Pi / Working remotely on the PC

In order to develop projects for Raspberry Pi, the desktop version of the application is used. The steps for connecting, developing, and deploying a project in Raspberry Pi can be found below:

Ensure that the ProjectServer.exe is running on the Raspberry Pi by running the command below on the Pi's Terminal.

```
mono file:///media/psf/Home/pi/ProjectServer/ProjectServer.exe}
```

On the PC, create a new project. Ensure this project utilizes the IoT as the Target Framework.

New Project

Name: Project17

Description:

Location: C:\FactoryStudio\Projects\

Product Family: IIoT-Gateway

Target Framework: Linux / Mono

Product Model: Line 5000 tags

Create New Project << Back

On the welcome screen, go to the Server tab and fill in the Remote address field with the Raspberry Pi's IP.

Projects Server License

Connected Server: localhost running version fs-8.1

Runtime autostart: Settings...

Project Server:

☐ Localhost
IPs: 192.168.15.19 - Running services: <none>

☒ Remote: http://192.168.15.34:3100/ Connect

Virtual path:

Project Server: localhost fs-8.1.29 snr4535

Hit the Connect button and Update

Project Server:

☐ Localhost

IPs: 192.168.15.19 - Running services: <none>

☒ Remote:

Connect

Update...

Virtual path:

Upload Project

Status: Remote service connected.

After connecting to the service on the Raspberry Pi, you'll be able to see the license information on the License tab.

In order to generate the SiteCode and apply the license, ensure the Raspberry Pi is connected in the **Server** tab. Go to the License tab and proceed with licensing.

After updating and licensing the Raspberry pi, go back to the **Server** tab and upload the project previously created. Then, the project should be available on the projects tabs.

Open the new project, go to **Run > Startup**, and enter the Raspberry Pi's IP address in **Startup Computer**:



Hit the **Run Startup** button, and the project should start running on the Raspberry pi.

