VFFS Demo HMI

September 2022

Contents

Project Overview

This HMI is used with the VFFS Demo PLC. It is created from the TwinCAT HMI Project Generator. It uses the Base Application Template utilizing the Responsive Application option. The main screen has the Header, Navigation and TcHMIRegion sections with breadcrumb navigation support. The responsive option gives the HMI the ability to resize to 3 different layouts: Mobile, Tablet and Desktop.

Mobile

The mobile option width is up to 800px. It has a burger menu for the navigation to pop up for use.

Tablet

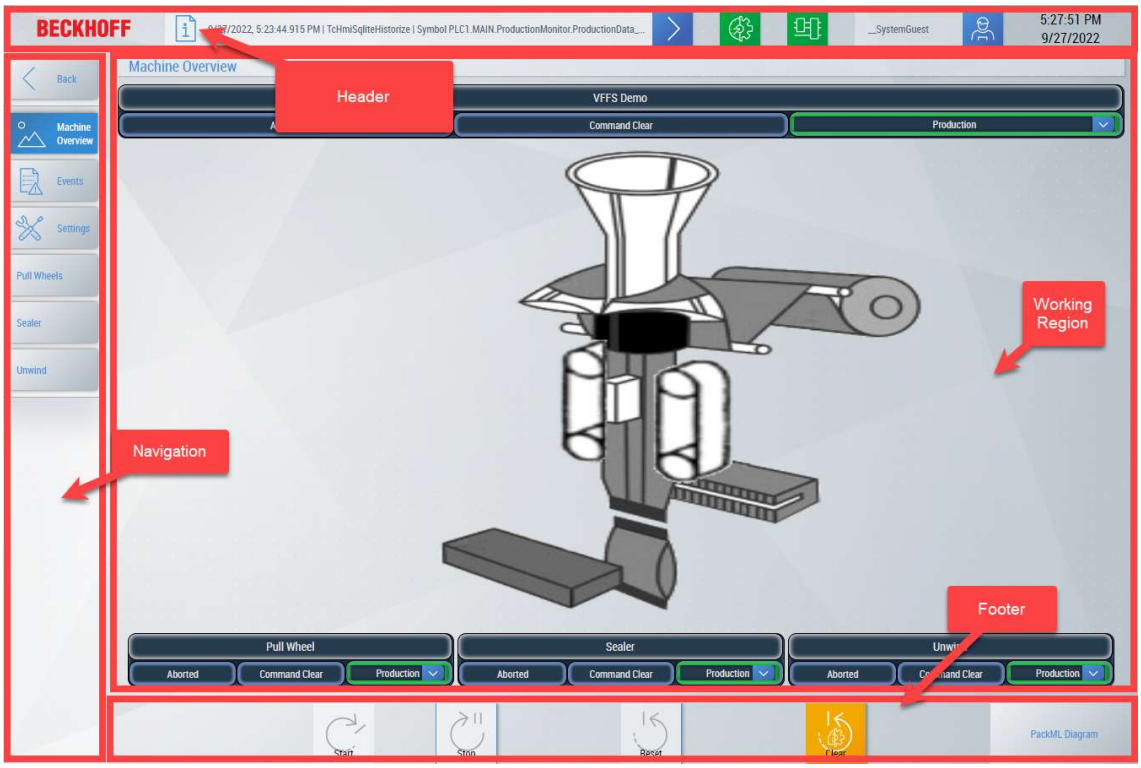
The tablet option handles widths from 800px to 1280px. It has small icon for the navigation.

Desktop

The desktop option handles widths greater than 1280px. The navigation and bar elements are at full size.

Main Screen Overview

The main screen is in 4 sections to it, and they are shown in the image below.



Navigation

The navigation is on the left side of the screen and has the following menu items always; Machine Overview, Events, Settings, Pull Wheels, Sealer, Unwind. Based on which button is selected, some sub menus will appear. On the top is a Back button that will trace backwards the screens used before.

Header

The header consists of a customer logo, Current Event, TwinCAT Status, PLC Program Status, User login and Time/Date.

Customer Logo

The HMI uses an image to be able to customize to a customer specific logo. When pressed, it will bring the HMI to the Machine Overview page.

Events

The Event area will have the last error that happened. When pressed, it will bring it to the Events page.

TwinCAT System

This image will be set to the current state of the TwinCAT system that the HMI is looking at.

 System is Stopped  System is in exception  System is Running

 System is in Config System is not available

PLC Program Status

This image will be set to the current state of the PLC program that the HMI is looking at.

 PLC is running  PLC is Stopped  PLC is in exception

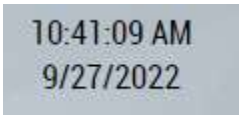
 PLC is not available

User Login

The HMI can have multiple users that can have different capabilities in the HMI. This project does not implement them but does show how to login.

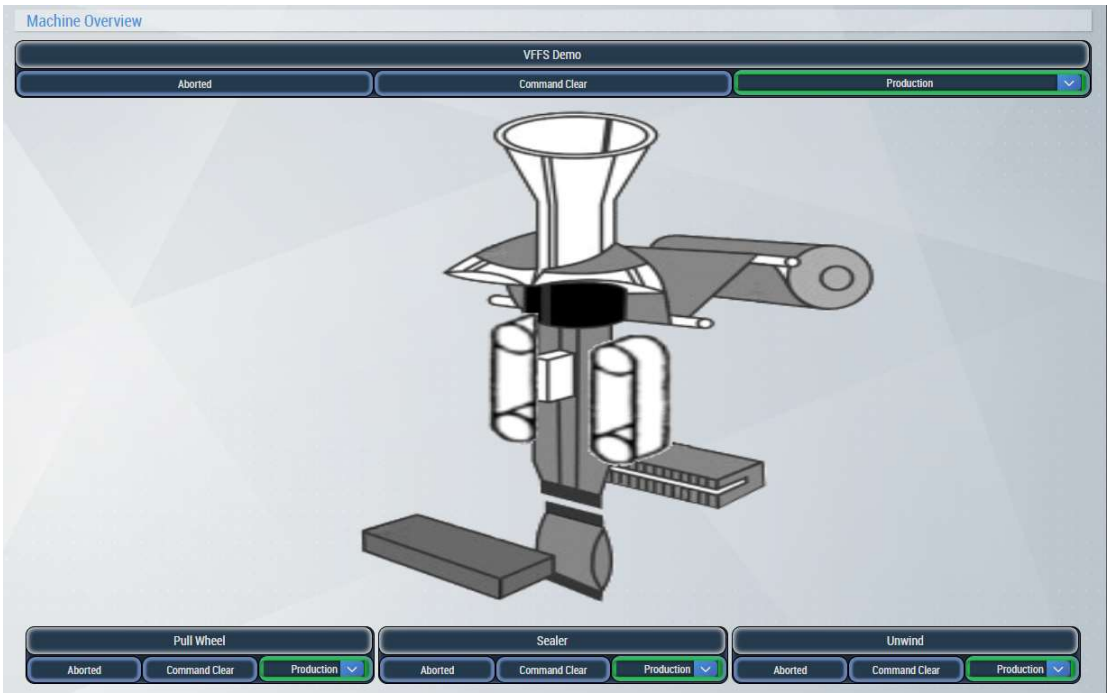
Time and Date

The header will have the time and date displayed.



Working Region

The Working Region is where all the HMI's content is displayed. When the navigation is used, the content is displayed in this region. For the Machine overview, this content is displayed.



As you navigate around the HMI, other contents will be displayed here.

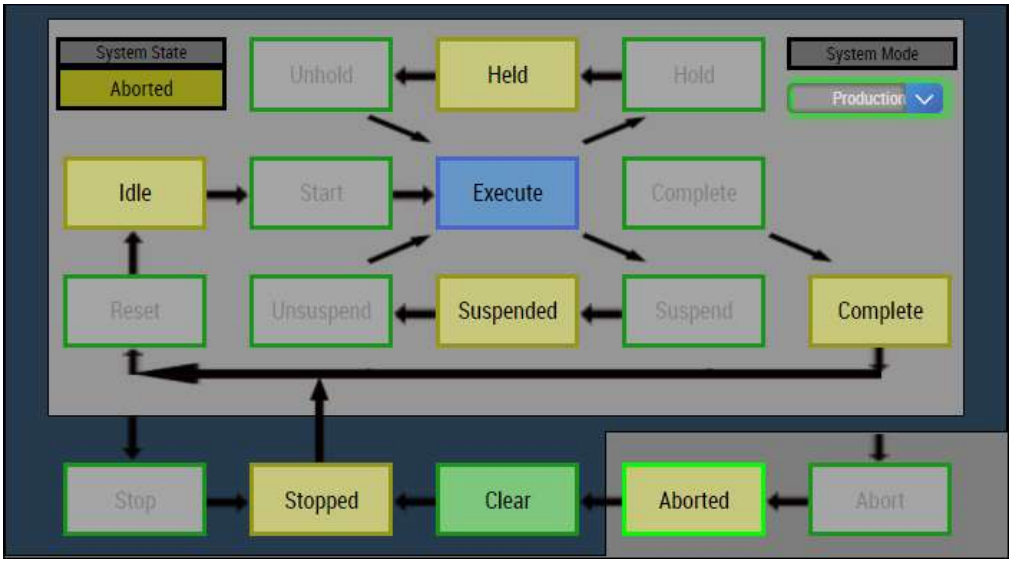
Footer

The footer which is always showing will have the machine modules control buttons in it. There is also a button to show the PackML diagram.

Based on the machines state, each button will become active with color.

PackML Diagram

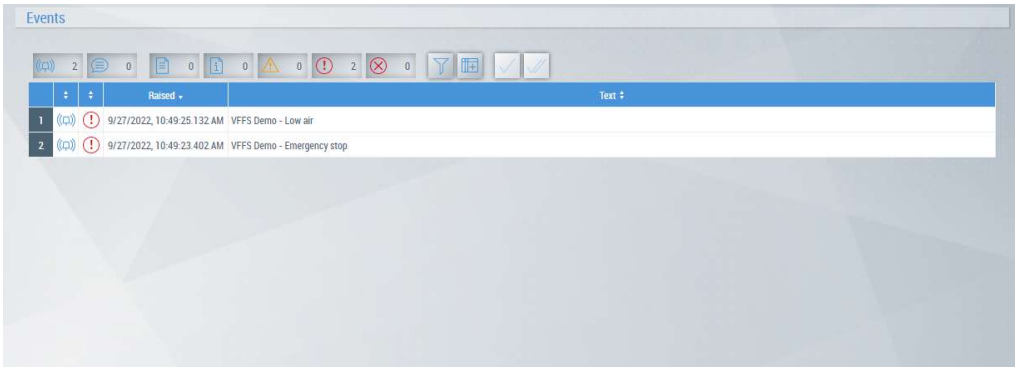
When the PackML Diagram button is pressed it will bring up the following dialog. This can be used to show where the machine is in the PackML state and also command the machine module to move to other states. The machine modules mode can also be selected here.



Press the PackML Diagram button again to close the dialog.

Events

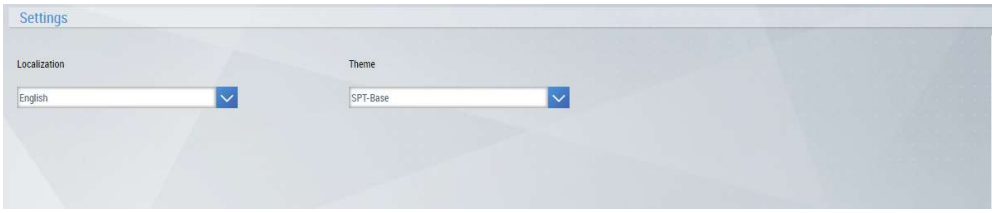
When alarms occur in the machine, this screen will show you what the issues are.



In this case, the machine has an emergency stop and low air.

Settings

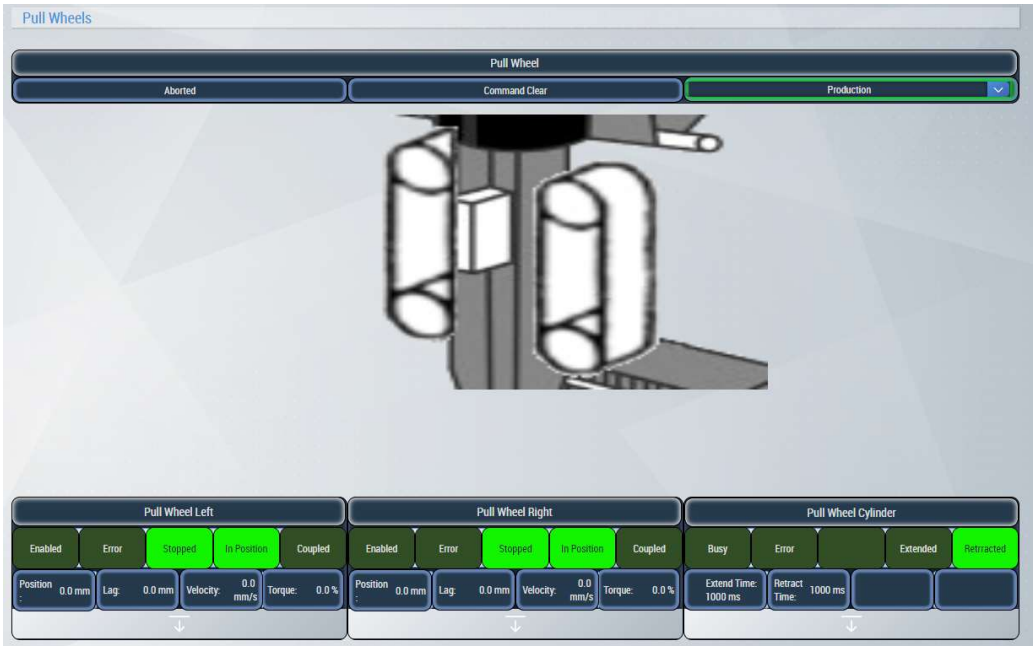
On this screen you can change the localization of the project and the theme. As you would develop an HMI, many new settings for the HMI could be added to this page.



Equipment Modules

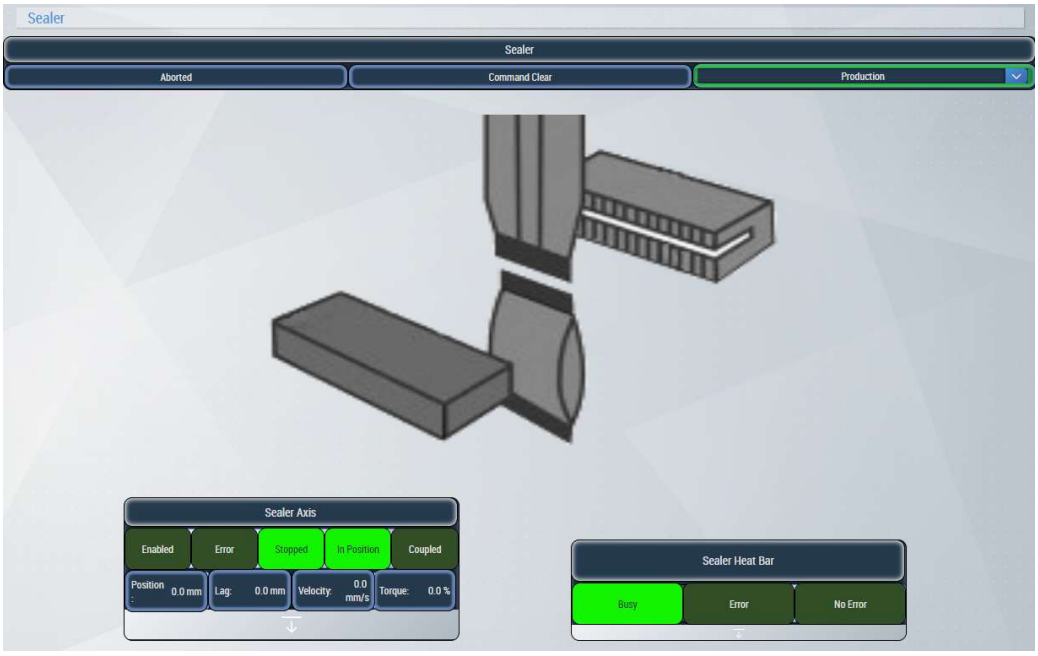
Pull Wheels

This screen shows the status of the Pull Wheels module. From here you can also jog axis and actuate cylinders. The modules PackML status is on top and on the bottom are the components for this module.



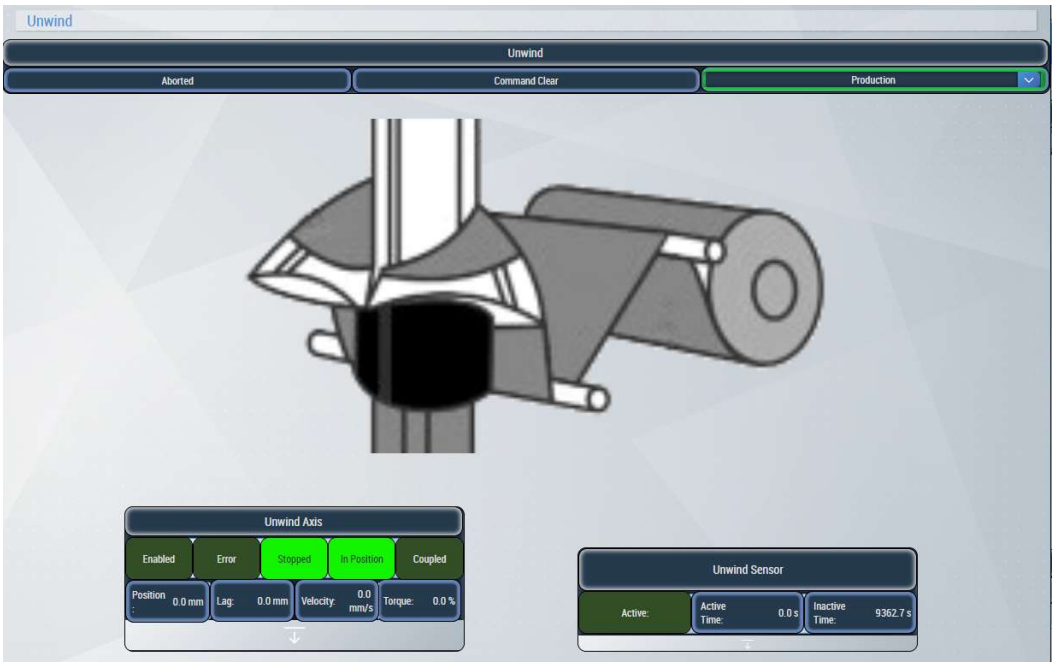
Sealer

This screen shows the status of the Sealer module. From here you can also jog axis look at the status of the SealBar. The modules PackML status is on top and on the bottom are the components for this module.



Unwind

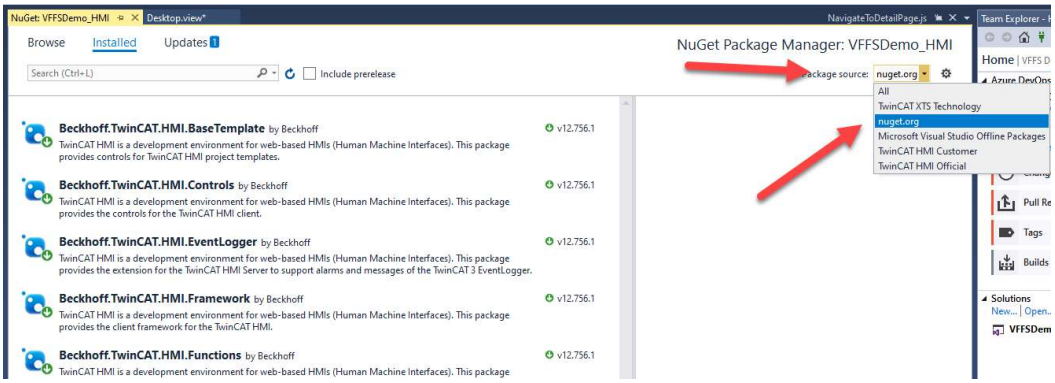
This screen shows the status of the Unwind. From here you can also jog axis look at the status of the Unwind sensor. The modules PackML status is on top and on the bottom are the components for this module.



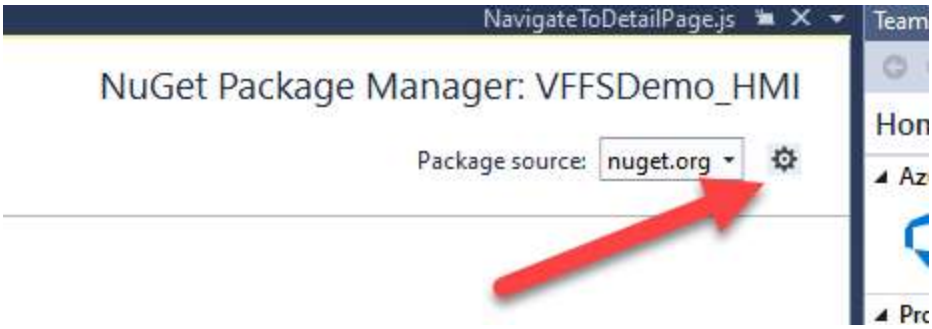
Nuget Packages

In TwinCAT HMI there are packages that contain items used in the HMI project. These can be updated and changed.

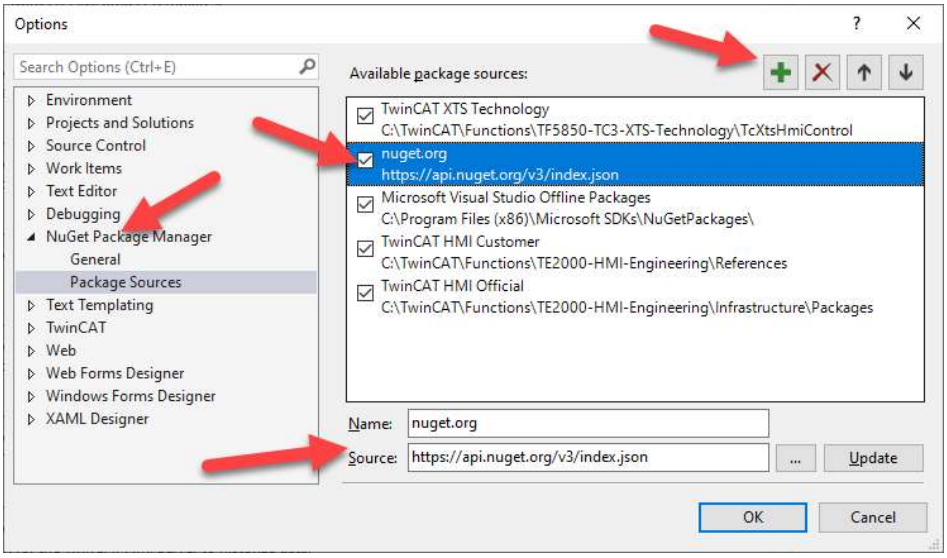
The best place to get the Nuget Packages is at Nuget.org as seen below.



If you do not have the nuget.org location for your package source, then select the configuration icon next to the drop down shown below.



Then when that opens, press the green plus to add a new package source. Enter the name Nuget.org and the source at the following URL: https://api.nuget.org/v3/index.json



Project Version

As the release of this demo the HMI version is 1.12.758.8.