

## FactoryTalk Brew



## Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

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### IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

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Labels may also be on or inside the equipment to provide specific precautions.



**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.



**ARC FLASH HAZARD:** Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

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## FactoryTalk Brew Overview

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### Introduction

The FactoryTalk® Brew™ solution is an S88 compliant standard modular application designed for brewery control. To provide the greatest value and reduce risk, the Factory Talk Brew solution includes integrated server-controller based batching. The FactoryTalk Brew solution helps to eliminate the need for intensive custom-coded sequence management to enable consistent and repeatable brew production.

### System Components

- FactoryTalk Brew Web Application
- Microsoft® SQL Server
- FactoryTalk View SE
- Logix 5000™ controllers

### Web Application

Access the web application via Internet Explorer® 11 or later, or Chrome. Use the web application to set up and configure the FactoryTalk Brew application. The web application is also used during runtime for configuration changes, edits, recipe management, and reporting. The web application is also accessible via the HMI.

## Microsoft SQL Server

Microsoft SQL Server is the main database used to store all the controller configurations, units, batches, recipes, and procedures.

## FactoryTalk View SE

The FactoryTalk View SE application provides a platform for engineers to design and modify new and existing HMI according to the configuration of the brewery. The FactoryTalk View SE application also gives the operator the ability the ability to monitor and control the brewery in real time.

### *PlantPAx® Libraries*

Use the PlantPAx libraries in the FactoryTalk Brew application to develop the HMI and display real time data.

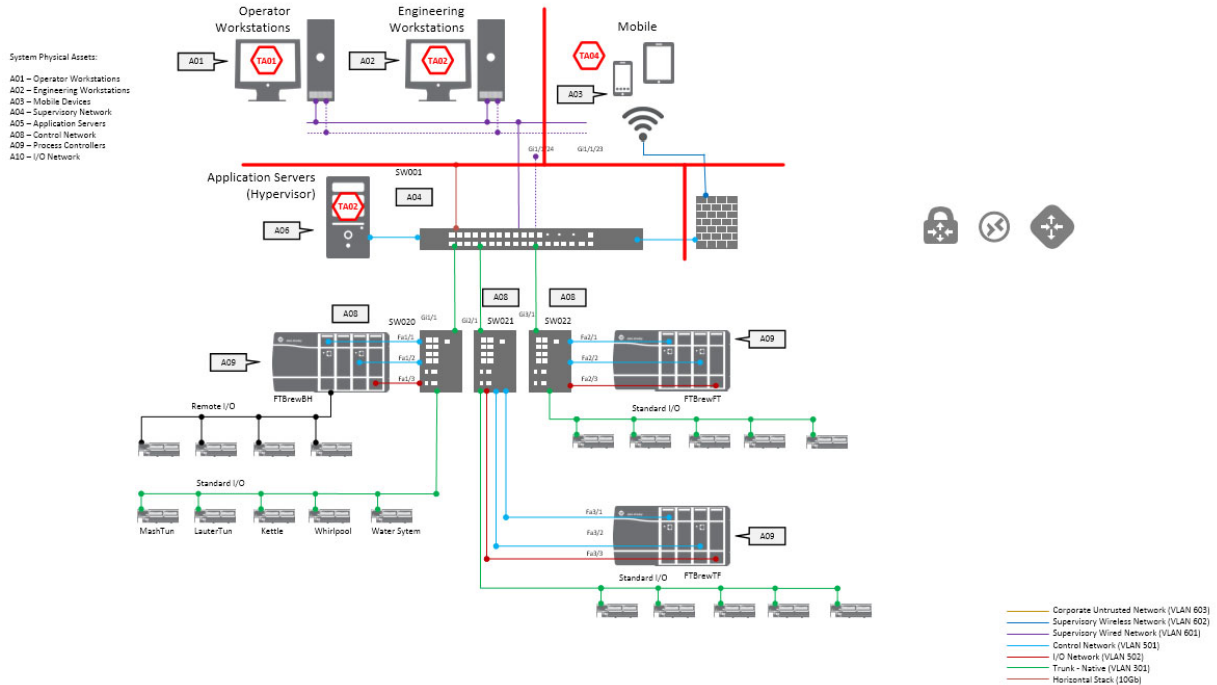
### *FactoryTalk Brew Libraries*

Use the FactoryTalk Brew libraries in the FactoryTalk Brew application to develop the HMI and display real time data where specific brewing libraries are not available in the PlantPAx libraries.

## Clients

The FactoryTalk View application is deployed on the HMI server and requires FactoryTalk View Client software for visualization on the computer. The number of clients available in the configuration is based on the configuration of the system and the licenses that are purchased. The client stations are provided with FactoryTalk View SE Client.

**Figure 1 - Sample System Architecture**



## Logix 5000 Controllers

FactoryTalk Brew supports any Logix L7x or L8x controller. L8x controllers are recommended. The number of required controllers is based on brewery design. For ease of configuration and life cycle management, use one controller per process area.

## Scalability

FactoryTalk Brew has the ability to scale to small craft, single unit, and research/test systems. FactoryTalk Brew supports these special cases where CompactLogix® and FactoryTalk Brew View SE standalone are more practical. This enables a consistent user interface across all aspects of the system.

## Product Licensing and Catalog Structure

FactoryTalk Brew is licensed to the end user. [Table 1](#) and [Table 2](#) describe the catalog structure for the offering.

**Table 1 - FactoryTalk Brew**

Catalog Number	FactoryTalk Brew Package Model	Description	Comments
9528-FTBB-ENE	Basic Package	1 Unit, Includes web-based configuration software, Recipe Management, and Reporting Database (MSSQL License not included) View Project, and Logix Application	The basic package is always ordered and provides the infrastructure with one unit. Add additional units, routes, and tanks as needed based on brewery design
9528-FTBU01-ENE	1 Additional Unit	Additional unit increment of 1	Order as required
9528-FTBU05-ENE	5 Additional Units	Additional unit increment of 5	Order as required
9528-FTBU10-ENE	10 Additional Units	Additional unit increment of 10	Order as required
9528-FTBR01-ENE	1 Route	Route—Increment of 1	Order as required
9528-FTBT15-ENE	15 Tanks	Tank—Increments of 15	Order as required
9528-FTBT30-ENE	30 Tanks	Tank—Increments of 30	Order as required
9528-FTBT60-ENE	60 Tanks	Tank—Increments of 60	Order as required
9528-FTBL01ENE	1 full brew line, 15 Units, 2 Routes, 60 Tanks	1 full brew line, 15 Units, 2 Routes, 60 Tanks	Order as required
9528-FTBL02ENE	2 full brew lines, 30 Units, 4 Routes, 120 Tanks	2 full brew line, 30 Units, 4 Routes, 120 Tanks	Order as required
9528-FTBL03ENE	3 full brew lines, 45 Units, 6 Routes, 180 Tanks	3 full brew line, 45 Units, 6 Routes, 180 Tanks	Order as required
9528-FTBL04ENE	4 full brew lines, 60 Units, 8 Routes, 240 Tanks	4 full brew line, 60 Units, 8 Routes, 240 Tanks	Order as required

**Table 2 - System and Software Requirements**

Element	Category	Description
FactoryTalk Brew Web Application	Web application	Internet Explorer version 11 or later, or Chrome
HMI	Rockwell Automation Software	FactoryTalk View SE Server or Station, version 11 and later
Controller	Rockwell Automation Software	RSLogix 5000 Version 31 and later
Optional Elements	Category	Description
PlantPAx Virtual Image Templates	Rockwell Automation Software	PASS, OWS, EWS, Historian Release 4.6
FactoryTalk® Historian	Rockwell Automation Software	Version 6.0

## Hardware and Operating System Requirements

See [PlantPAx® Distributed Control System Release 4.6](#).

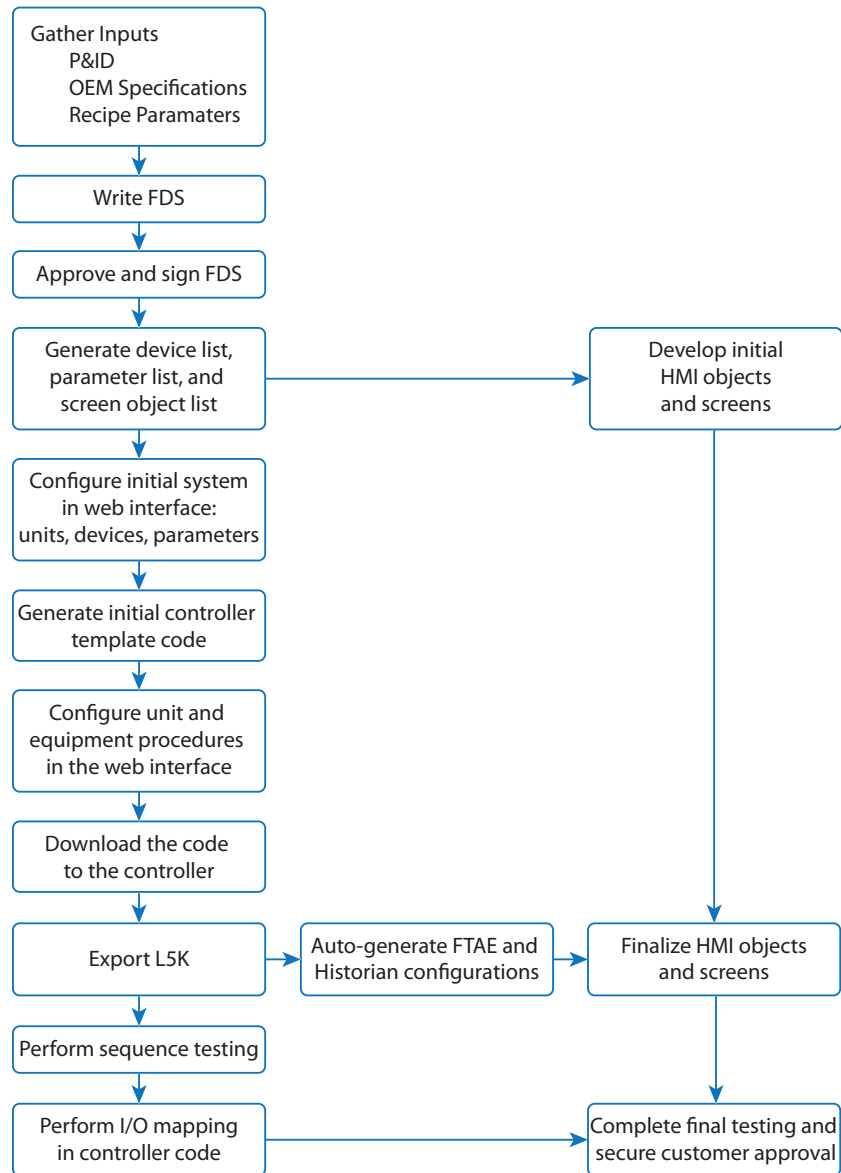
## Intended Audience

This deployment guide provides the guidance required to enable a trained delivery engineer to design, install, and administer the FactoryTalk Brew solution based on brewery design.

## Implementation Overview

FactoryTalk Brew configuration requires knowledge of the brewing process, the physical layout and instrumentation in the brewery, as well as knowledge of ControlLogix® and visualization programming software. [Figure 2](#) illustrates the required information and workflow involved to deliver a brewing project by using FactoryTalk Brew.

**Figure 2 - Brewing Project Information and Workflow**



The first step is to thoroughly document the entire system with a Functional Design Specification (FDS) and obtain the customer's signed approval of the document. The FDS document serves as the baseline for all operations, and it serves several important purposes:

- Defines the project scope
- Simplifies system configuration and programming
- Provides a basis for approval of the finished project

The FactoryTalk Brew FDS has a specific format that enables the project team to gather the information in a clear and consistent manner. The FDS process begins by collecting several documents and inputs:

- P&ID's of the system—System P&IDs must be accurate and up to date. If they are not available, they must be developed and/or updated
- OEM Specifications for the equipment operations
- Recipe parameters

At the outset of the input gathering process, it is helpful to be familiar with the constructs FactoryTalk Brew uses to model, program and control the brewing operations. [Chapter 6](#) of this manual describes each of the FactoryTalk Brew objects. In addition, the system leverages many of the Plant PAX 4.1 library objects, which are fully documented in the Rockwell Automation Library of Process Objects 4.1 Reference Manuals.

Note that there are two reference manuals:

- [Rockwell Automation Library of Process Objects: Logic Instructions](#) —covers the details of the Logic Instructions.
- [Rockwell Automation Library of Process Objects: Display Elements](#) —covers the details of the Display Elements.

Table 3 provides a summary of the FactoryTalk Brew programming commands.

**Table 3 - Brewing Commands**

Name	Description	Name	Description
EN	Jump next if operator acknowledge	JSDLEC	Jump to step (Param4) if Param1 - Param2 <= Constant
ANP	Jump next if all conditions TRUE	JSDLCL	Jump to step (Param4) if Param1 - Param2 < Constant
JN	Jump next if condition TRUE	JSDGCL	Jump to step (Param4) if Param1 - Param2 > Constant
JS	Jump to step (Param2) if condition (Param1) TRUE	JSDLEV	Jump to step (Param4) if Param1 - Param2 <= Param3
JGC	Jump next step if Param1 > Constant	JSDLEC	Jump to step (Param4) if Param1 - Param2 <= Constant
JLC	Jump next step if Param1 < Constant	SP	Stop sequence
JGV	Jump next if Param1 > Param2	AM	Activate module
JEV	Jump next if Param1 = Param2	RS	Reset module
JEC	Jump next if Param1 = Constant	WET	Write Param1 with sequence step timer ACC
JNMEC	Jump next if Mode Value = Constant	WSTV	Write sequence step timer PRE with Param1
JNMEV	Jump next if Mode Value = Variable	WTS	Write timestamp (YY MM DD HH MM SS)
AND	Jump next if both conditions TRUE	WSC	Write setpoint with Constant
JDGC	Jump next if Param1 - Param2 > Constant	WSV	Write setpoint with Param2
JSLC	Jump to step (Param3) if Param1 < Constant	WV	Write Param2 with Param1
JSEV	Jump to step (Param3) if Param1 = Param2	WCC	Write control variable with Constant
JSGEV	Jump to step (Param3) if Param1 >= Param2	WCV	Write control variable with Param2
JSGC	Jump to step (Param3) if Param1 > Constant	WMC	Write Mode with Constant
JSEC	Jump to step (Param3) if Param1 = Constant	WMV	Write Mode with Param2
JSMC	Jump to step (Param3) if Mode Value = Constant	WADD	Write Param1 with Param2 + Param3
JSMV	Jump to step (Param3) if Mode Value = Variable	WSUB	Write Param1 with Param2 - Param3

## FDS: Procedure Definition Table

Each sequence to be automated must be documented in a Procedure Definition Table. The table header lists the Unit Name and the Procedure Name. Each row of the table contains the following information:

- Step Number
- Step Name—is to be the exact description as it will appear in the HMI
- End Condition—the condition that must be met in order to advance to the next step
- Next Step number

The figure below shows an example of a completed Procedure Definition Table.

	<b>Functional Design Specification</b>	Customer: Brews-u-Us
		Location: Happy Hour Brewery
		Project: Mash Mixer Automation
		Order Number: #####

### 5 Procedure Definition

This section will be used to define the procedures generated within the FTBrew software. There is a Procedure Definition Table to define each sequence to be automated within FTBrew. There is a Step Definition Table to define each step within the sequence.

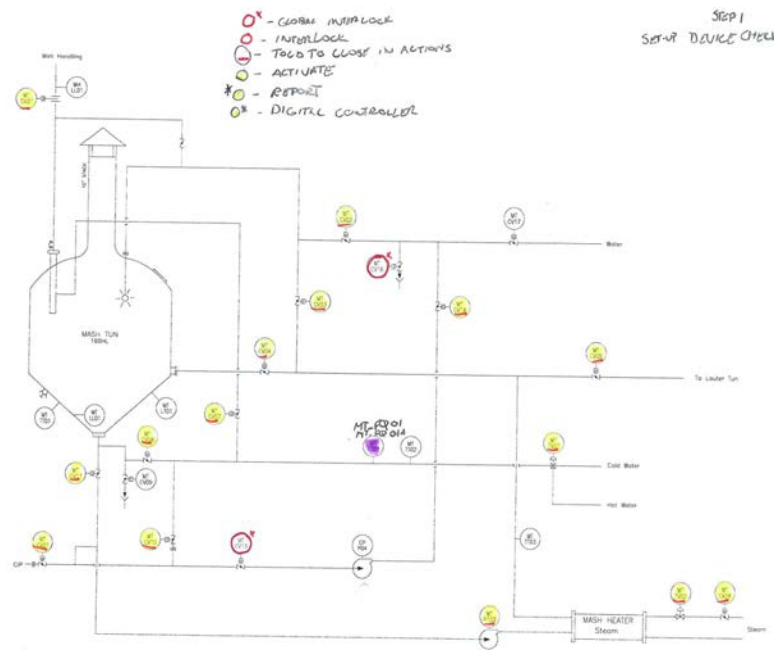
Procedure Definition Table			
Unit:		_uMashTun	
Procedure Name:		Mash Tun	
Step No.	Step Name	End Condition	Next Step
1	Setup - Device Check	Timed Step (5 Sec)	2
2	Drain - Drain Mash Tun	Low Level in Mash Tun (Equipment Parameter Setting)	3
3	Foundation - Add Water Addition until volume	Water Totalizer Volume Met (Recipe Parameter)	4
4	Foundation - Fill Mash Heater & Piping	Timed Step (20 Sec)	5
5	Foundation - Circulate Mash Heater for Minimum Time	Minimum Time (180 Sec)	6
6	Foundation - Check Foundation Water Temp	Mash Tun Temperature Greater (Recipe Parameter – Equipment Parameter) Offset	7
7	Mash In - Check Grind Complete	Grind Complete Flag	8
8	Mash In - Prompt Operator for "Ready to Mash-In?"	Operator Acknowledgement	9
9	Mash In - Agitation Start-up - Check Hopper Minimum Level	Min Level in Mash Tun (Equipment Parameter Setting)	10
10	Mash In - Transfer & Agitate	Malt Hopper Low Level	12
		Water Flowmeter > (Recipe Parameter) Grist Volume	11
11	Mash In - Water Volume Reached - GRIST HOPPER NOT EMPTY!	Operator Acknowledgement	12
12	Mash In - Final Dump Grist Open and Vibrate for Time	Timed Step (20 Sec)	13
13	Mash In - Complete Mash-In Water & Agitate	Water Flowmeter > (Recipe Parameter) Grist Volume	14
14	Mash In - Complete with Grist Valve Closed.	When Grist valve < 50%	15
15	Protein - Setup	Timed Step 3 Sec	16
		Protein Time (Recipe Parameter) =< 0 Sec	19

## FDS: Step Definition Table

Each step in the procedure definition table should then have its own copy of a P&ID diagram that has been annotated with the following information:

- Step number
- Step description
- The applicable route highlighted.
- Activated devices
- Interlocked devices
- Recipe-controlled devices
- Virtual devices—such as digital controllers, totalizers, and PID controllers

The figure below shows an example of an annotated diagram for a single step in a procedure.



These annotated diagrams then serve as the foundation to fill out Step Definition Tables for each step within the procedure. The header of the Step Definition Table contains the following information:


- Unit Name
- Procedure Name
- Step Name—exactly as it will appear in the HMI
- Step Overview and details—a written description of the step, in laymen's terms, usually provided by the brewmaster and operations team



The body of the Step Definition Table contains the following details:

- Recipe Parameters, Report Parameters, and Unit Parameters—A list of all the parameters used in this step, including important details of each
  - Units
  - Default values
  - Whether or not operators can edit the parameter during runtime
- Time/Watchdog
- Operator Inputs—any manual entry inputs the operator may have
- Activations
  - Devices to turn on/off
  - Setpoints to write
  - Reports to generate
- Restart step—if the step requires a different step in order to restart
- Operator messages—any message for the step to inform the Operator in the HMI
- Interlocks
- Next Step—the step number and transition conditions that must be met in order to advance

The figure below shows an example of a completed Step Definition Table.

		Functional Design Specification		Customer: Brews-u-Us	
				Location: Happy Hour Brewery	
				Project: Mash Mixer Automation	
				Order Number: #####	
<b>Step Definition Table</b>					
Unit: _uMashTun					
Procedure Name: Mash Tun					
Step No: 6		Step Name: Foundation - Check Foundation Water Temp			
Step Overview: Recirculate the Water until the Temperature is met. Recipe temp - offset.					
Details:					
Recipe / Report Parameters:		Editable	Unit Parameters:		Editable
MT_RC_FoundTemp		Y / N	P103 MT_EP_P103Heat		Y / N
MT_RP_FoundTemp		Y / N	MT_EP_TempOffset		Y / N
		Y / N			Y / N
		Y / N			Y / N
		Y / N			Y / N
Time Step/Watchdog:		Sec.	Restart Step:		0
Operator Inputs:			Operator Messages:		
Activations:			Interlocks and Permissives:		
MT_CV04 MT_CV11 MT_P103 MT_RP_FoundTemp MT_TC02 DCMT_CV24 WSV MT_P103 MT_EP_P103Heat WSV MT_TC02 MT_RC_FoundTemp WSV MT_RP_FoundTemp MT_TT01			MT_LL02 -MT_CV03 -MT_CV05 -MT_CV12		
Next Step Conditions:		All units OK. None in Alarm			Step Number
Transition 1		(MT_RC_FoundTemp - MT_EP_TempOffset) <= MT_TT01			7
Transition 2					
Transition 3					

Once the FDS has been formally approved by the customer, the next phases of the project can begin.

## Initial System Configuration

The implementation team can now install the FTBrew servers and use the FDS to generate a comprehensive list of all devices, tags, parameters, and HMI objects that must be created and configured. Once these lists are available, two efforts can begin in parallel:

- Configuring the system in the FactoryTalk Brew web application
- Creating the HMI objects and screens in ViewSE

Implementers can either start with a blank system, or use the sample project as a starting point to adapt and build the customer's system. Chapters 3...7 provide full details of the process, but the following sections provide a summary overview of the process.

## Configuring the FTBrew Code and Screens

The high-level steps for configuration in the web interface are as follows:

- Create Controllers (Areas)
- Assign Licenses to Controllers (Areas)
- Create Units and Tanks within the Areas
- Create Devices within the Units
- Configure Unit Parameters within each Unit
- Configure Recipe Parameters within each Unit
- Create one or more Procedures for each Unit
- Generate the controller code and download it to the controller

After creating the initial configuration in the web interface, the next step is to create the Logix structure to support the generated controller code. After the initial setup is complete, there are two options for refining and expanding the code. One is to continue using the web-based interface; however, the Excel<sup>®</sup> export/import functionality provides a convenient alternative. Consult the FactoryTalk Brew Installation media for details on the use of the Excel tool. The Excel tool folder contains documentation and a setup program.

In parallel with the controller code, the HMI screens can be created and/or adapted, using the FDS and sample project as a guide.

Finally, after the core system is well-defined and built, the next step is to use the PlantPAX tools to generate the FTAE and Historian configurations. FactoryTalk Brew installation media contains files and documentation on how to leverage these tools.

## Initial Setup

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### FactoryTalk Brew Installation and Design Tools Overview

[Table 4](#) provides a brief description of the components included with the FactoryTalk® Brew™ 2.0 Installation media.

**Table 4 - FactoryTalk Brew install Media**

Folder	Description
Documentation	Copies of the FactoryTalk Brew Deployment Guide and User Guide
End User License Agreement	Rockwell Automation End User License Agreement
Excel® Tool	An installer that adds an FactoryTalk Brew plug-in for Microsoft® Excel. The plug-in allows for importing FactoryTalk Brew configurations, editing them, and exporting them back into the Brew server. Documentation included in the installation media describes how to use this tool.
FactoryTalk Brew Control Application Files	This folder contains controller project files that serve as the basis for enabling FactoryTalk Brew to automatically generate controller code based on user inputs to the web interface. The subfolder named 'controller Template for Import' contains two L5X files that must be imported into the web interface during initial setup. For reference, the parent folder contains the original ACD file that was used to create the L5X files. <a href="#">Chapter 6</a> of this manual provides instructions on using these files
FactoryTalk Brew Reports Installer	A set of files used during the installation process to set up the FactoryTalk Brew reports. <a href="#">Chapter 4</a> of this manual contains details on how and when to use these files.
FactoryTalk Brew Samples	An optional set of project files that can be used to set up a fully built sample system for use as a demo, learning aid, and/or development starting point. <a href="#">Chapter 4</a> and <a href="#">Chapter 5</a> of this manual provide details on how to install these files.
FactoryTalk Brew Visualization Application Files	Contain XML files for use in automatically generating brewing configurations for FactoryTalk Historian and FactoryTalk Alarms and Events. These files must be used in conjunction with the PlantPAx Configuration Tools for Tags, Alarms, and Historian. Documentation included in this folder provides details on their use.
FactoryTalk Brew Web Installer Files	A set of files used during the installation process to set up the FactoryTalk Brew web application. <a href="#">Chapter 4</a> of this manual contains details on how and when to use these files.

FactoryTalk Brew was developed using the PlantPAx 4.6 Image Templates as a basis for the platform. See Table 1 on page 10 of the [PlantPAx® Virtualization User Manual, Version 4.6](#) for the list of available templates. Some of the image templates are optional; however, four of the servers are mandatory:

- Domain Controller (PADC—Process Automation Domain Controller)
- AppServ-Info(SQL) (Application Server, Information, SQL)
- PASS (Process Automation System Server)
- EWS (Engineering Workstation)

Although there is a PAX 4.6 template available for SQL, it ships with an older version of Microsoft SQL Server (Standard 2012 SP4). For the SQL image, implementers might prefer to simply build a second image using the PADC template, and then install the desired version of Microsoft SQL Server or Microsoft SQL Server Express.

The PlantPAx documentation suggests setting up the PASS image before the SQL image; however, in a FactoryTalk Brew system, the SQL image, also known as the FactoryTalk Brew Server, plays a unique role in the system:

- The FactoryTalk Brew server contains the FactoryTalk Brew database, which must be present and configured before generating controller code and HMI applications.
- The FactoryTalk Brew server's SQL databases and corresponding ODBC data sources must be in place before configuring the FTAE and logging features in the HMI applications.
- The FactoryTalk Brew server must have FactoryTalk Activation Manager installed, but it does not necessarily need a connection to the FactoryTalk Network directory. This means that the PASS server, which typically hosts the FactoryTalk Network Directory, can be set up after the FactoryTalk Brew (Microsoft SQL Server) image.

The image templates should be set up and configured in the order listed above. This document, along with the PlantPAx documentation, provides detailed instructions for setting up all the necessary servers, as described in the following chapters.

If the customer requirements prevent using the image templates, then a similar platform must be built or made available. Table 3 of the [PlantPAx® Virtualization User Manual, Version 4.6](#) provides full details of the system and software requirements for each server within the system.

## Initial Image Configuration

For all image templates there are several common setup and configuration steps that must be performed on all image templates, as described in Chapters 2 and 3 of the [PlantPAx® Virtualization User Manual, Version 4.6](#). After the common setup, each image will have additional steps that vary by template, as described in Chapter 4 of the [PlantPAx® Virtualization User Manual, Version 4.6](#).

Finally, there are a number of additional considerations that are important during the initial setup of each image:

- **Length of Domain and Area Names**—implementing the PlantPAx security model in the HMI involves the use of string fields that are limited in length. To avoid string length issues in the HMI, if implementers have a choice, short domain and area names are preferred.
- **Renaming computers/images**—as indicated in the PlantPAx documentation, this is one of the first tasks to complete. The names must be fixed in order to ensure proper functioning of the FactoryTalk Network Directory.

---

**IMPORTANT** It is important to have the final name in place prior to configuring any Rockwell Automation Software.

---

- **System Time and Synchronization**—verify that all images have the correct current time and time zone. If installing from an image template, it is very likely that settings will be incorrect upon initial startup. In addition to correcting the time and time zone, it is important to make sure that all system servers and controllers synchronize to a common time server on a regular basis. The [PlantPAx® Distributed Control System Infrastructure Configuration User Manual, Version 4.6](#) contains guidance on how to configure and achieve time synchronization.
- **Windows update**—if installing from an image template, it is likely that several cycles of download and installation of critical Windows updates will be necessary. We recommend running Windows Update to ensure that the latest updates and security patches are present on all of your system computers.

**Notes:**

## Domain Setup

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### Configure the PADC Server Image

PADC stands for Process Automation Domain Controller. This image should be set up first. FactoryTalk® Brew™ relies on Windows Authentication to assign and control system access based on defined security roles and groups. This section describes the steps required to configure the PlantPAx® PADC image for FactoryTalk Brew.

The PlantPAx AppServ-PADC Virtual Template 4.6 VL serves as the basis for this server. If the customer requirements prevent using the image templates, then a similar platform must be built or made available.

Follow the general setup instructions in Chapters 2 and 3 of the [PlantPAx Virtualization User Manual, Version 4.6](#).

Next, follow the Domain Controller setup instructions in Chapter 3 [PlantPAx Distributed Control System Infrastructure Configuration User Manual, Version 4.6](#).

When you reach page 120 of the PlantPAx Distributed Control System Infrastructure Configuration User Manual, where the document lists the Role Groups that must be created for PlantPAx, create the three additional role groups that are required for FactoryTalk Brew:

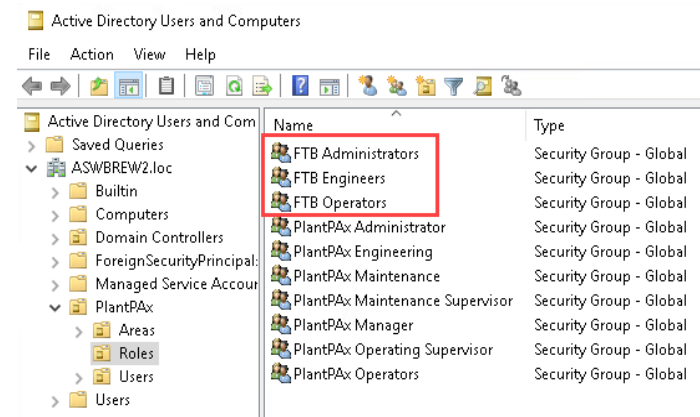
- FTB Administrators
- FTB Engineers
- FTB Operators

---

**IMPORTANT** Enter these names exactly as shown. FactoryTalk Brew depends on these group names to control access to functionality.

---

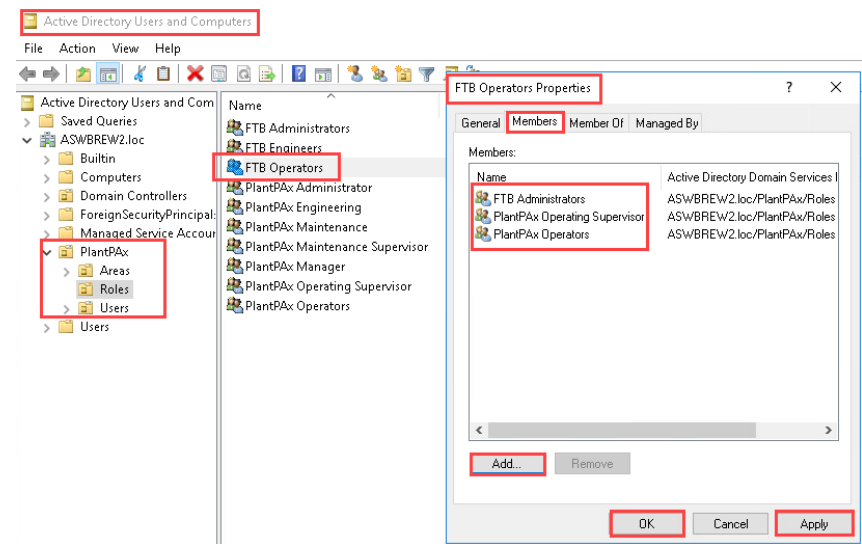
**Figure 3 - Required Role Groups**



After creating all the role groups, navigate to the properties page for FTB Operators Role group, go to the Members tab, and add the following role groups as members of the FTB Operators Role group:

- FTB Administrators
- PlantPAx Operating Supervisor
- PlantPAx Operators

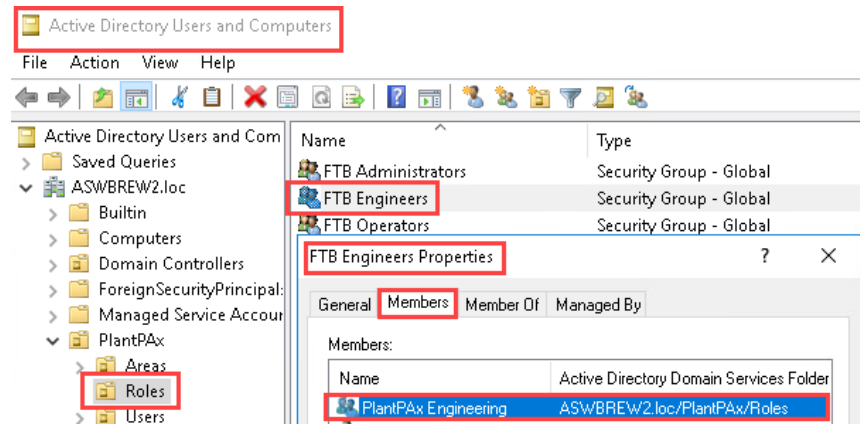
**Figure 4 - Operators Role Group**





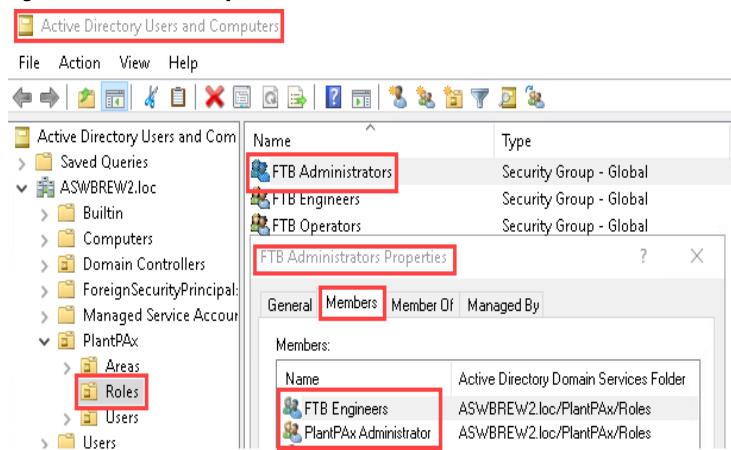
Next, pull up the properties page for FTB Engineers Role group and go to the Members tab. Add the PlantPAx Engineering role group as a member of the FTB Engineers Role group.

**Figure 5 - Engineer Role Group**



Finally, pull up the properties page for FTB Administrators Role group and go to the Members tab. Add the FTB Engineers and PlantPAx Administrator role groups as members of the FTB Administrators Role group.

**Figure 6 - Add Role Groups as Members**



Once all the FTB groups are created and configured, continue working through Chapter 3 of the [PlantPAx® Distributed Control System Infrastructure Configuration User Manual, Version 4.6](#), creating Areas and adding domain Users to the appropriate FTB and PlantPAx role groups. When you begin working with the FTB Web Application for the first time, you must be logged into the system with an account that has FTB Engineer privileges in order to access the correct functionality. The next section describes the levels of access each FTB security role group provides to system functionality.

## FactoryTalk Brew User Groups

FactoryTalk Brew uses role-based security to control the level of access users have to system components. A user's ability to view, create, edit, and delete objects depends on his/her assigned group.

The most basic, restricted access level is the FTB Operators group. This group has only View/Select privileges for the following items:

- Area Selection
- Batches

The intermediate access level is FTB Administrators. This group has all the privileges of the FTB Operators group. Additionally, this group has View/Create/Edit/Delete privileges for the following items:

- Controllers
- Devices
- Commands
- Pipes
- Routes
- Report Configuration
- Machine Parameters
- Recipes
- Ingredients
- Procedures

The FTB Engineers group has the highest level of functionality available. FTB Engineers have all the privileges of FTB Operators, and FTB Administrators, plus View/Create/Edit/Delete privileges on the following items:

- Units
- Recipe Parameters
- Unit Parameters

---

**IMPORTANT** This hierarchy is slightly different than the PlantPAx security model. Chapter 6 of the PlantPAx® Distributed Control System Infrastructure Configuration User Manual, Version 4.6 (proces-um001), provides instructions for implementing the necessary FactoryTalk Security configuration. When configuring FactoryTalk Security, please keep in mind the following:

- FTB Engineers have the highest level of access—PlantPAx Administrator, Area\_Basic, and Area\_Advanced.
- FTB Administrators are the intermediate access level—PlantPAx Engineer, Area\_Basic, and Area\_Advanced.
- FTB Operators are the most basic access level—PlantPAx Operator and Area\_Basic.

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## FactoryTalk Brew Server Setup

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## Prepare the FactoryTalk Brew Server Image

The FactoryTalk® Brew™ Server is the second image that should be set up. Although there is a PAX 4.6 template available for SQL, it ships with an older version of Microsoft® SQL Server (Standard 2012 SP4). For the SQL image, implementers might prefer to simply build a second image using the PADC template, and then install the desired version of Microsoft SQL Server or Microsoft SQL Server Express.

Follow the general image setup instructions in Chapters 2 and 3 of the [PlantPAX Virtualization User Manual, Version 4.6](#).

Next, follow the image setup instructions on page 102 of the [PlantPAX Virtualization User Manual, Version 4.6](#), making note of the applicable options and procedures for configuring the system for use with or without Historian.

Note that the Virtualization document contains instructions for Microsoft SQL Server 2012 Standard, but FactoryTalk Brew can run with Microsoft SQL Server 2017 Standard or Express, as well as the versions in between.

---

**IMPORTANT** Regardless of which version of SQL you install, it is very important to use Mixed Mode Authentication, and to make note of the sa password you provide during the installation process.

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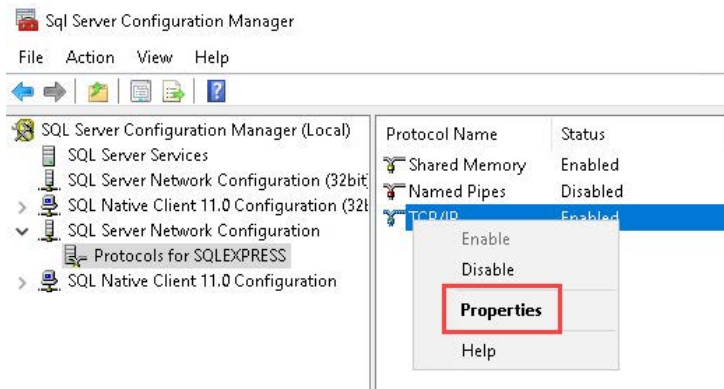
In addition to Microsoft SQL Server, you will also need to install Microsoft SQL Server Management Studio and Microsoft SQL Server Reporting Services. Note that with newer versions of Microsoft SQL server, these components must be downloaded and installed separately.

## Verify Microsoft SQL Server Settings

This section describes settings that must be in place for FactoryTalk Brew to install and function properly. Note that if you are using a full version of Microsoft SQL Server these settings will likely already be in place by default. However, if you installed an Express version, you must make the following changes, since they will not be in place by default.

Open Sql Server Configuration Manager. In the left panel, expand SQL Server Network Configuration and highlight the 'Protocols for (your server name)' branch. In the center panel, right-click on TCP/IP and select Properties from the pop-up menu.

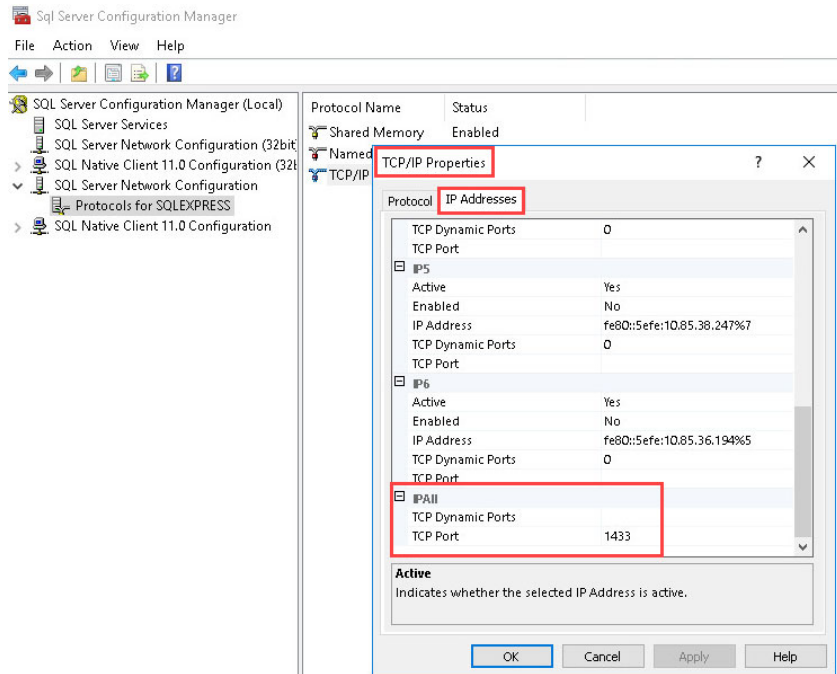
**Figure 7 - Configuration Manager Properties**



The TCP/IP Properties dialog box appears. If TCP/IP is showing as disabled, right-click and Enable TCP/IP.

Click on the IP Addresses tab and scroll down to the IPAll section. Make sure that TCP Dynamic Ports is blank and TCP Port is set to 1433.

**Figure 8 - TCP/IP Properties**



## Install FactoryTalk Activation Manager

FactoryTalk Brew requires FactoryTalk Activation Manager 4.04 or later. If your starting image does not already have it preinstalled, obtain a copy of the installation program from the Rockwell Automation software download site, taking care to select at least version 4.04:

<https://compatibility.rockwellautomation.com/Pages/MultiProductFindDownloads.aspx?crumb=112&toggleState=&versions=55987&late=1>

Note that if you are planning to host the activations on a different image, or your starting image already has FactoryTalk Activation Manager installed, be sure to verify that the correct version is present. Most of the PlantPAx 4.6 templates ship with an older version of FactoryTalk Activation Manager and must be upgraded in order to recognize FactoryTalk Brew Licenses. The next section has instructions for upgrading an older version of FactoryTalk Activation Manager.

## Upgrade FactoryTalk Activation

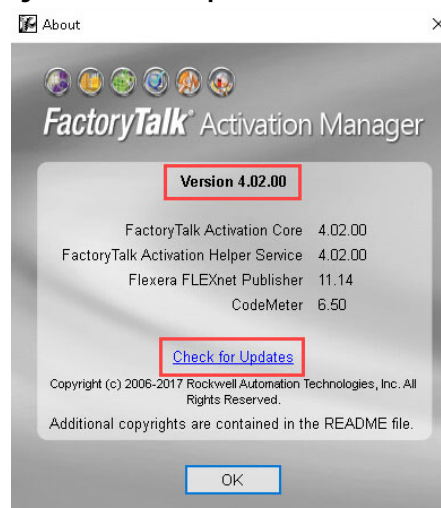
1. Open FactoryTalk Activation Manager and click About.

Figure 9 - FactoryTalk Activation Manager



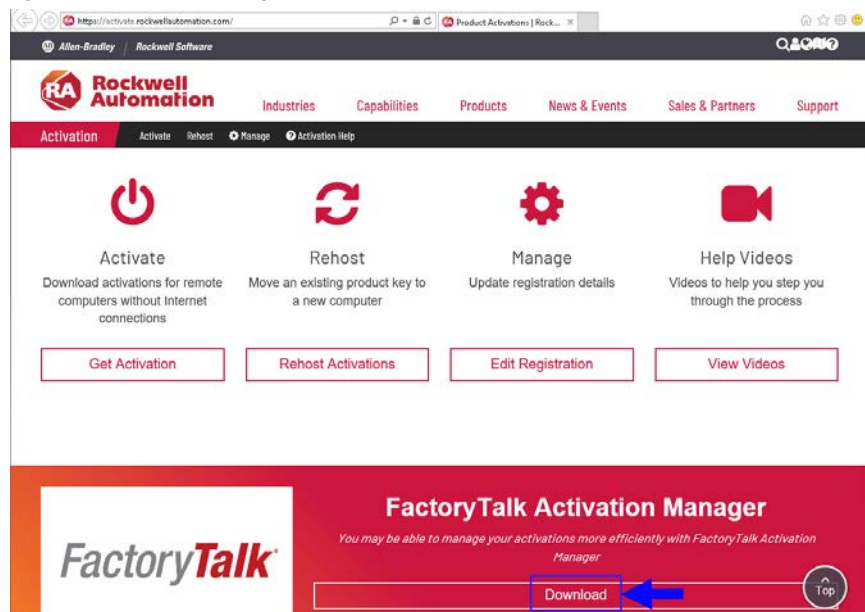
2. Check the version. It must be at least 4.04. If an older version is installed, click Check for Updates.

Figure 10 - Check for Updates



3. This will bring up a browser with a Rockwell Automation activation website. Scroll to the bottom of the web page and click Download.

**Figure 11 - Activation Manager Download**



4. Select version 4.04 or later and initiate a download.

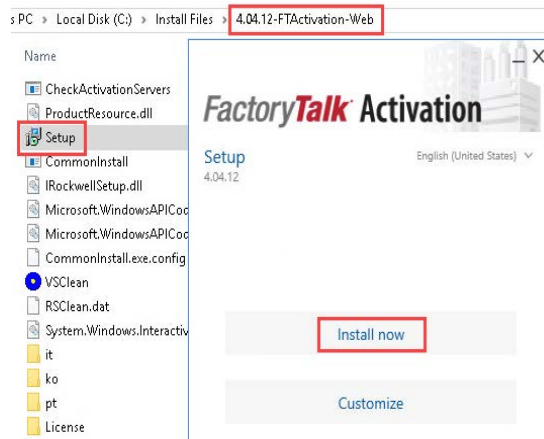
**Figure 12 - Download File Selection**



5. Return to FactoryTalk Activation Manager and Click OK to close the About box.
6. Close FactoryTalk Activation Manager.
7. Extract the update and run the setup application.
8. Restart the system when prompted.

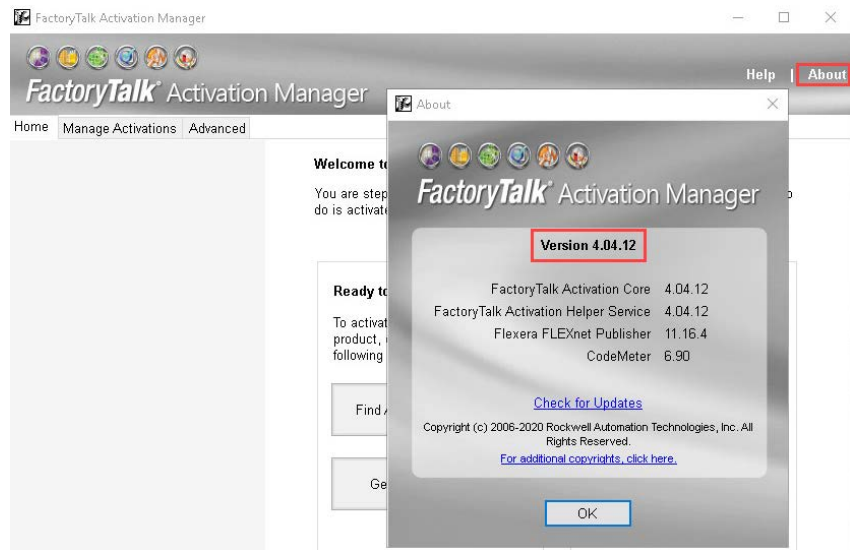
## Setup and Installation

Figure 13 - Setup and Install



1. Once the installation is complete, open FactoryTalk Activation Manager and click About to verify the correct version is present.

Figure 14 - Version Verification



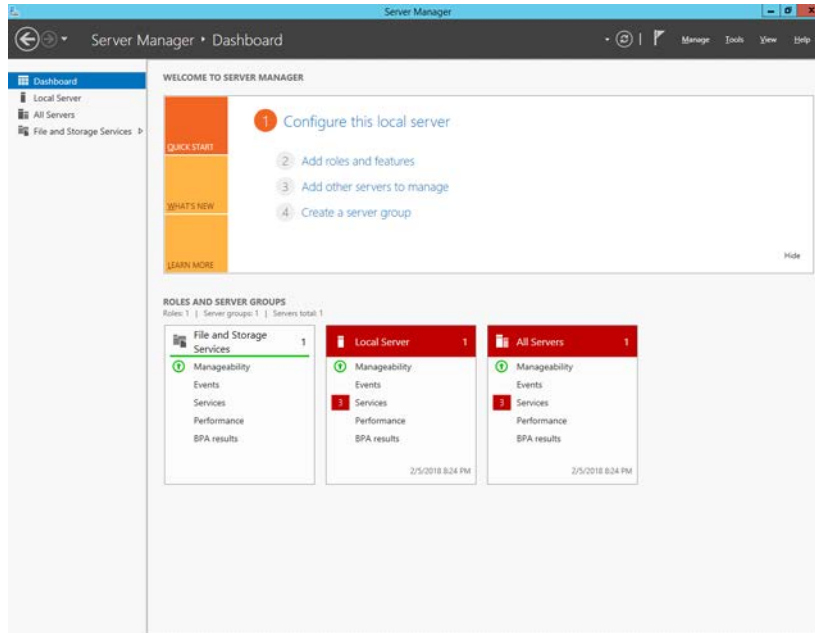
2. Once you have installed and/or upgraded the FactoryTalk Activation Manager, download the FactoryTalk Brew software activations onto your activation server.



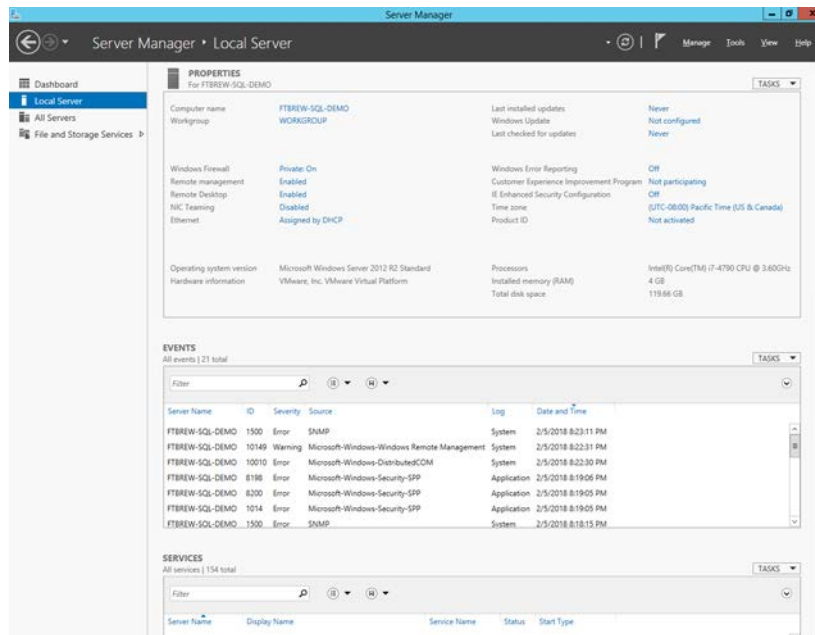
## Set Up Microsoft Windows

To set up Microsoft Windows, follow these steps.

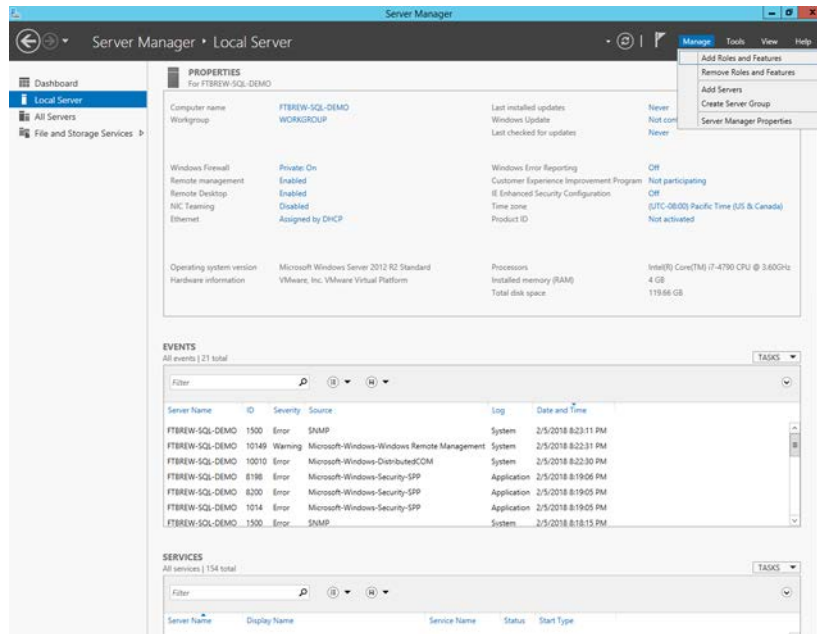
### 1. Start Server Manager.



### 2. Choose Local Server.

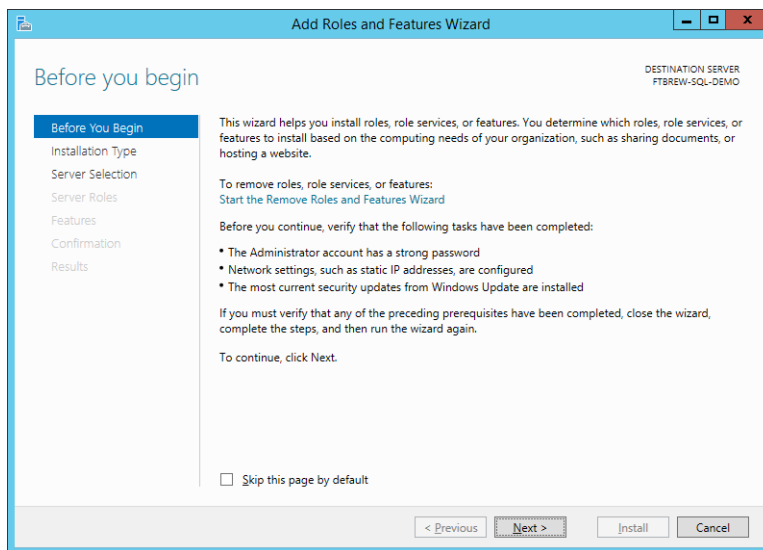


3. From the Manage pull-down menu, choose Add Roles and Features.



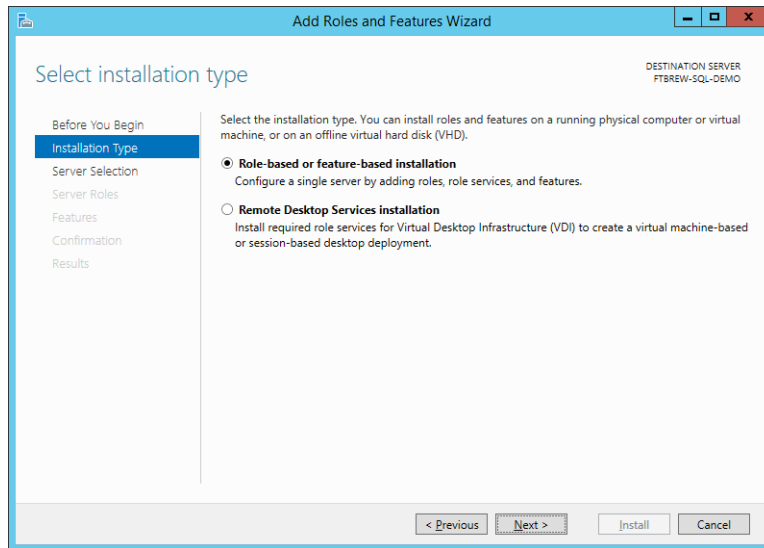
The Add Roles and Features Wizard dialog box appears.

4. Click Next.



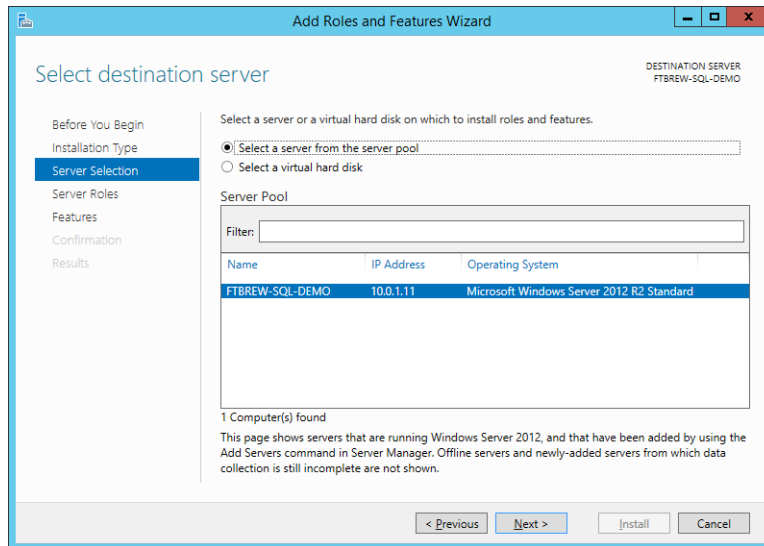
The Select Installation Type dialog box appears.

5. Click Role-based or feature-based installation



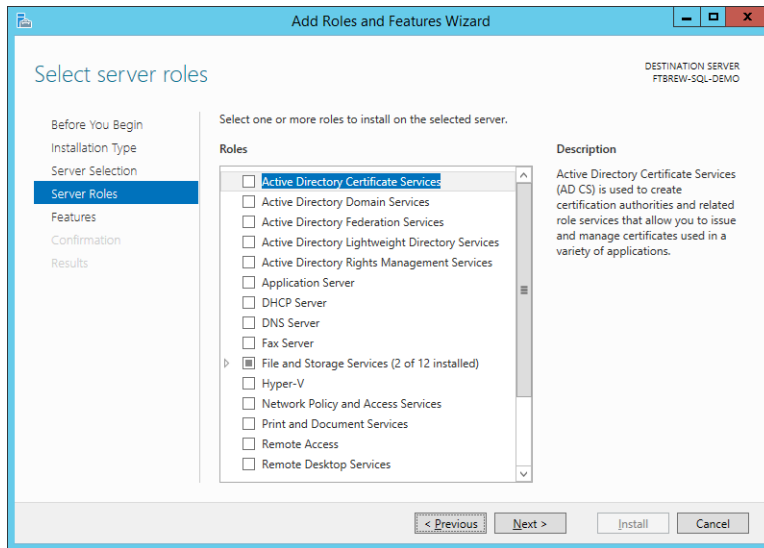
6. Click Next.

The Select destination server dialog box appears.

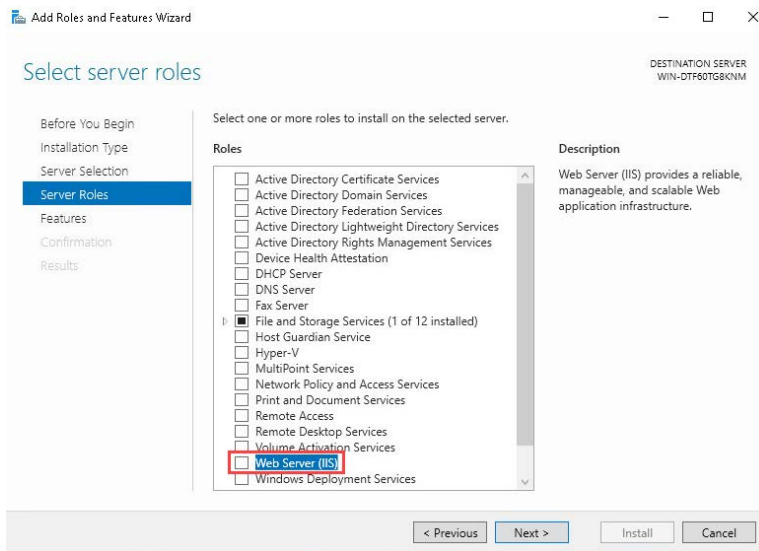


7. Choose your server and click Next

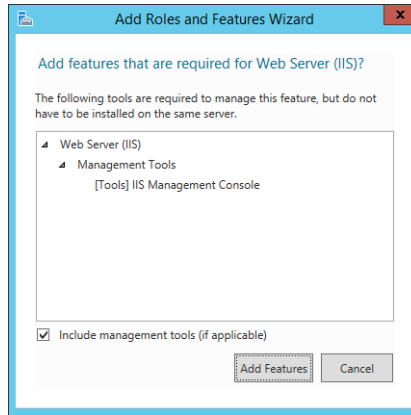
The Select server roles dialog box appears.



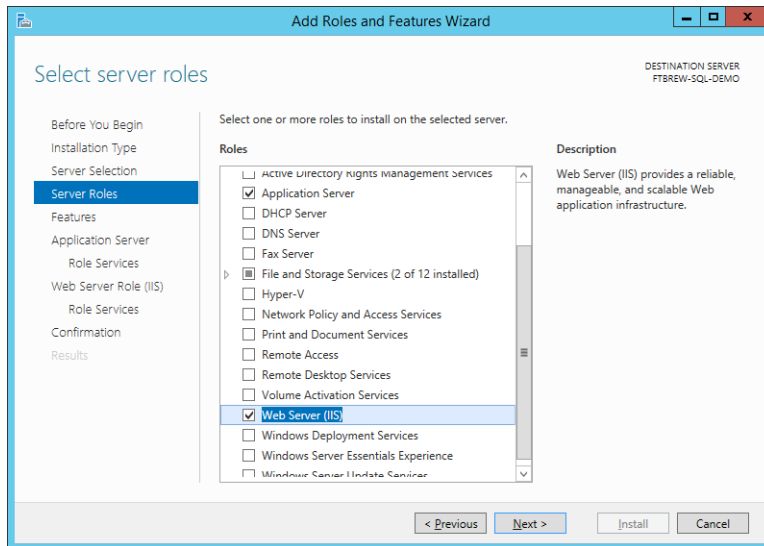
8. Click Web Server (IIS).



The Web Server (IIS) Features dialog box appears.



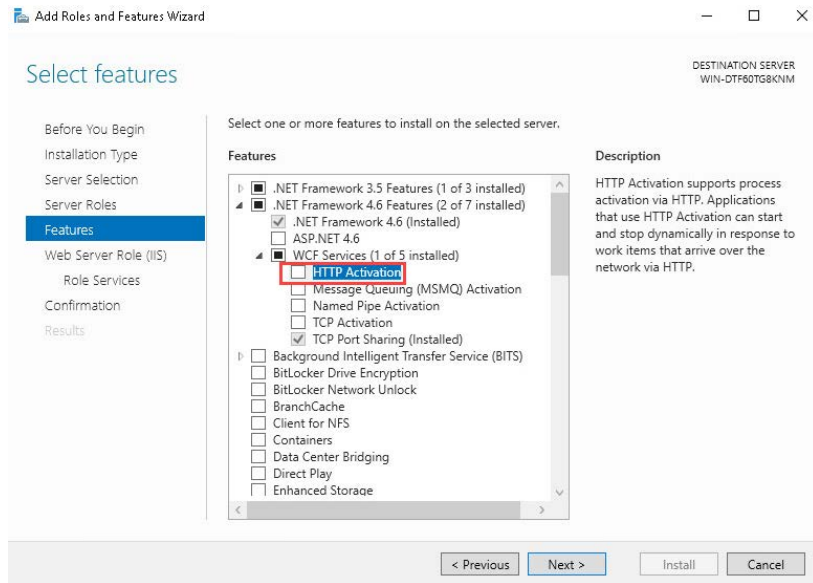
9. Click Add Features to close the dialog box.



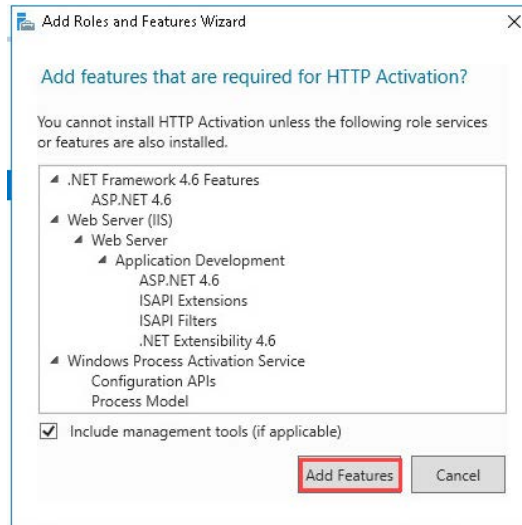
10. Click Next.

The Select Features dialog box appears.

11. Choose Features>.NET Framework 4.6 Features>WCF Services.
12. Check HTTP Activation.

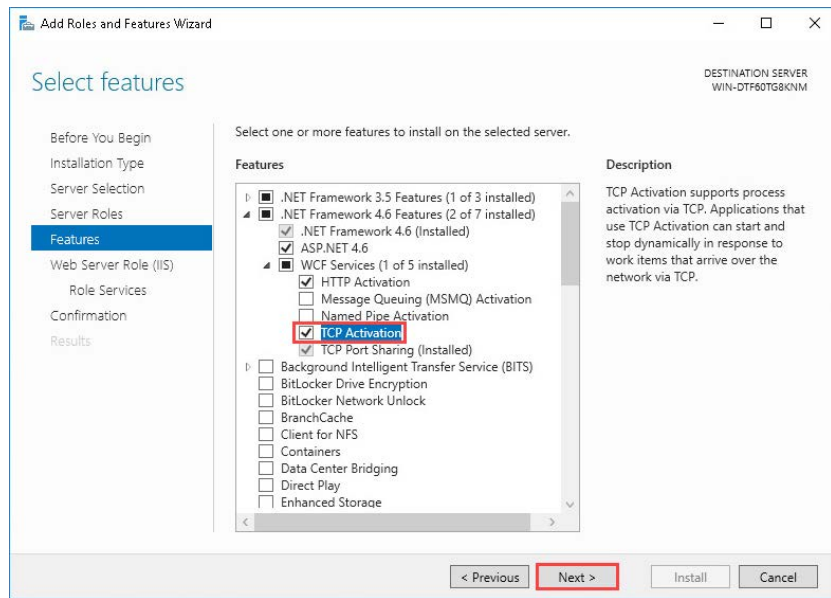


The Add Roles and Features Wizard appears.



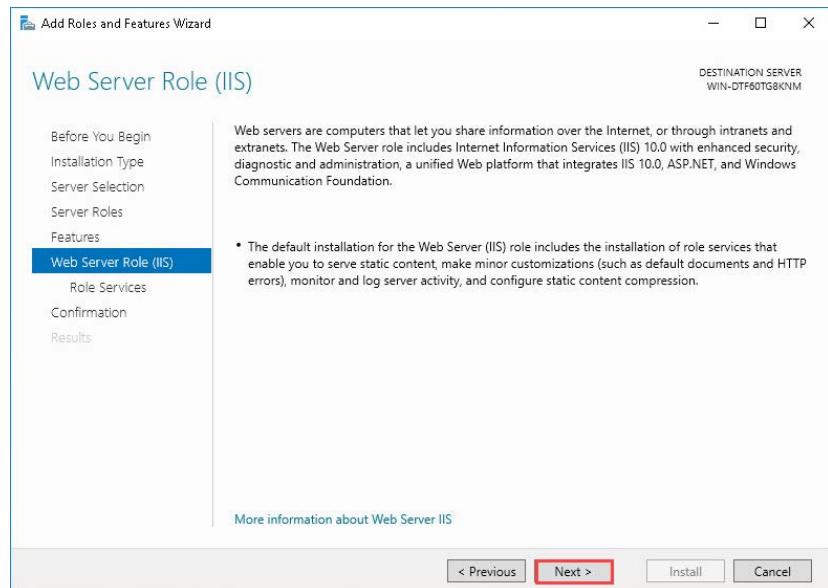
13. Click Add Features.

### 14. Check TCP Activation



### 15. Click Next.

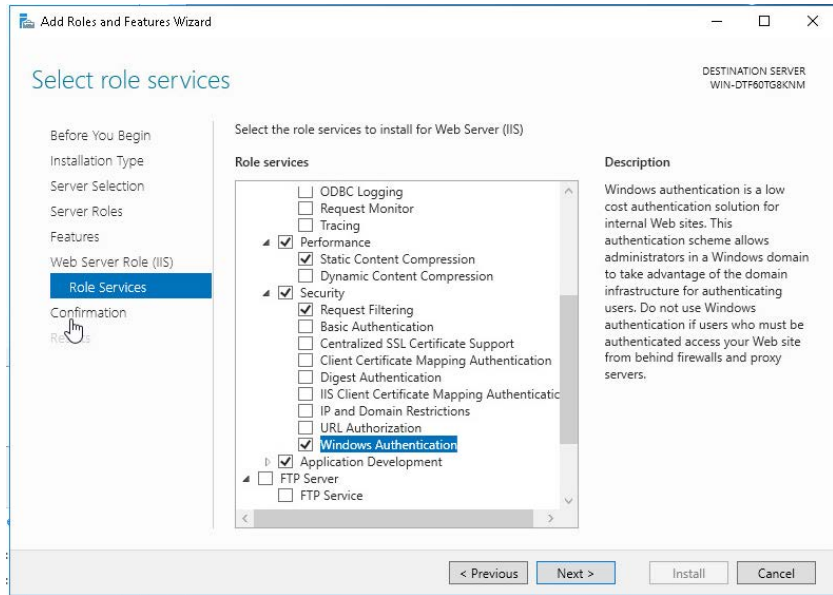
The Web Server Role box appears.



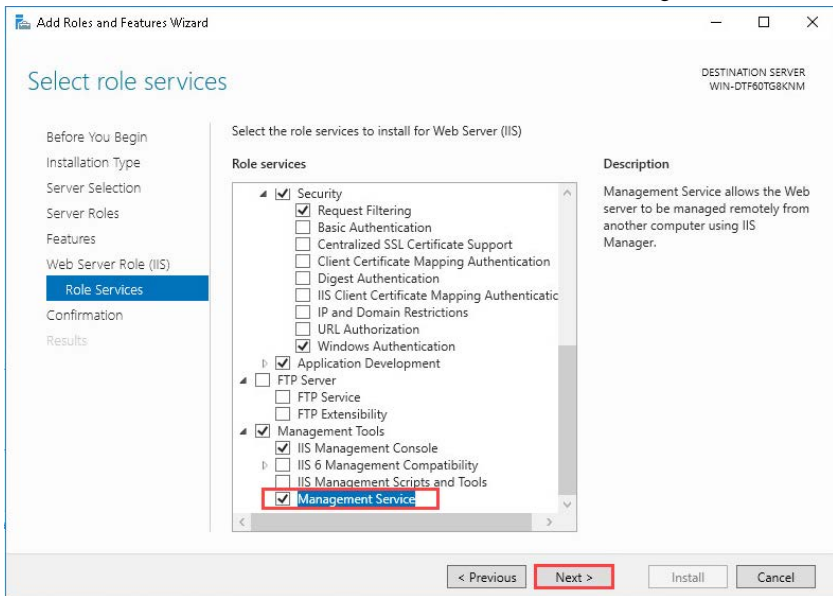
### 16. Click Next.

17. Choose Web Server Role (IIS) > Role Services > Security,

18. Check Windows Authentication.



19. Choose Web Server Role (IIS) > Role Services > Management Tools

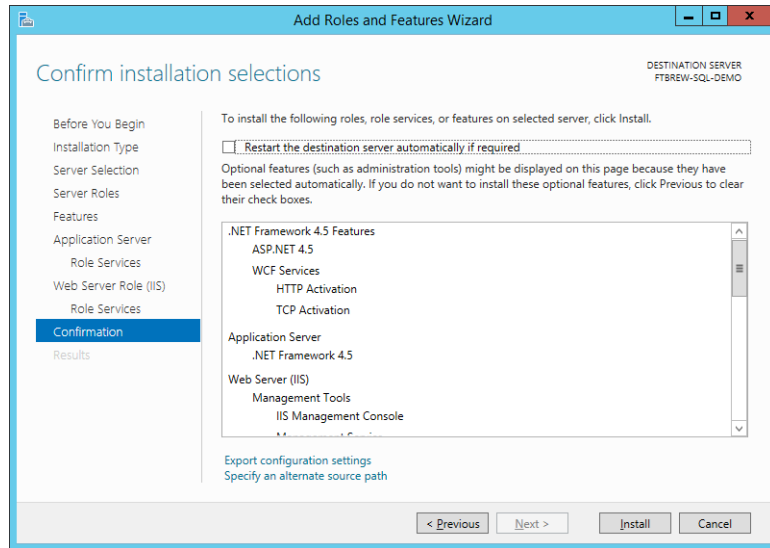


20. Check Management Service

21. Click Next.

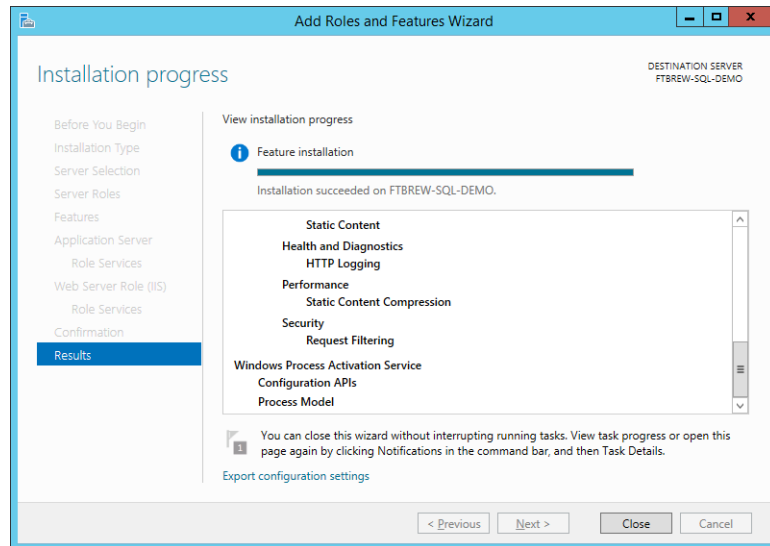


The Confirm installation selections dialog box appears.



22. Click Install.

The Installation Progress dialog box appears.



23. When the feature installation is complete, click Close.

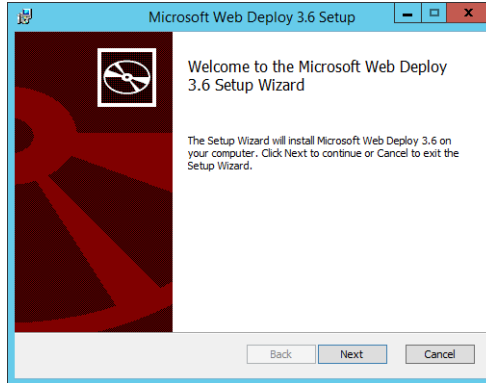
24. Close Server Manager.

## Install Microsoft Web Deploy

The FactoryTalk Brew installation materials contain a folder named FactoryTalk Brew Web Installer Files. Within this folder, run the WebDeploy\_amd64\_en-US.msi executable.

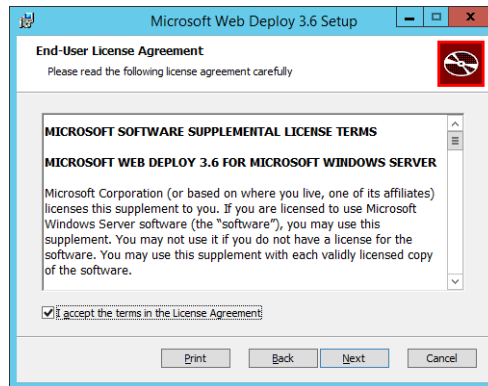
To install Microsoft Web Deploy 3.6, follow these steps.

1. At the Welcome to the Microsoft Web Deploy 3.6 Setup Wizard dialog box, click Next.



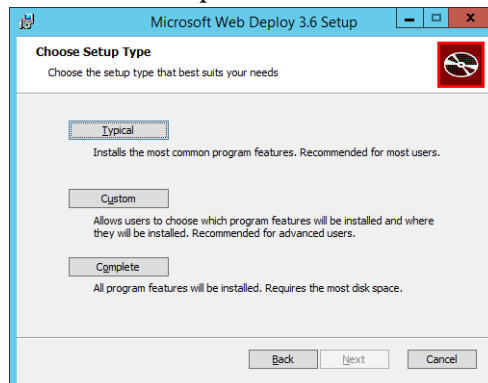
The End-User License Agreement dialog box appears.

2. Check I accept the terms in the License Agreement
3. Click Next.

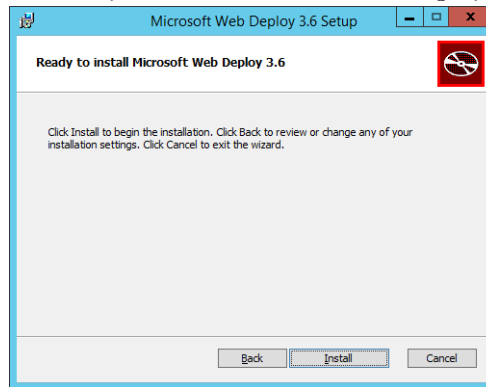


The Choose Setup Type dialog box appears.

4. Click Complete.

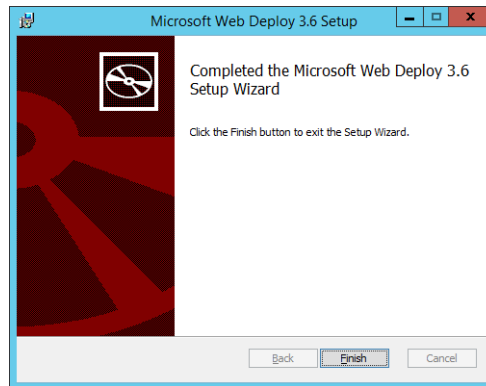


The Ready to Install Microsoft Web Deploy 3.6 dialog box appears.



5. Click Install.

When the installation is complete, the Completed dialog box appears.



6. Click Finish to exit the setup wizard.

## Install FactoryTalk Brew Web Application

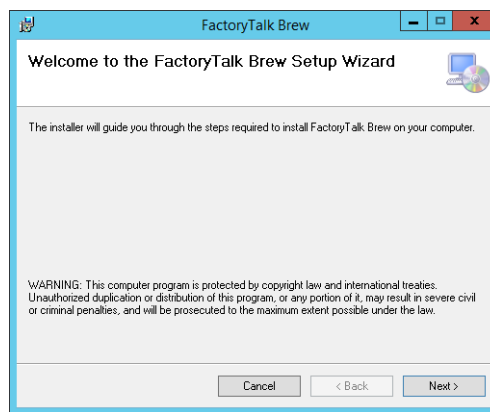
FactoryTalk Brew requires the .NET Framework 4.6.1 (or newer) to be installed on its server. If you are working with version 4.6 PlantPAx image templates, it is already installed. If not, be sure to verify which version is present. If necessary, download and install it from Microsoft.

After you have verified and/or installed the .NET Framework, follow these steps to install the web application.

To install FactoryTalk Brew, follow these steps.

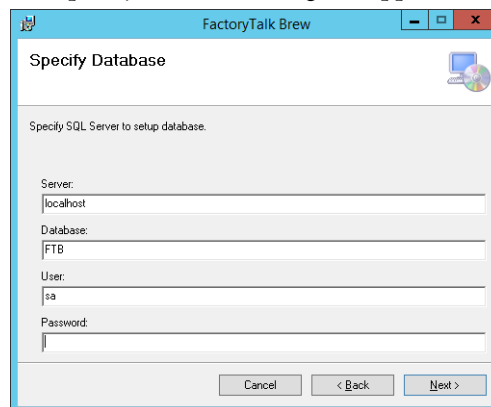
1. From the install media, click FTBrew\_Web\_Installer\_Files/FTBS Setup.msi.

The FactoryTalk Brew Setup Wizard appears.



2. Click Next.

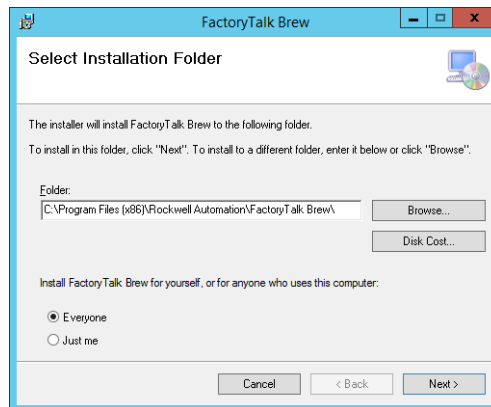
The Specify Database dialog box appears.



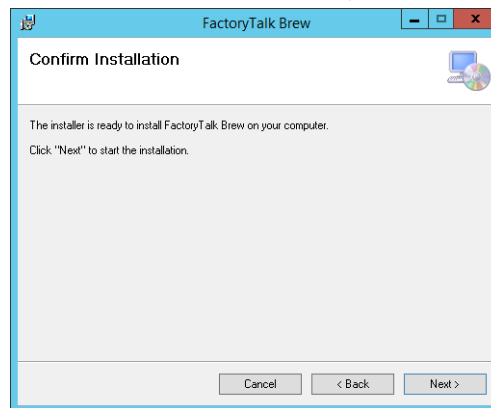
3. Enter your database information
4. Click Next.

The Select Installation Folder dialog box appears.

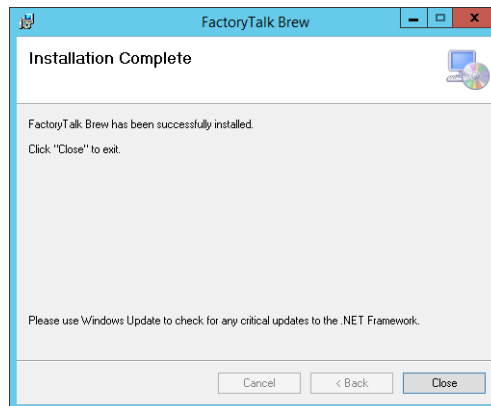
5. Click Next.



The Confirm Installation dialog box appears.



6. Click Next to confirm the installation.

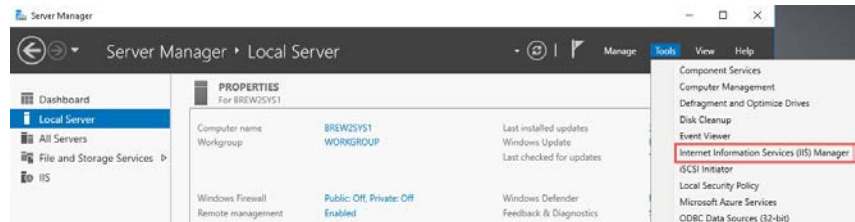


7. When installation is complete, click Close.

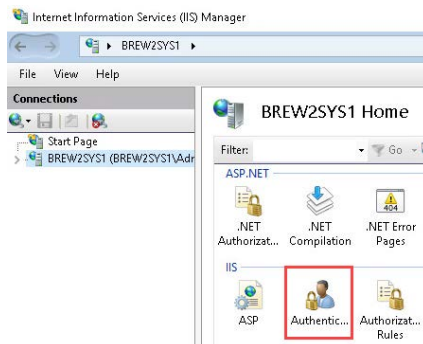
## Set Up Internet Information Server

To set up the Internet information Server:

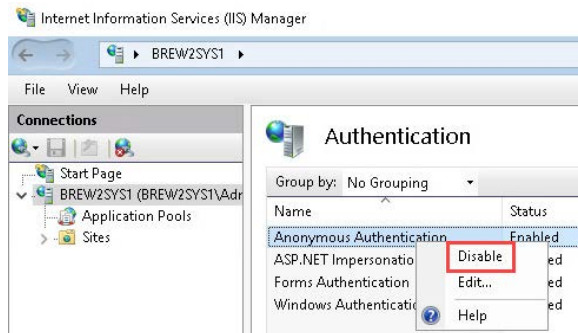
1. Start Server Manager
2. Choose Local Server.
3. From the Tools menu, choose Internet Information Server (IIS) Manager.



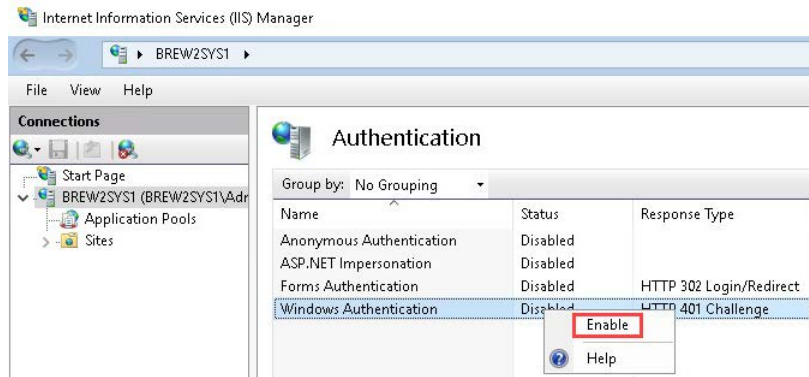
4. In the connections pane on the left, choose your server.
5. Double-click the Authentication Icon.



6. Right-click on Anonymous Authentication and click Disable.



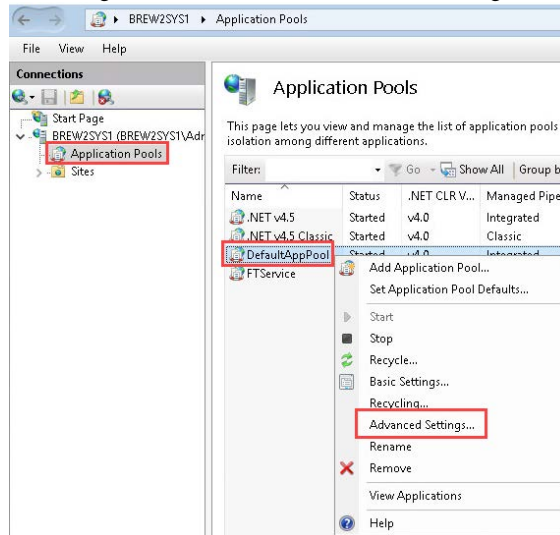
7. Right-click on Windows Authentication and click Enable.



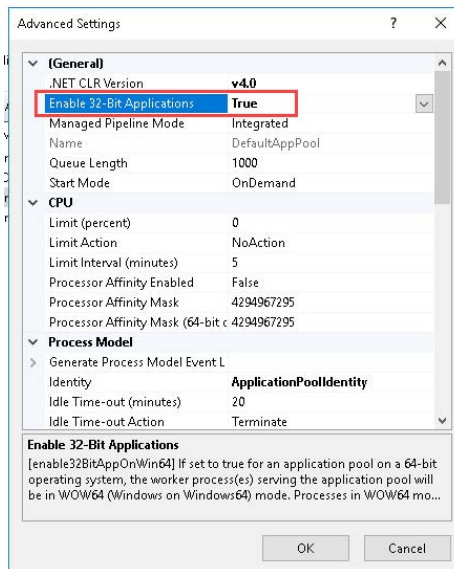
8. In the connections pane on the left, select Application Pools.

9. In the center panel, highlight DefaultAppPool.

10. Right-click and click Advanced Settings.



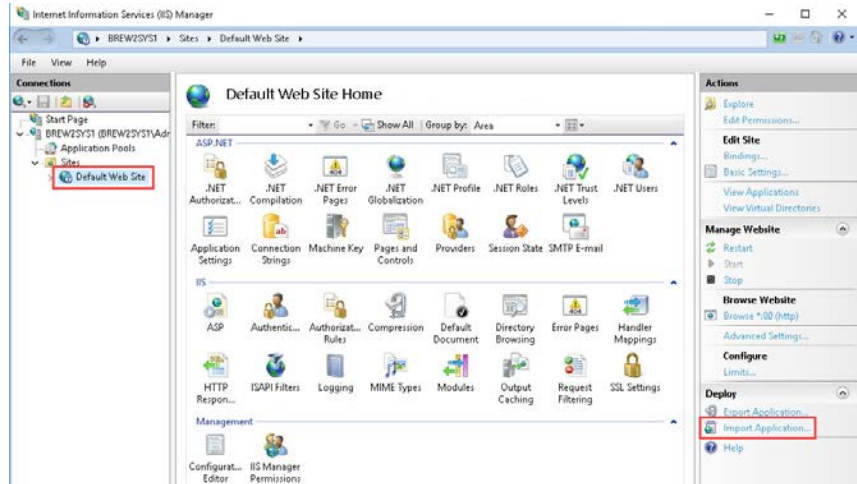
11. Change Enable 32-Bit Applications to True, then click OK.



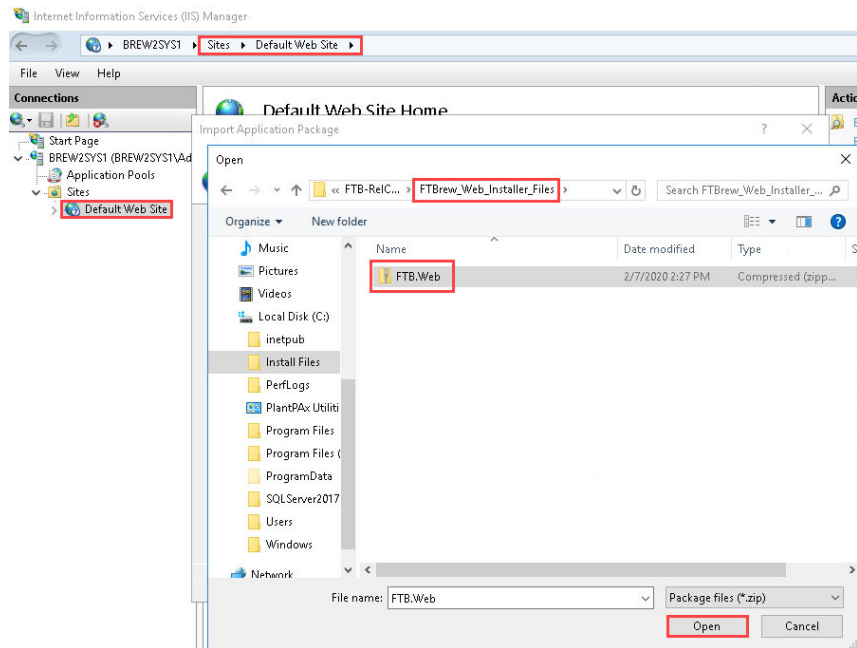
## Deploy the Web Application

To deploy the Web Application:

1. In the connections pane on the left, expand the sites folder and highlight Default Web Site.
2. In the right pane, click Import Application.

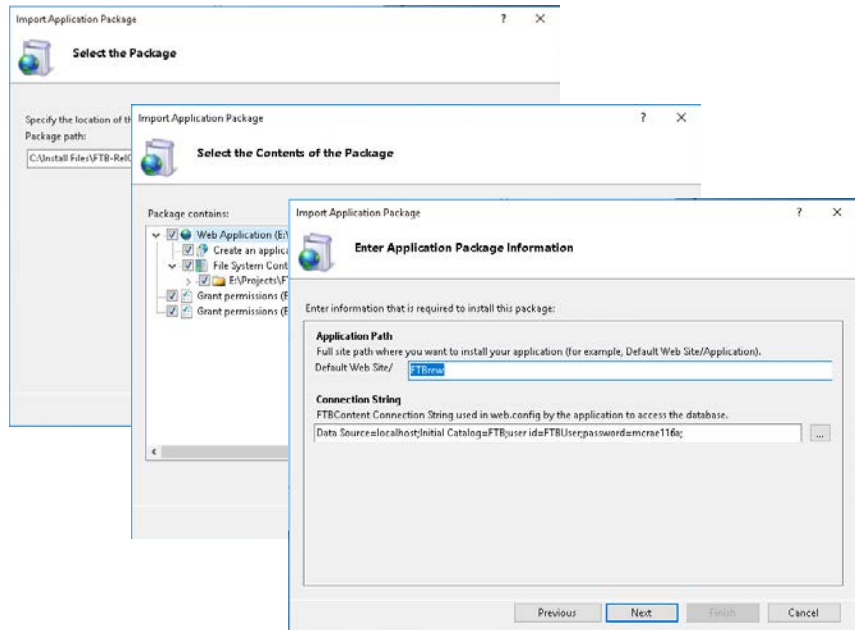


3. Browse to the FTBrew\_Web\_Installer\_Files folder within the installation media.
4. Select the FTB.Web file and click Open.

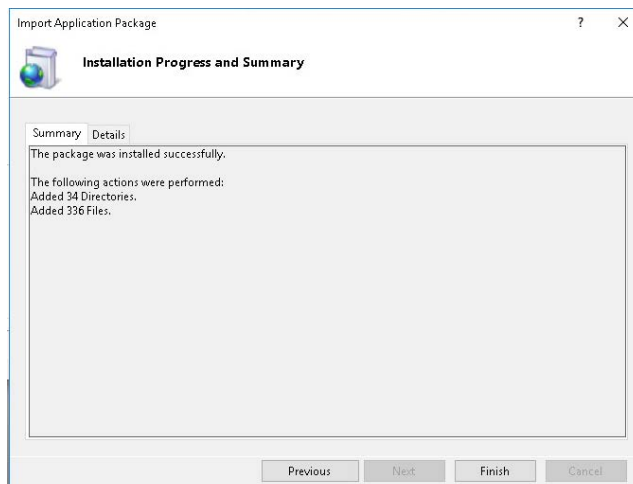




5. Click Next on each of the three dialog boxes that appear afterward.

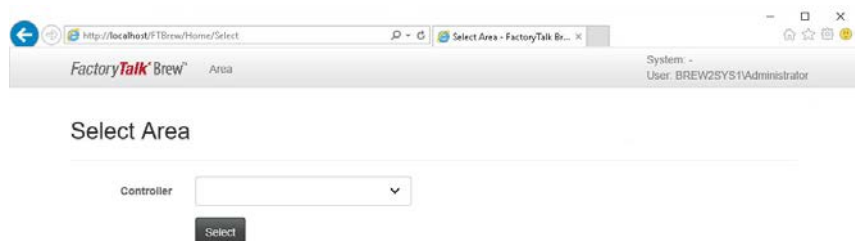


6. Click Finish and close the IIS manager.



7. Open a web browser and go to <http://localhost/FTBrew> to confirm the installation.

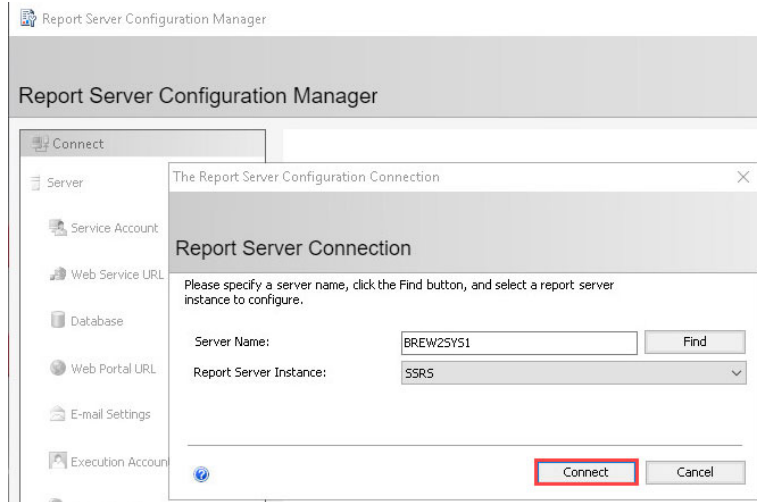
8. Later, when you begin using the interface to configure the system, you will need to ensure that you have first downloaded the software activations to your FactoryTalk Activation server and logged into the FactoryTalk Brew server with an account that has FTB Engineer privileges.



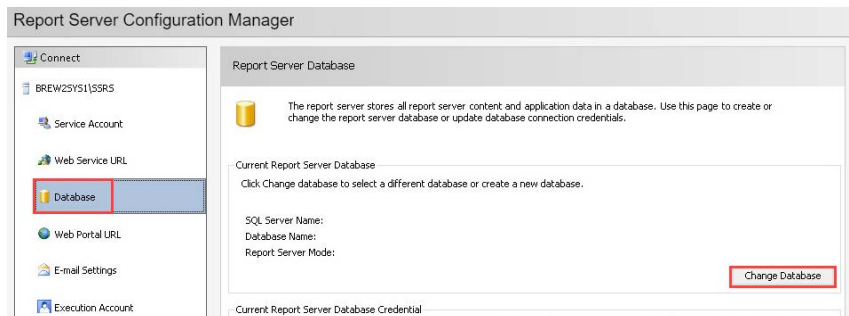
## Configure SQL Server Reporting Services Database

Make sure you are logged into the FactoryTalk Brew server as a local administrator.

1. Open the Report Server Configuration Manager.
2. Enter your Microsoft SQL Server name
3. Click Connect.



4. In the left panel, highlight database.
5. Click Change Database.



6. Click Create a new report server database
7. Click Next.

Report Server Database Configuration Wizard

Change Database  
Choose whether to create or configure a report server database.

Action

Database Server

Database

Credentials

Summary

Progress and Finish

Select one of the following options to create an empty report server database or select an existing report server database that has content you want to use.

Select a task from the following list:

Create a new report server database.

Choose an existing report server database.

Previous Next Cancel

8. For Authentication Type, select SQL Server Account.
9. Enter sa for the username
10. Enter the sa password you created during Microsoft SQL installation.
11. Click Test Connection to verify the connection.

Report Server Database Configuration Wizard

Change Database  
Choose whether to create or configure a report server database.

Action

Database Server

Database

Credentials

Summary

Progress and Finish

Choose a local or remote instance of a SQL Server Database Engine and specify credentials that have permission to connect to that server.

Connect to the Database Server:

Server Name: BREW2SYS1

Authentication Type: SQL Server Account

Username: sa

Password: .....

Test Connection

Previous Next Cancel

12. Click OK to close the Test Connection box.
13. Click Next to continue the configuration.

14. The next screen prompts for a Database Name. Keep the default and click Next.

Report Server Database Configuration Wizard

Change Database  
Choose whether to create or configure a report server database.

Action  
Database Server  
**Database**  
Credentials  
Summary  
Progress and Finish

Enter a database name and select the language to use for running SQL scripts.

Database Name: ReportServer  
Temp Database Name: ReportServerTemp  
Language: English (United States)  
Report Server Mode: Native

Previous Next Cancel

15. Keep the default credentials and click Next.

Report Server Database Configuration Wizard

Change Database  
Choose whether to create or configure a report server database.

Action  
Database Server  
Database  
**Credentials**  
Summary  
Progress and Finish

Specify the credentials of an existing account that the report server will use to connect to the report server database. Permission to access the report server database will be automatically granted to the account you specify.

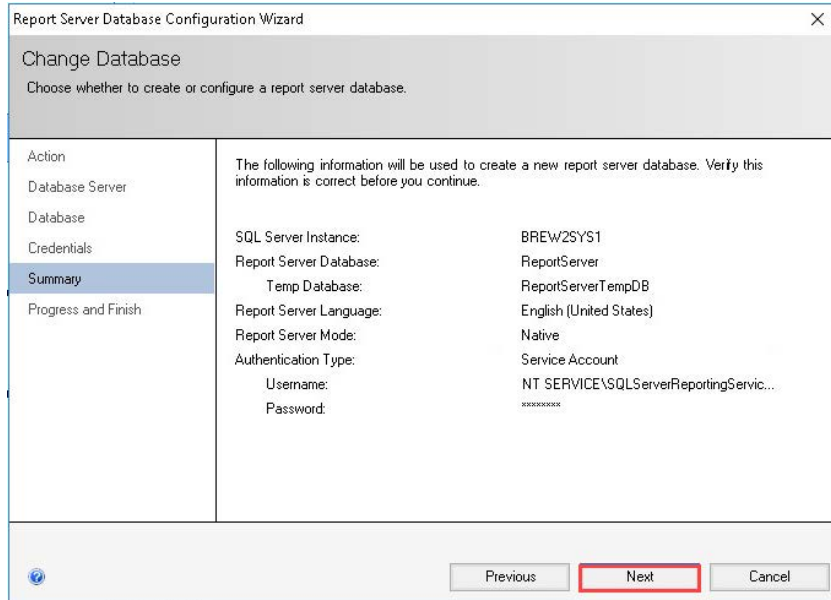
Credentials:

Authentication Type: Service Credentials  
User name: NT SERVICE\SQLServerReportingServices  
Password:

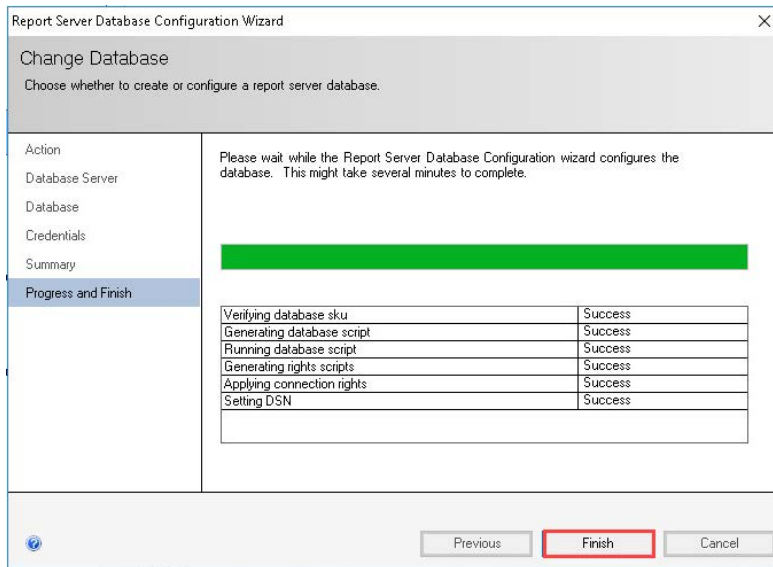
Previous Next Cancel

The summary screen appears.

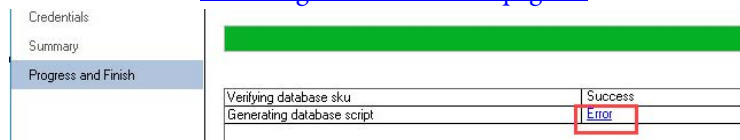
16. Click Next to continue.



17. When all the tasks report success, click Finish to close the wizard.

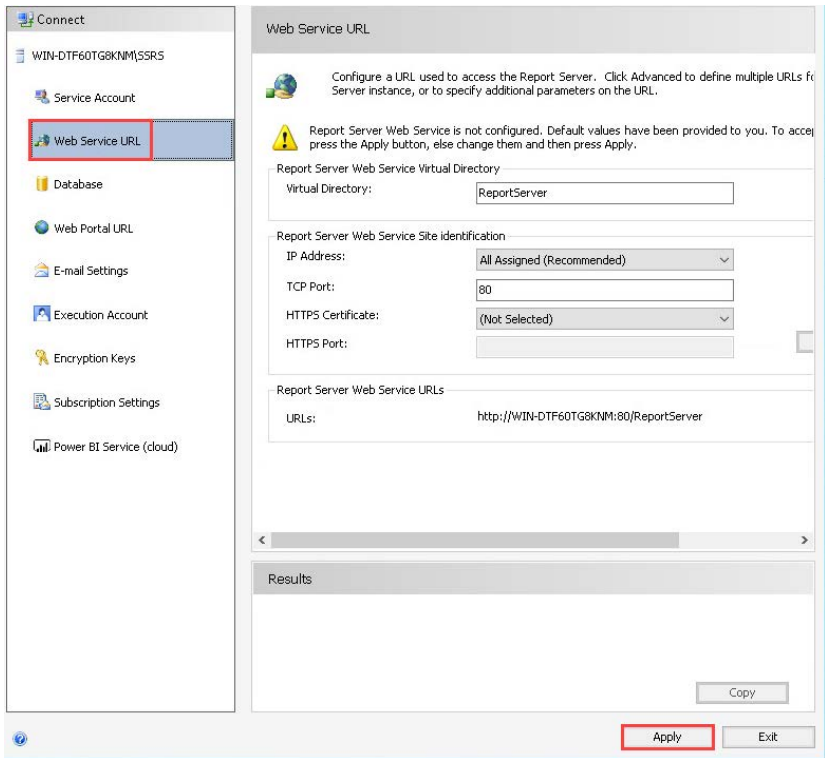


18. If instead, you receive an error, click on the blue error link for more details. See [Resolving a WMI Error on page 56](#).



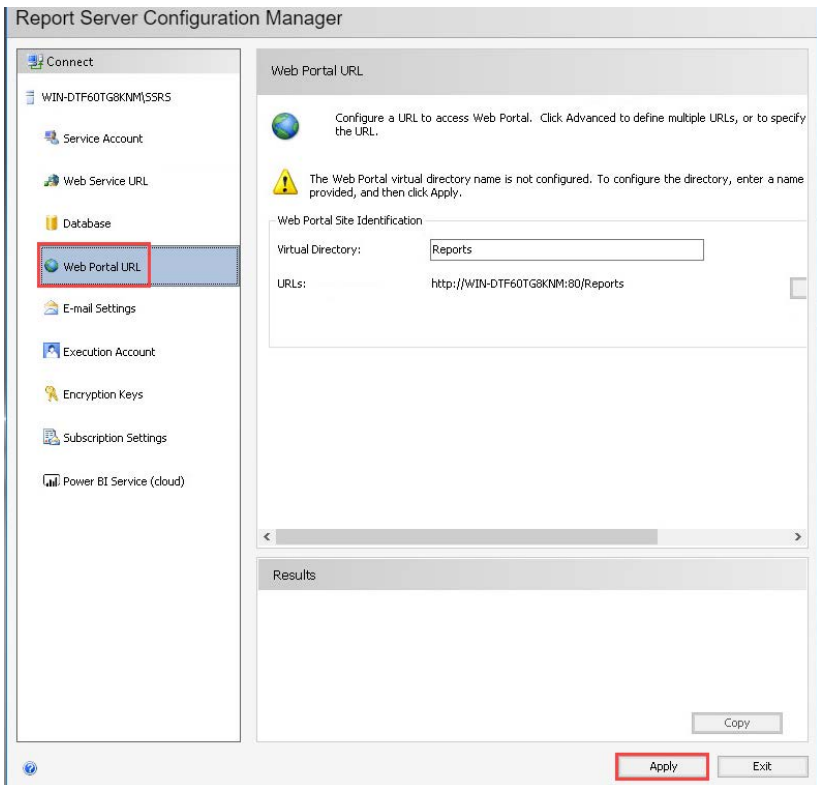
19. From the left panel of the Report Server Configuration Manager, highlight Web Service URL.

20. Click Apply to accept the default values.

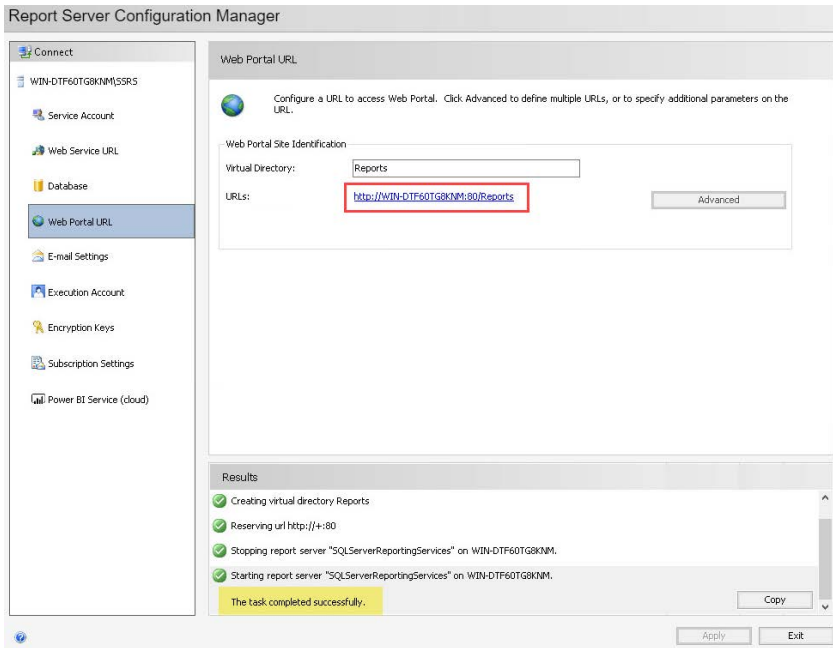


21. The results panel will show a series of messages. Once the task has completed successfully, highlight Web Portal URL in the left panel.

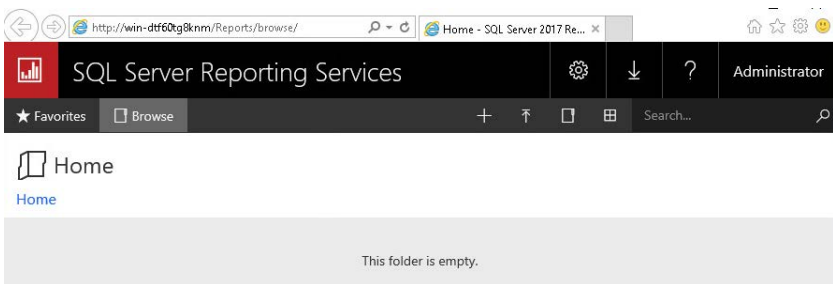
22. Click Apply to accept the default values.



- The Results panel will show a series of messages. Once the task has completed successfully, verify the installation by clicking on the URL.



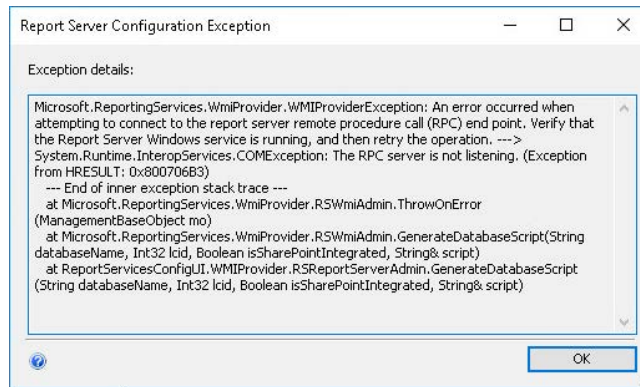
- You should see a screen that looks like this.



- Close the browser and continue to [Configure SQL Server Reporting Services Settings on page 57](#)

## Resolving a WMI Error

If the installation does not succeed and you receive the WMI error shown below, perform the following steps to resolve it.



1. Run the command prompt as Administrator.
2. Type and execute the following command:  
netsh http add iplisten ipaddress=::
3. Finally, type and execute the following command:  
netsh http add iplisten ipaddress=0.0.0.0

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>netsh http add iplisten ipaddress=::
IP address successfully added

C:\Users\Administrator>netsh http add iplisten ipaddress=0.0.0.0
IP address successfully added

C:\Users\Administrator>
```

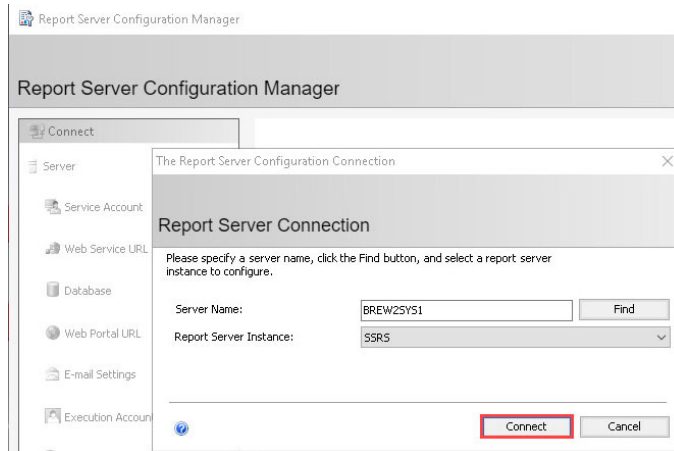
4. Reboot the server.
5. Return to [Configure SQL Server Reporting Services Database on page 50](#) and work through the configuration Wizard again.



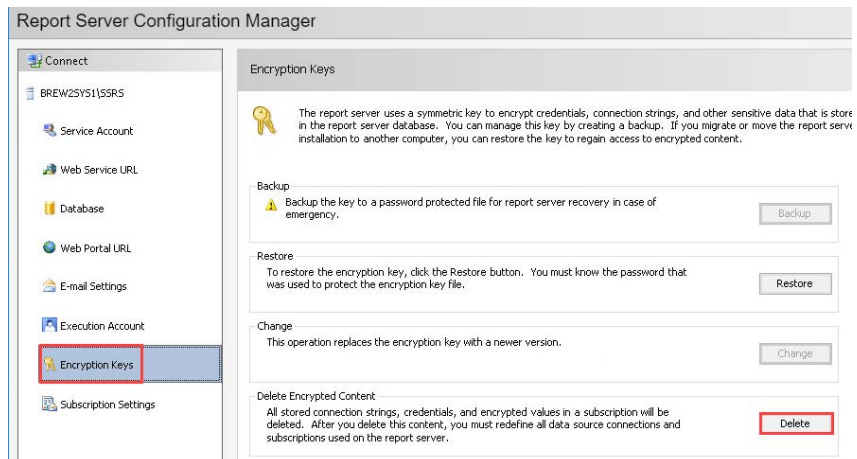
## Configure SQL Server Reporting Services Settings

Configure the SQL Server Reporting Services settings with the following steps:

1. Make sure you are logged into the FactoryTalk Brew server as a local administrator.
2. Open the Report Server Configuration Manager.
3. Enter your Server Name
4. Click connect.



5. In the left panel, highlight Encryption Keys.
6. Within the Delete Encrypted Content area, click Delete.



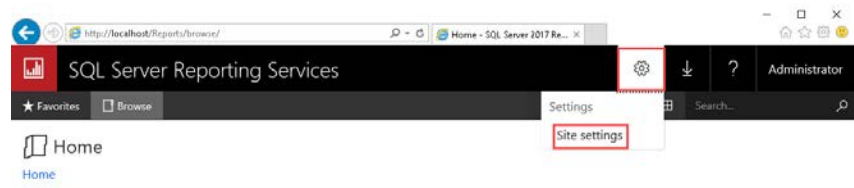
7. When prompted, click yes to confirm.



8. Once the task completes, exit the Report Server Configuration Manager.

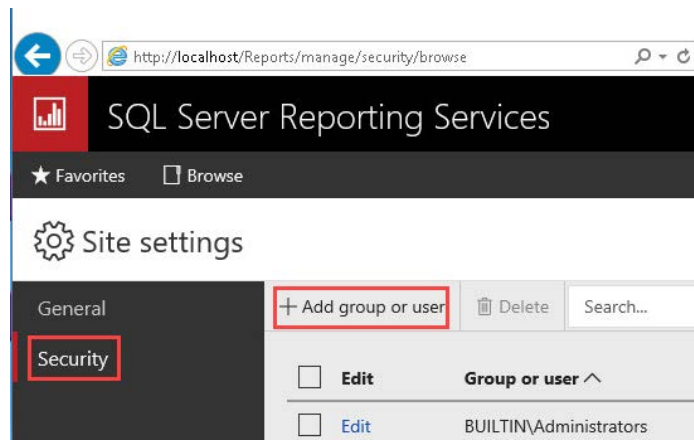
9. Open Internet Explorer® and go to <http://localhost/reports>.

10. Choose Settings, Site settings.

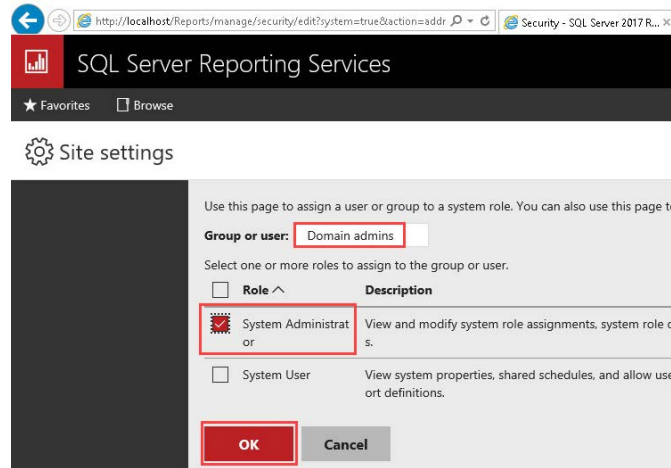


11. Click on Security

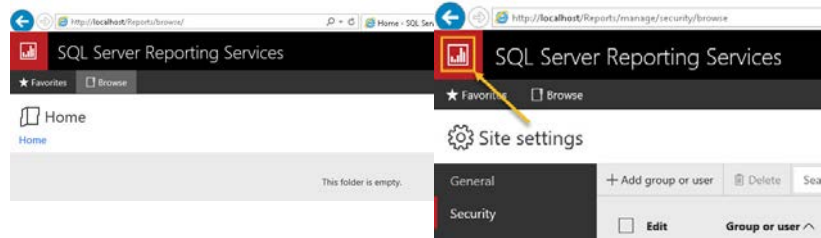
12. Click Add group or user.



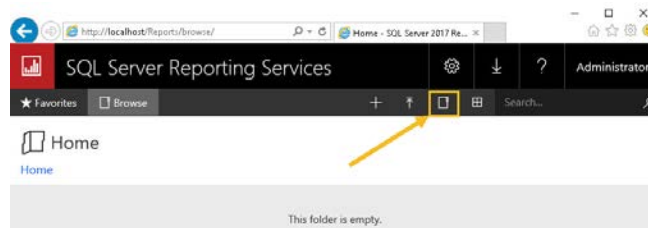
13. Enter Domain admins in Goup or user field.
14. Check System Administrator under Role.
15. Click OK.



16. In the upper left of the page, click on the red icon to return to the home folder.

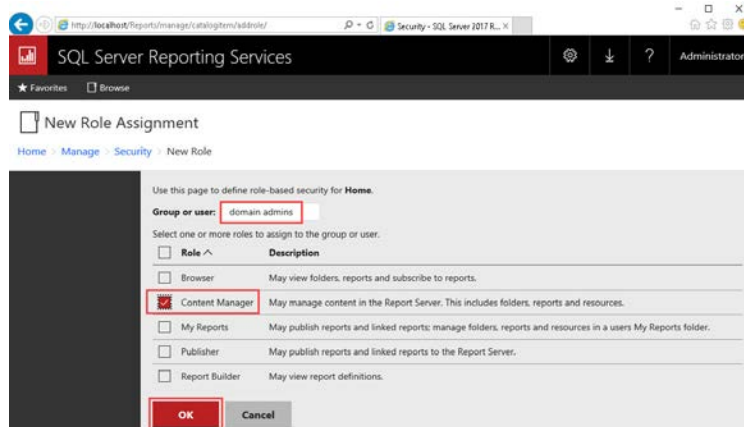


17. Click on the folder icon to open the manage folder page.



18. If not already highlighted, choose Security in left panel.
19. Click Add Group or user.
20. Enter domain admins in Goup or user field.
21. Check Content Manager under Role.

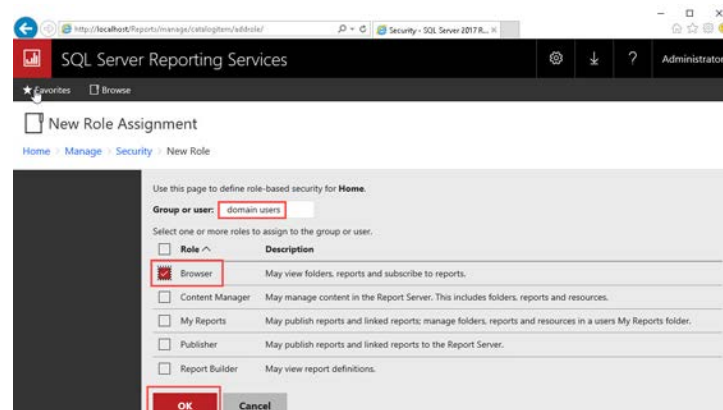
22. Click OK.



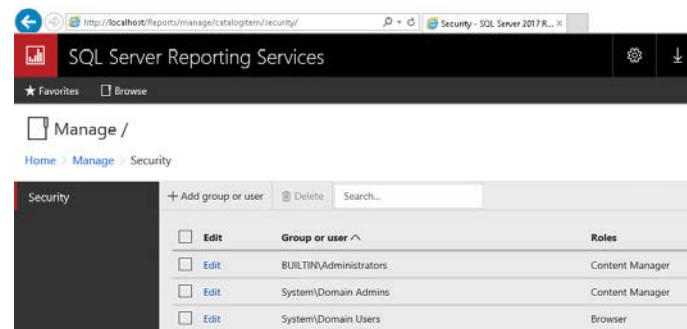
23. Enter domain users in Goup or user field.

24. Check Browser under Role

25. Click OK.

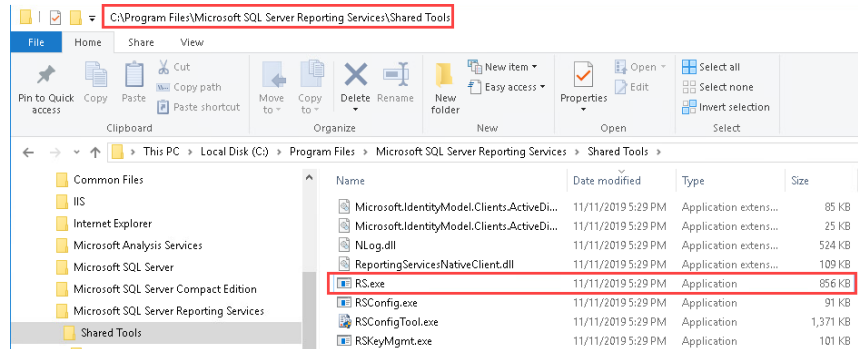


26. Close the browser.

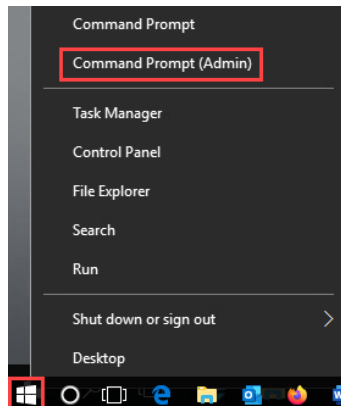


## Deploy FactoryTalk Brew Reports

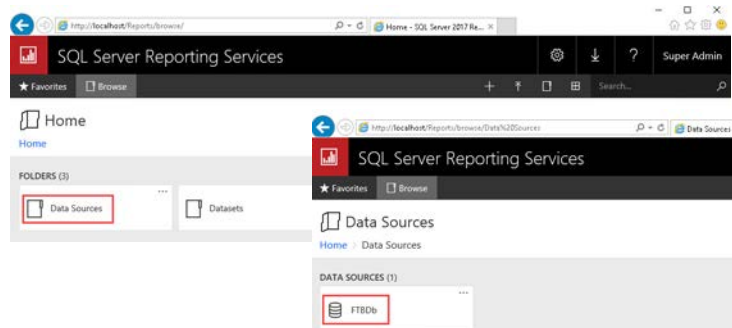
The FactoryTalk Brew report deployment process depends on a Reporting Services utility named RS.exe. Locate this file on your server. You must either add this file's location to your path configuration or copy the file to the same folder that contains your FactoryTalk Brew reports installer, `deploy_reports.cmd`.



1. After you've made the file available, right-click on the Windows button and choose Command Prompt (Admin).



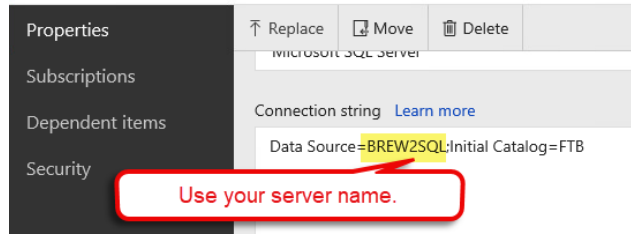
2. Navigate to the FTBrew\_Reports\_Installer folder and type the following command: `deploy_reports.cmd` <http://localhost/reportserver>
3. You will see a string of messages that eventually ends with 'The command completed successfully.' Close the command prompt window.
4. Open Internet Explorer and go to <http://localhost/reports>.
5. Select the Data Sources folder.
6. In the Data Sources dialog box, Click on FTBDb.



7. Edit the Connection string to reflect your server name.

### Manage FTBDb

Home > Data Sources > FTBDb > Manage > Properties



8. In the credentials section, click Using the following credentials

9. Select Database user name and password.

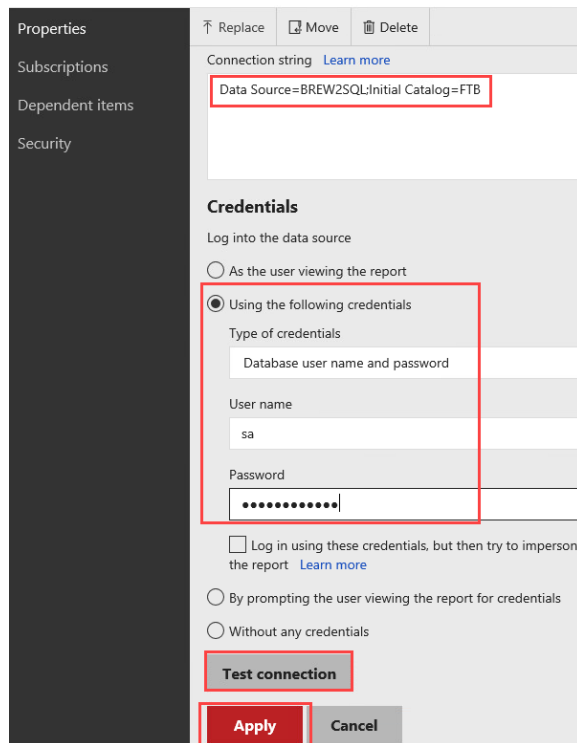
10. In User name, enter sa

11. In Password, enter the password.

12. Click Test connection to verify the information.

### Manage FTBDb

Home > Data Sources > FTBDb > Manage > Properties



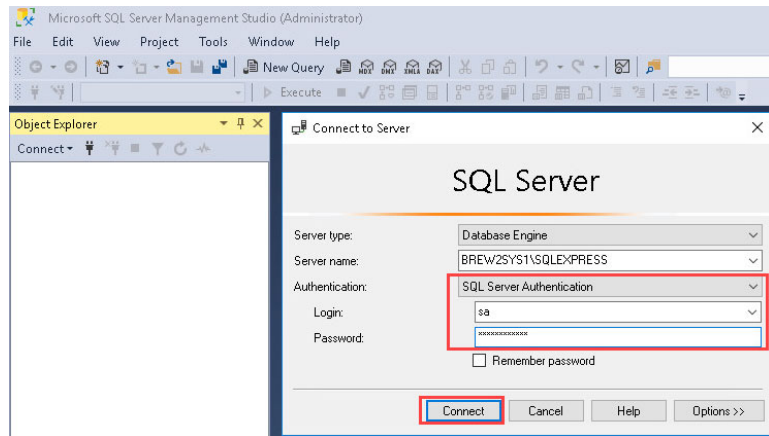
13. When the connection succeeds, click Apply and close the browser.

At this point the Brew Server setup is complete and the system configuration database is empty. If you wish to install the sample project, a subsequent section describes how to install the sample database. Note that if you are working with a virtual machine, this is a good point to take an image snapshot, in case you need to revert to a clean, empty system after working with the sample project.

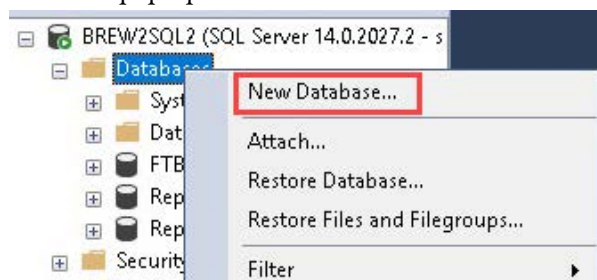
## Creating the Supporting Databases

The installation process automatically creates the FTB database; however, you must create three additional databases to support the full system's functionality. To create the supporting databases, perform the following steps:

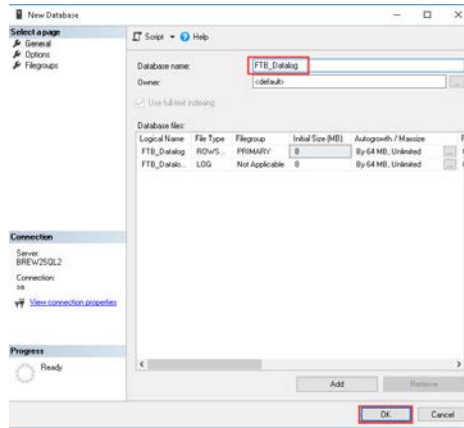
1. Open the Microsoft SQL Server Management Studio and connect to the database server.



2. In the Object Explorer panel, right-click on the Databases branch.
3. From the pop-up menu Choose New Database...



4. Name the database FTB\_Datalog.

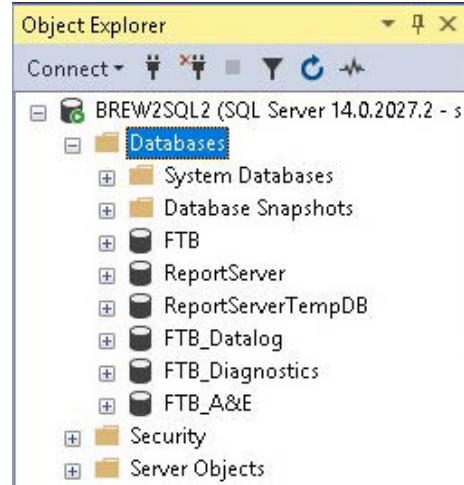


5. Click OK.

6. Repeat steps 2...4 to create a second database named FTB\_Diagnostics.

7. Repeat steps 2...4 to create a third database named FTB\_A&E.

Your database list should now look something like this:

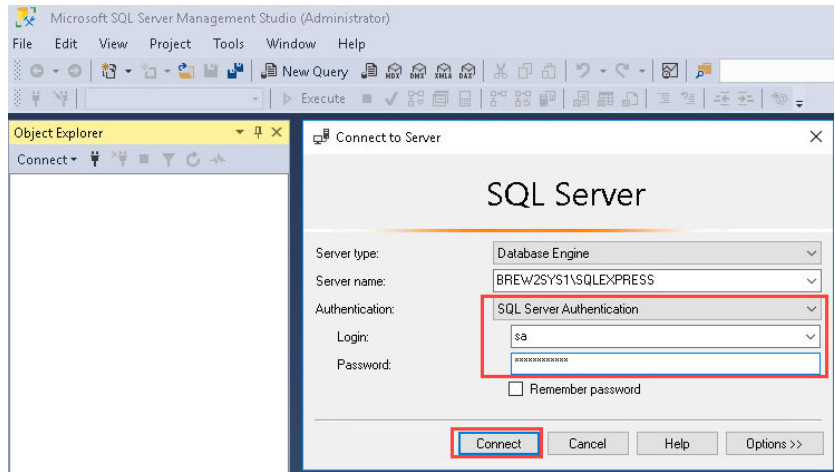




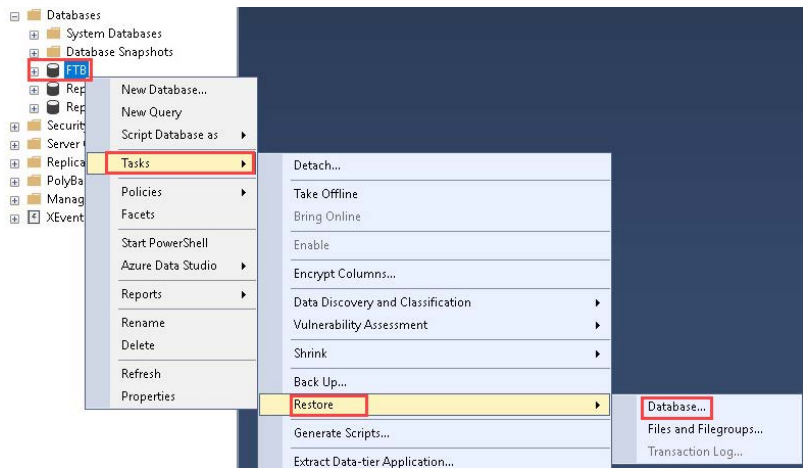
## Installing the Sample Database

To install the sample database perform the following:

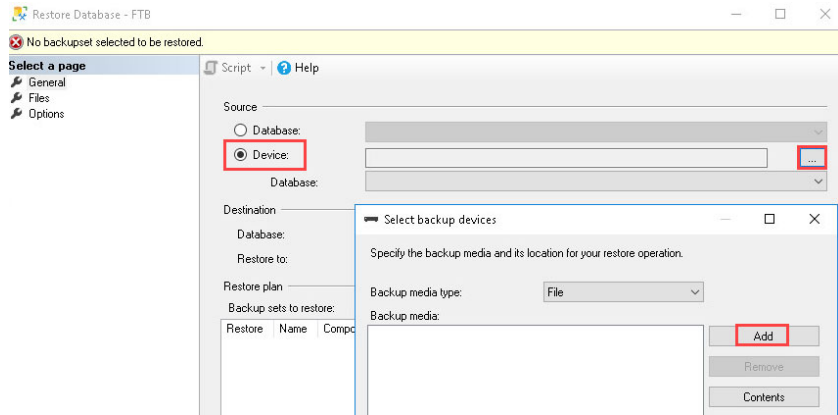
1. Open Microsoft SQL Server Management Studio and connect to the database server.



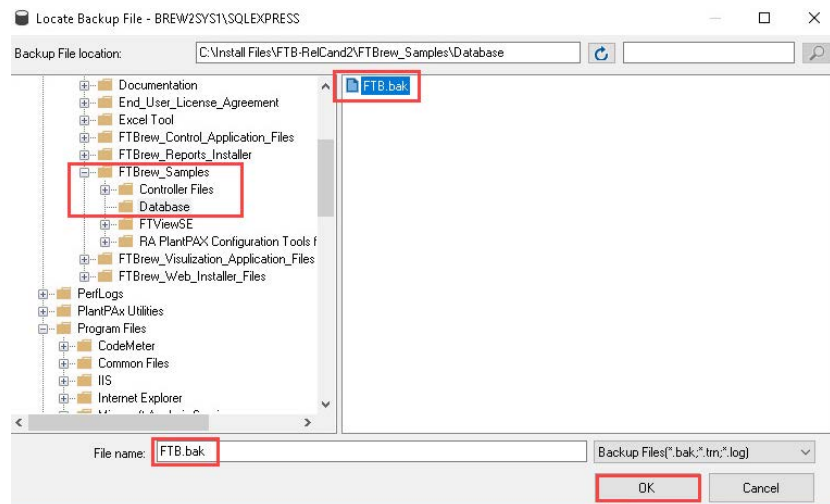
2. In the Object Explorer panel, expand the Databases branch and right-click on the FTB database.
3. From the Databases folder, Choose FTB>Tasks>Restore> Database.



4. Click Device.
5. Click the ellipsis to browse to the location of the database backup.
6. The Select backup devices dialog box appears.
7. Click Add.



8. Browse to the location of your Brew Install files, expanding the branches for FTBrew\_Samples.
9. Highlight the Database folder and select FTB.bak.
10. Click OK.

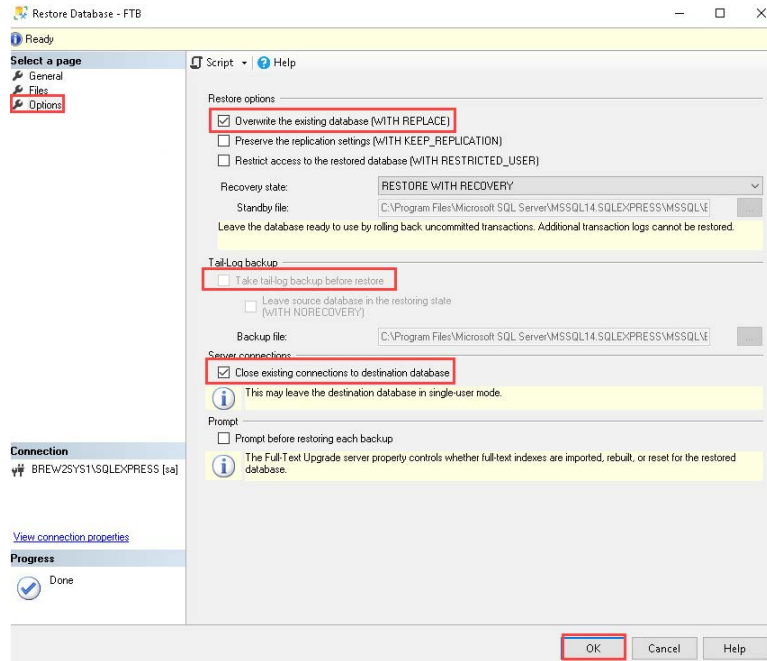


The Select backup devices dialog reappears.

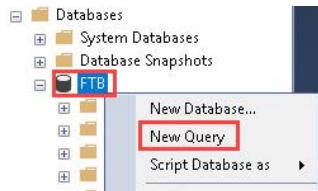
11. Click OK.

The general tab of the Restore Database dialog reappears.

12. Highlight the Options tab.
13. Check the box for Overwrite the existing database.
14. Uncheck the box for Take tail-log backup before restore.
15. Check the box for Close existing connections to the destination database.
16. Click OK.
17. Click OK.

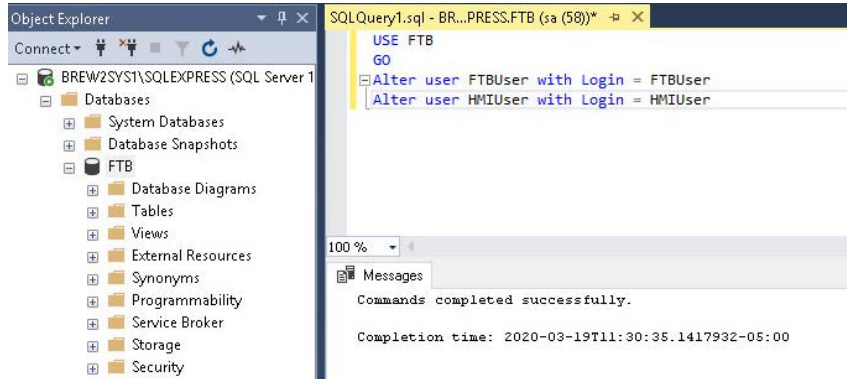


18. Click OK to clear the box that indicates the restore completed successfully.
19. Right-click on the FTB database.
20. Select New Query from the pop-up menu.



21. Enter the following text and click the execute button.

```
USE FTB  
GO  
Alter user FTBUser with Login = FTBUser  
Alter user HMIUser with Login = HMIUser
```



You will receive a message that the commands completed successfully.

22. Close Microsoft SQL Server Management Studio.

This concludes the setup of the FactoryTalk Brew Server and sample project database.

## PASS, EWS, and Sample Project Setup

Topic	Page
Introduction	69
Prerequisites	69
FactoryTalk Brew Logix Application	75
FactoryTalk Brew View SE Application	77
FactoryTalk View SE Client	87
Configuring FactoryTalk Historian SE	90

### Introduction

The PASS and EWS images are the last two required images that must be set up and configured. PASS stands for Process Automation System Server. EWS stands for Engineering Workstation. This chapter describes the steps required to configure these images for FactoryTalk® Brew™.

The basis for these servers are PlantPAx® PASS Virtual Template 4.6 VL, and PlantPAx AppServ-EWS Virtual Template 4.6 VL. If the customer requirements prevent using image templates, then similar platforms must be built or made available.

For both images, follow the general setup instructions in Chapters 2 and 3 of the [PlantPAx® Virtualization User Manual, Version 4.6](#).

Next, follow the PASS and EWS setup instructions in Chapter 4 of the [PlantPAx® Virtualization User Manual, Version 4.6](#).

### Prerequisites

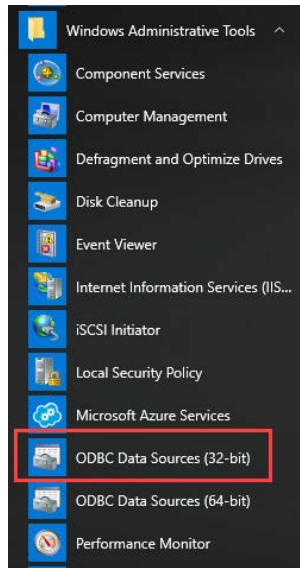
FactoryTalk® Brew™ requires a Microsoft® SQL Server database. The procedures in this section assume the database is installed on a server.

The following sections describe the steps to install and set up the FactoryTalk Brew application server.

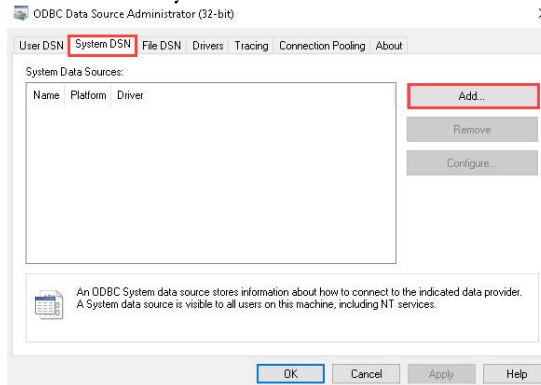
## ODBC Connections

This section describes how to set up ODBC Connections to the databases used by the FactoryTalk Brew system. You must perform the following steps on the PASS server, the EWS server, and any servers that will be used to produce clients.

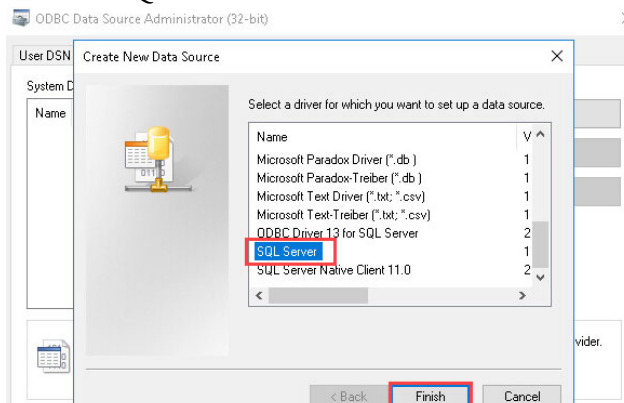
1. From the Windows start menu, under Windows Administrative tools, select ODBC Data Sources (32-bit).



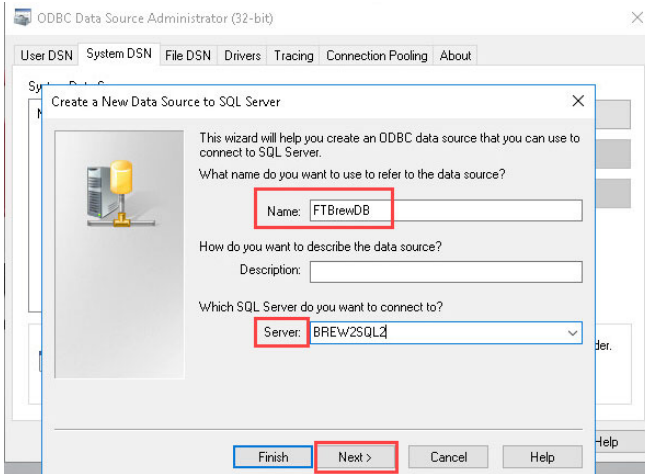
2. Click on the System DSN tab and click Add...



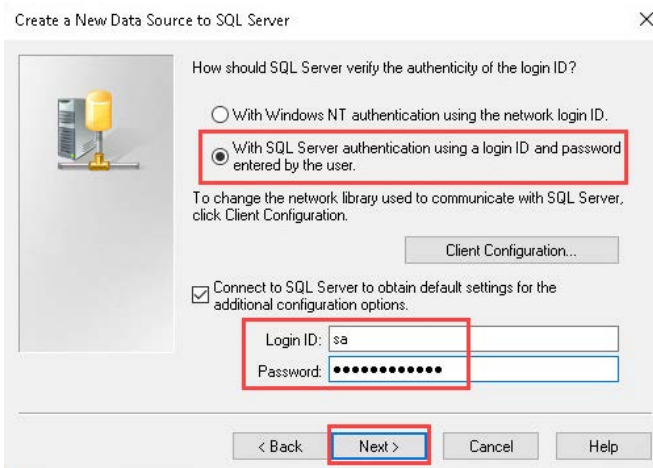
3. Choose SQL Server and click Finish.



4. In the Create a New Data Source to SQL Server dialog box, name the datasource FTBrewDB
5. Select the database server where your FactoryTalk Brew database resides.
6. Click Next.

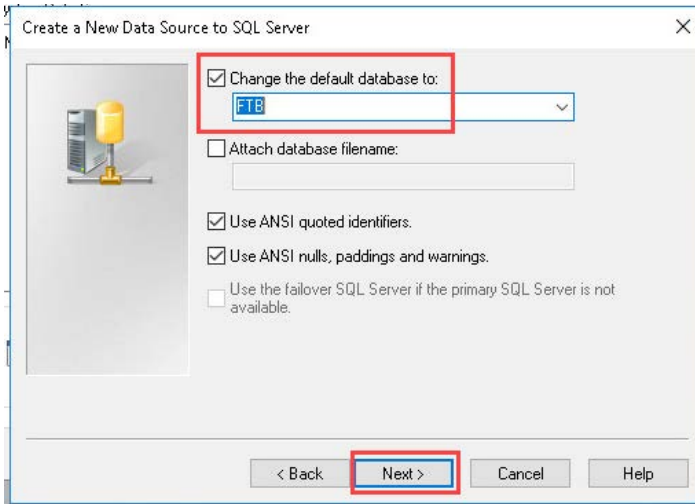


7. Select SQL Server authentication.
8. Enter the sa Login ID and password.
9. Click next.

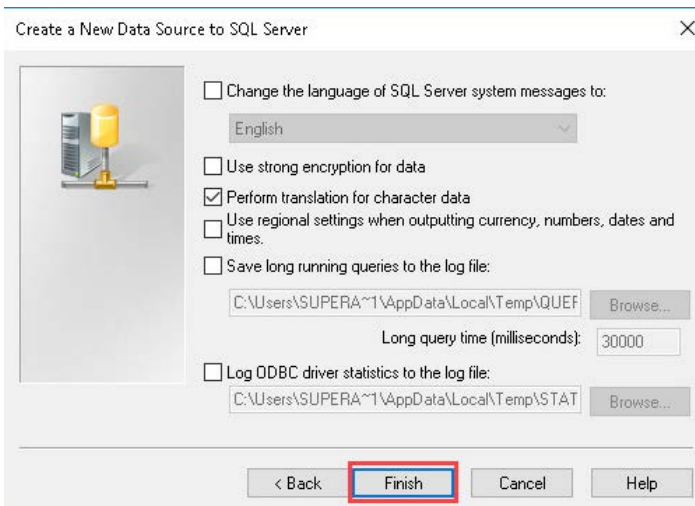


10. Change the default database to FTB.

11. Click Next.

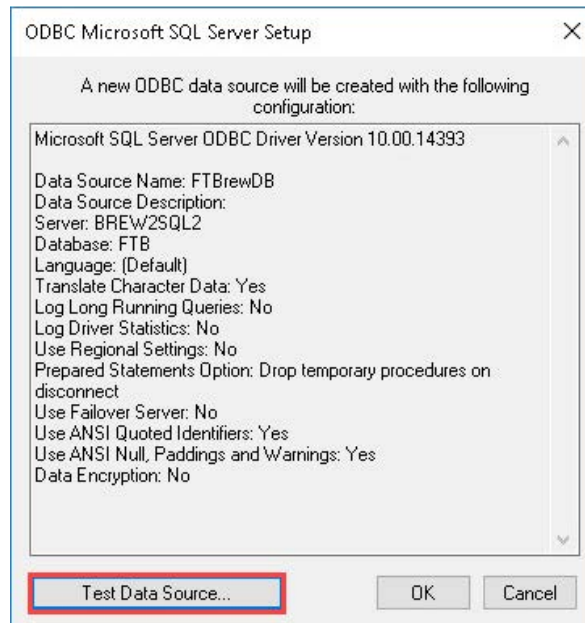


12. Click finish.



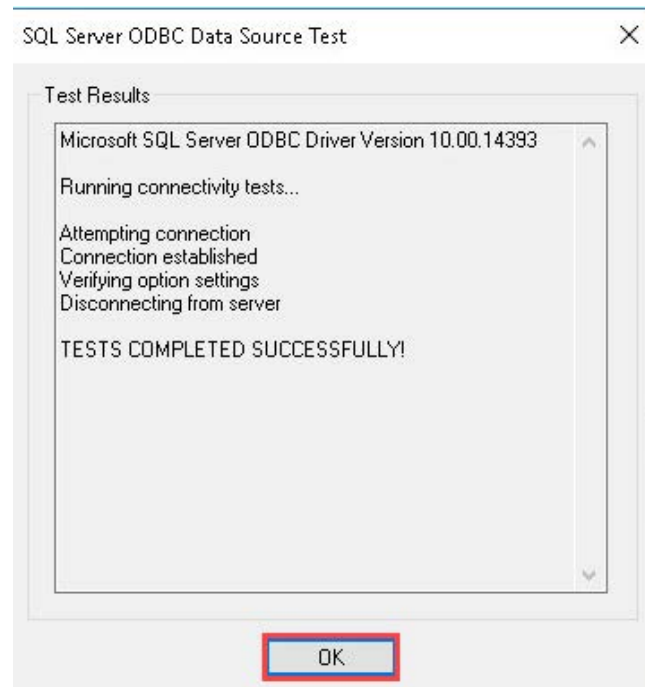


## 13. Click Test Data Source...

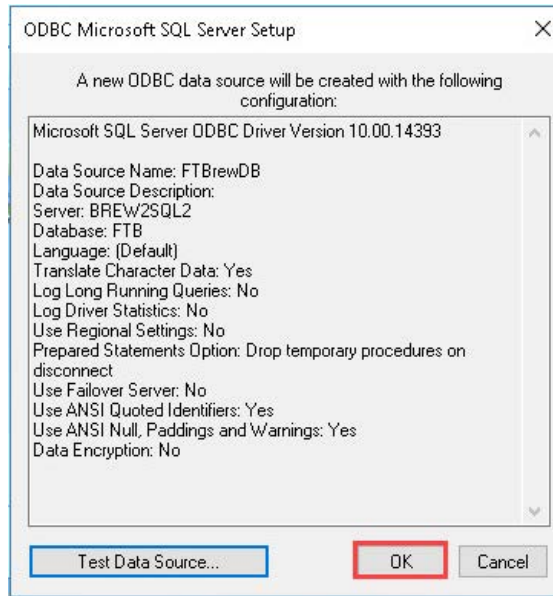


You should receive a message that the tests completed successfully.

## 14. Click OK.



15. Click OK.



16. Repeat steps 2...15 to create a second datasource named FTB\_Datalog that has a default database of FTB\_Datalog.
17. Repeat steps 2...15 to create a third datasource named FTB\_Diagnostics that has a default database of FTB\_Diagnostics.
18. Repeat steps 1...17 on all servers that will be producing a client which must read or write data to/from the logs, FTAE, and time series data.

## FactoryTalk Brew Logix Application

### Logix Controller

The FactoryTalk Brew application supports Logix controllers L7x or L8x. The number of required controllers is based on brewery design. For ease of configuration and life cycle management, use one controller per process production.

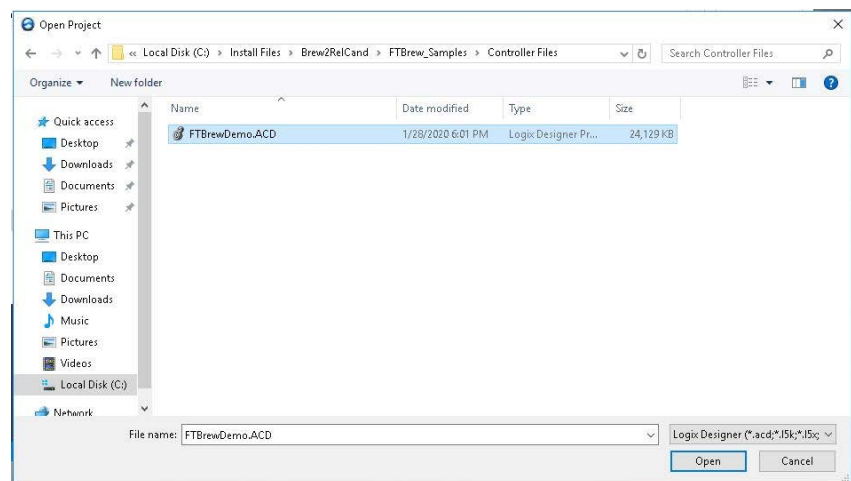
The sample FactoryTalk Brew logix application is programmed and tested using version 31 firmware. Install v31 firmware to the Logix Controller that will be used for this application using the ControlFlash program.

### Studio 5000

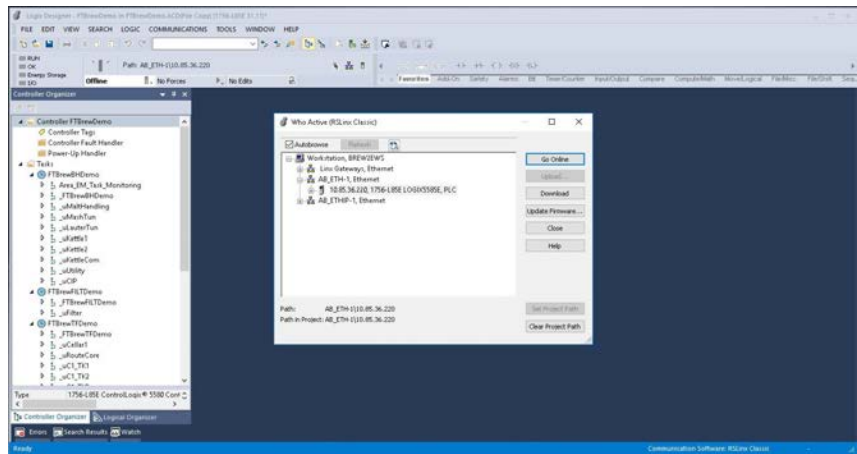
The included FactoryTalk Brew Logix application has been developed as a sample to help start the installation process. Locate the sample application FTBrewDemo.ACD and open in Studio 5000®.

In the EWS server, follow these steps:

1. Open Studio 5000 and select Open Existing Project File.
2. Locate the FTBrewDemo.ACD file
3. Choose the FTBrewDemo.ACD file
4. Click Open. You can also open the file by double-clicking on the file in Studio 5000.



5. Under the Communications tab select Who Active and pick the Logix controller to download the application.
6. Click on Download.



7. Set controller to Run Mode.

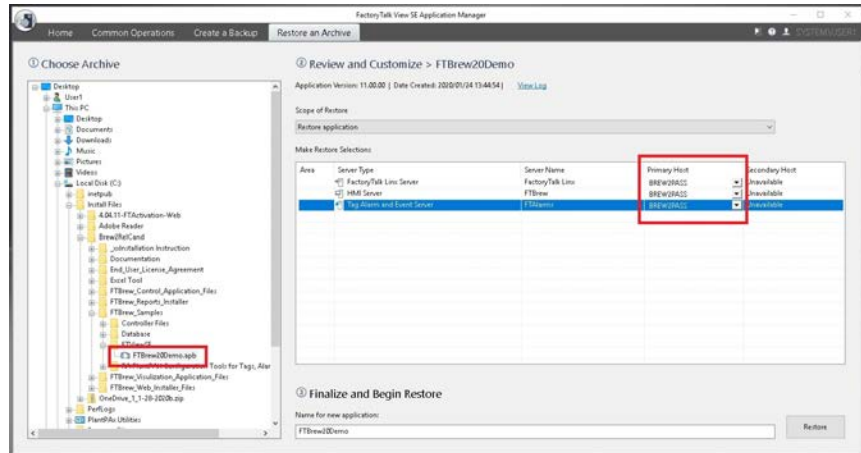
That completes the installation.

## FactoryTalk Brew View SE Application

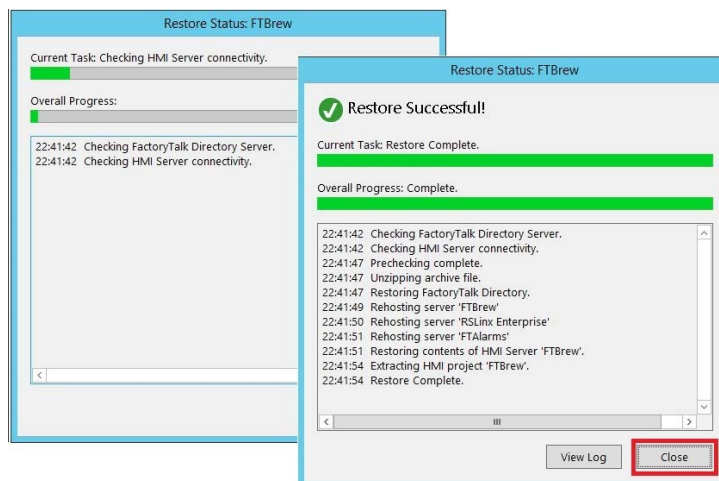
The FactoryTalk Brew SE sample application will need to be restored using the FactoryTalk View SE Application Manager program.

In the PASS server, follow these steps.

1. Find the *FTBrew20Demo.apb* file in the *FTBrew\_Samples* folder.
2. Double click on the file.



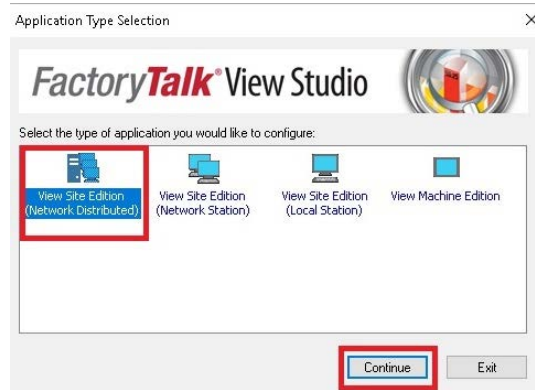
3. Choose the Primary Host (PASS server) for all three entries.
4. When restore is successful click on Close.



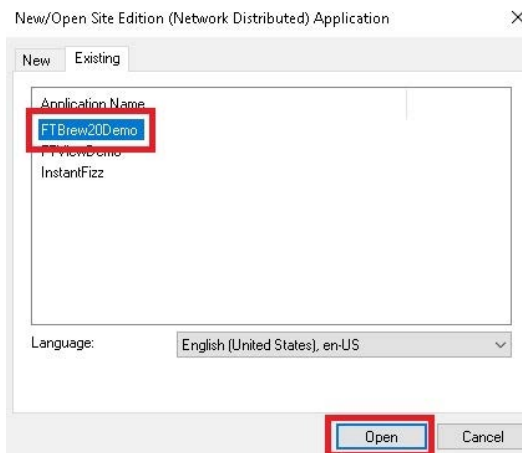
## FactoryTalk View Studio

The sample FactoryTalk Brew HMI application is now accessible in FactoryTalk View Studio.

1. Run the FactoryTalk View Studio program.
2. Choose View Site Edition (Network Distributed)
3. Click Continue.

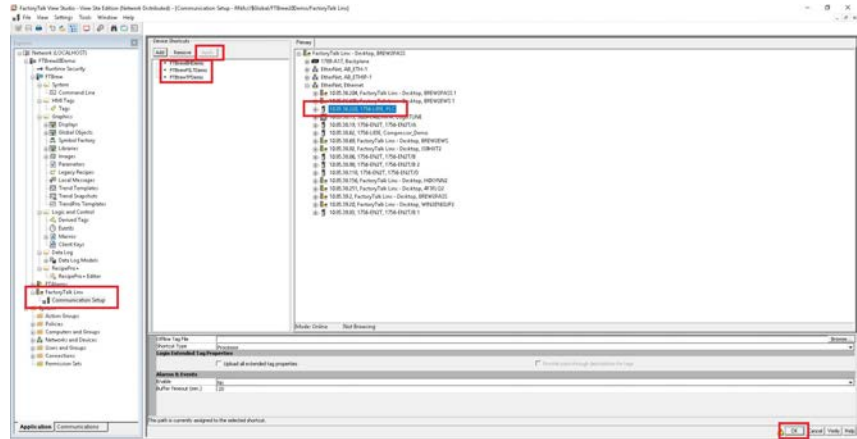


4. Choose the FTBrew20Demo application
5. Click Open.



With the application open there are a few items that will need to be configured for your specific environment.

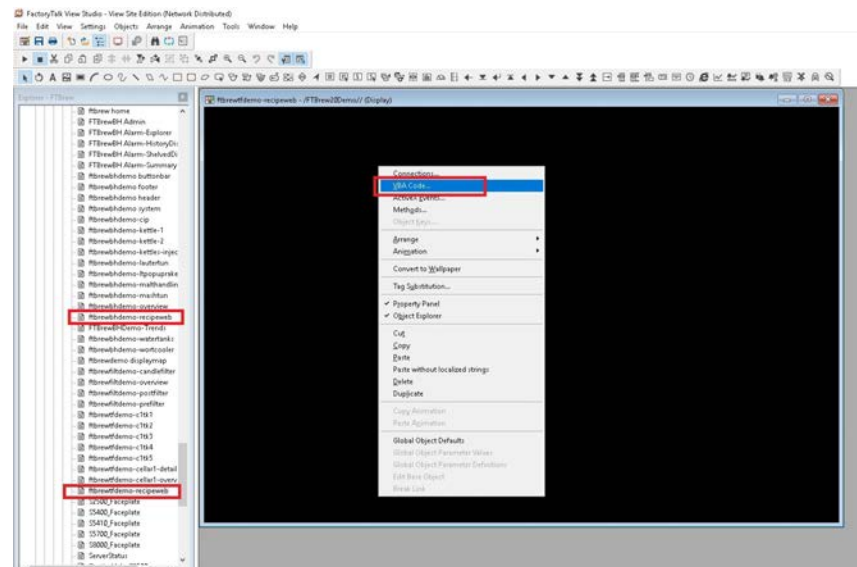
1. Open the Communications Setup window and redirect the Linx Device Shortcuts.
2. Choose the Device Shortcut (there are three created for this application, one for the Brew House, one for Filtration and one for the Tank Farm).



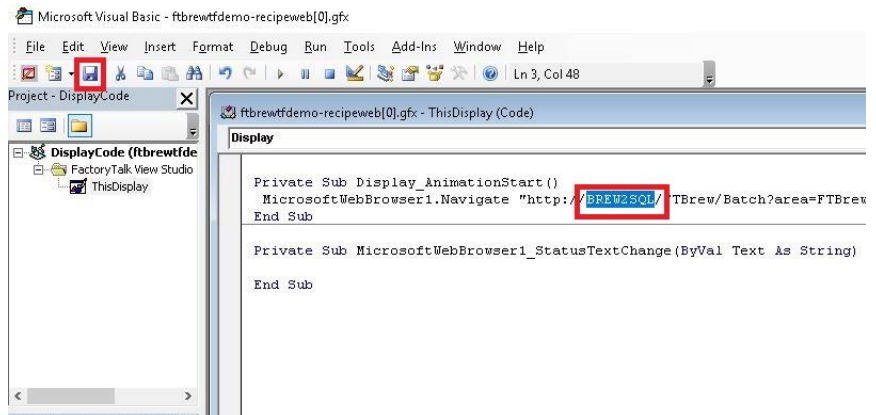
3. Choose the controller that will apply to the Device Shortcut
4. Click Apply.

Note: Review this chapter for application and communication setup to the controller. This may need to be accomplished prior to setting up communications in FactoryTalk View.

5. Once Device Shortcuts are applied, click OK.
6. Open the display *fbrewbhdemo-recipeweb* and right click on the display.
7. Choose *VBA Code*.



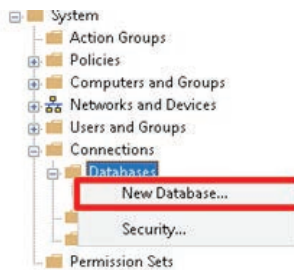
8. Update the web page links in the VBA editor to match the name of the SQL Server in your environment.



9. Repeat steps 5 and 6 for display ftbrewtfdemo-recipeweb.

## Configure Alarms and Events Data Logging

1. Expand Connections and right click on New Databases.



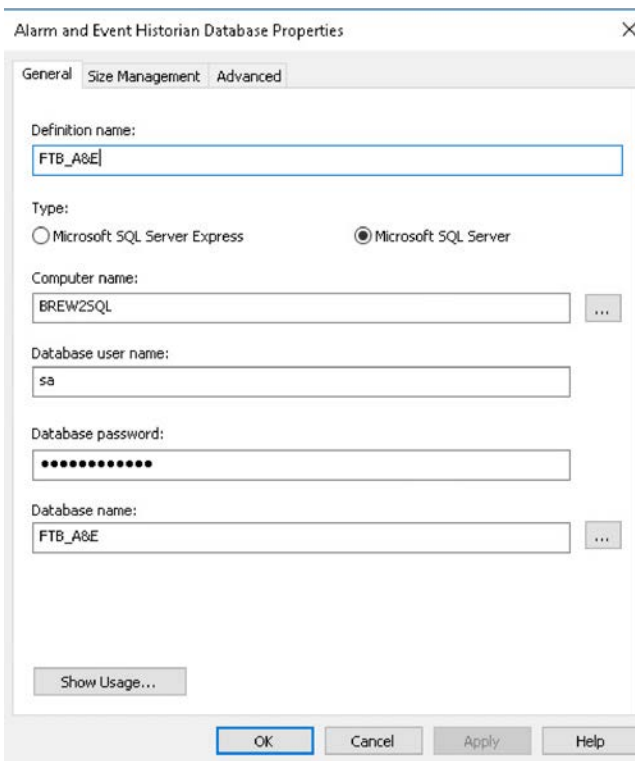


2. On the General tab, enter the following:
  - In the Definition name box, enter FTB\_A&E.
  - For Type, click Microsoft® SQL Server.
  - In the Computer name box, enter your computer name.
  - In the Computer name box, enter the server name that houses your databases.
  - In the Database user name box, enter sa.
  - In the Database password box, enter your sa password.
  - In the Database name box, enter FTB\_A&E.

---

**IMPORTANT** Even if you are using Microsoft SQL Server Express, you must select Microsoft SQL Server for the type.

---



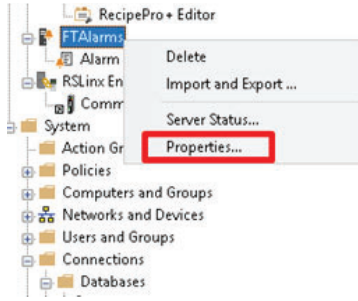
The screenshot shows the "Alarm and Event Historian Database Properties" dialog box with the "General" tab selected. The fields are filled with the following information:

- Definition name: FTB\_A&E
- Type:  Microsoft SQL Server (selected),  Microsoft SQL Server Express
- Computer name: BREW2SQL
- Database user name: sa
- Database password: [masked with dots]
- Database name: FTB\_A&E

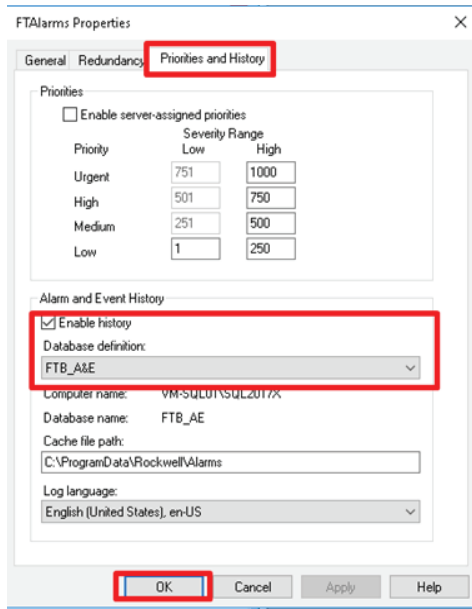
Buttons at the bottom include "Show Usage...", "OK", "Cancel", "Apply", and "Help".

3. Click OK.

4. Right click on FTAlarms and select Properties.



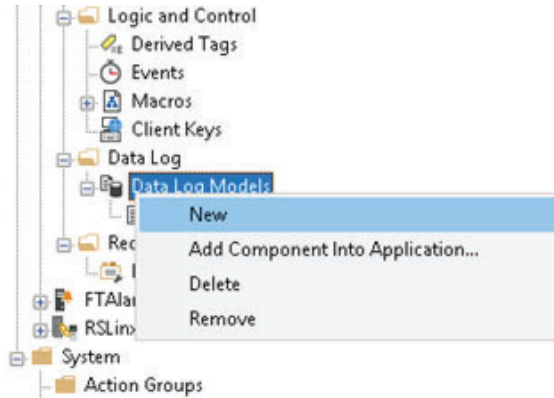
5. Choose the Priorities and History tab and check Enable history
6. Choose the Database definition that was just created.



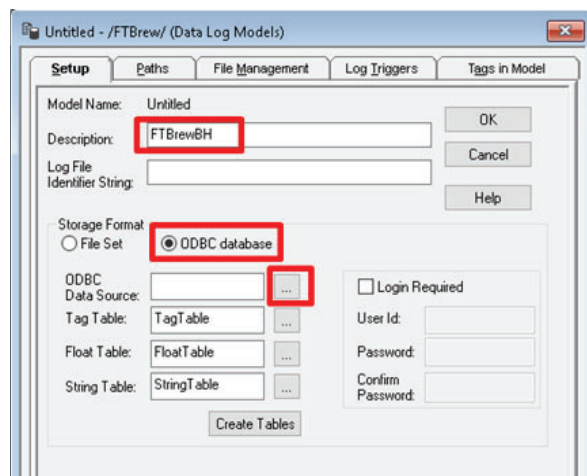
## Configure Trend Data Logging

Note that trend data logging is optional. FactoryTalk Brew provides an option to use FactoryTalk Historian for collecting and storing time series data instead. Refer to [Configuring FactoryTalk Historian SE on page 90](#) for instructions on configuration.

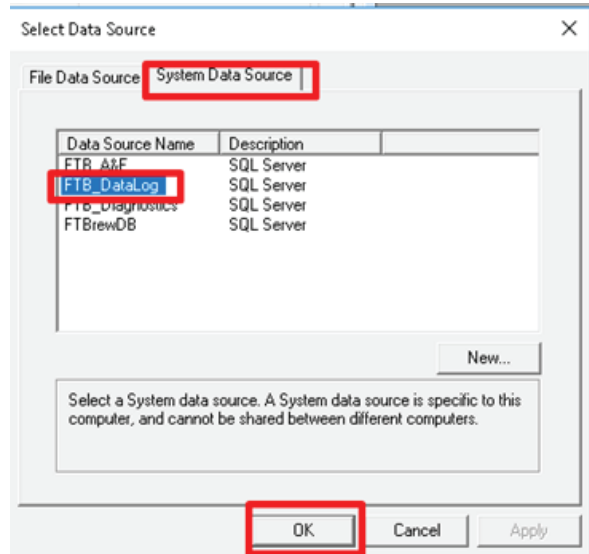
1. Expand Data Log and right click on Data Log Models.
2. Select New.



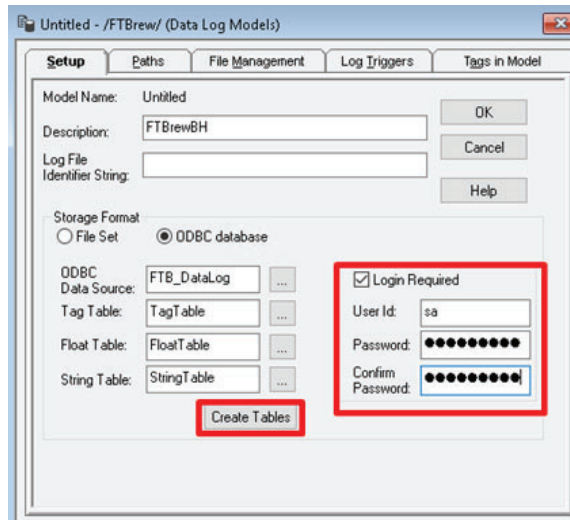
3. In the Setup tab, enter FTBrewBH Description box
4. Click ODBC Database
5. Choose Data Source.



6. From the System Data Source dialog box, choose FTB\_DataLog.
7. Click OK.

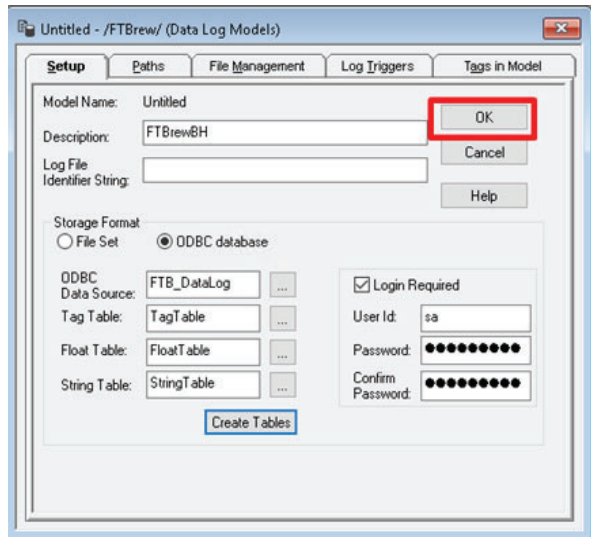


8. Check Login Required and provide User ID and Password.
9. Click Create Tables.



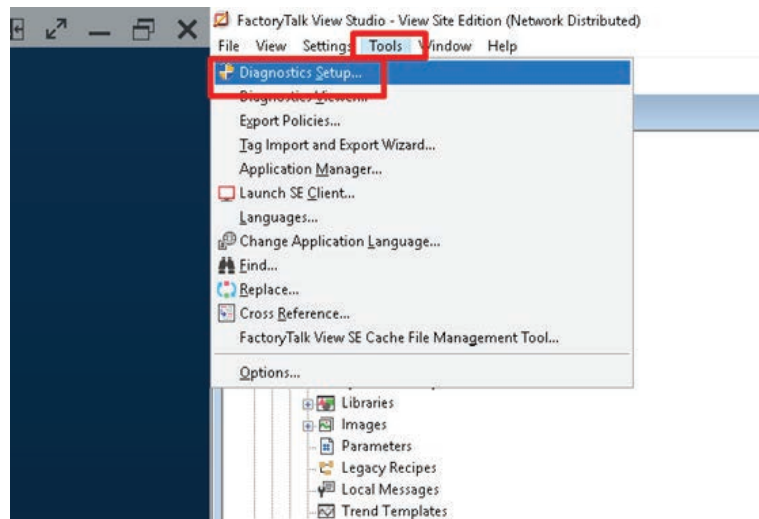
10. Once tables have been successfully created click OK.

11. Click OK to save configuration of Trend Data Logging.

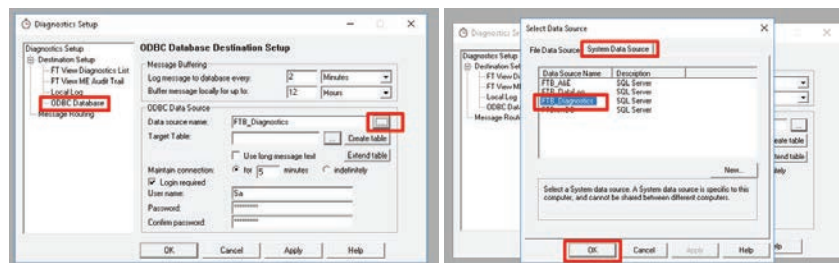


### Configure Diagnostic Data Logging.

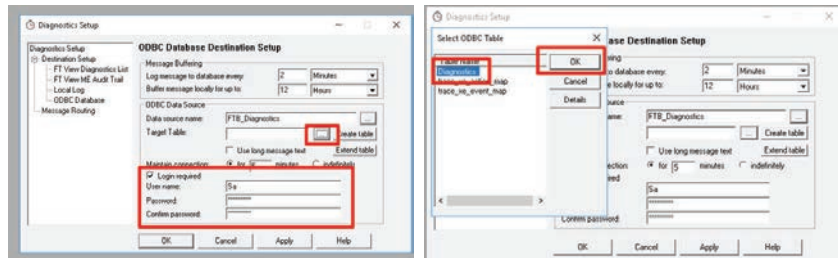
1. Under Tools select Diagnostics Setup.



2. Click on ODBC Database and select data source FTB\_Diagnostics.
3. Click OK.

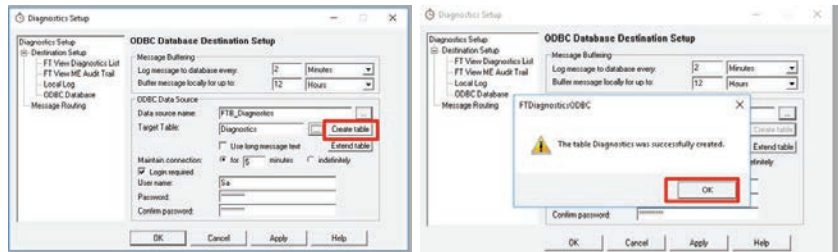


4. Check Login required and enter User Name and Password.



5. Click on Create Table.

6. Click OK when successful.

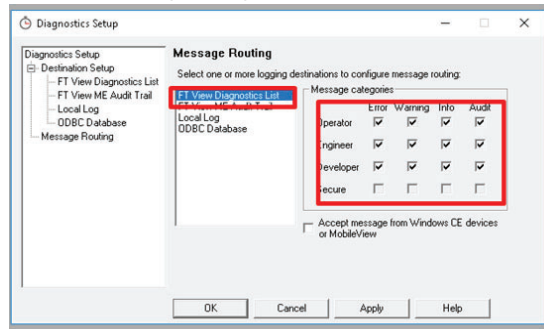


7. Select target table Diagnostics.

8. Click OK.

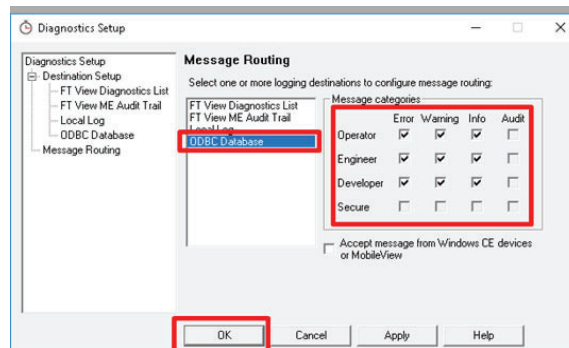
9. Click on Message Routing and select FT View Diagnostics List.

10. Check message categories as shown below.



11. Click on Message Routing and select ODBC Database.

12. Check message categories as shown below.

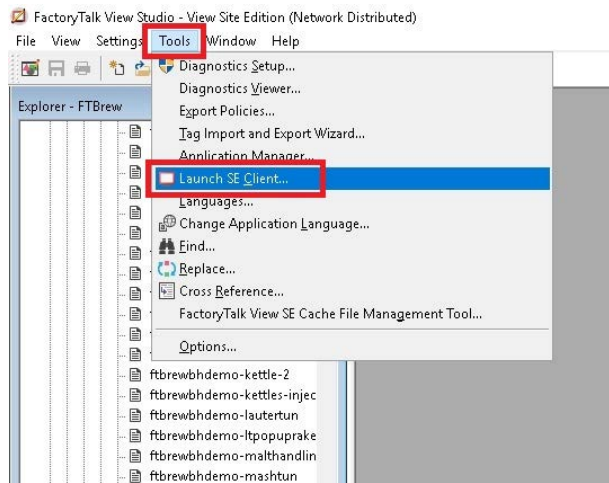


13. Click OK to save Diagnostic Logging setup.

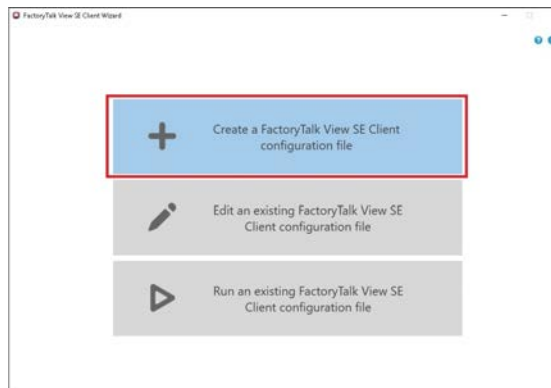
## FactoryTalk View SE Client

Creating the FactoryTalk Brew SE Client configuration file using the FactoryTalk View SE Client Wizard in FactoryTalk View Studio.

1. Under the Tools tab, choose Launch SE Client.

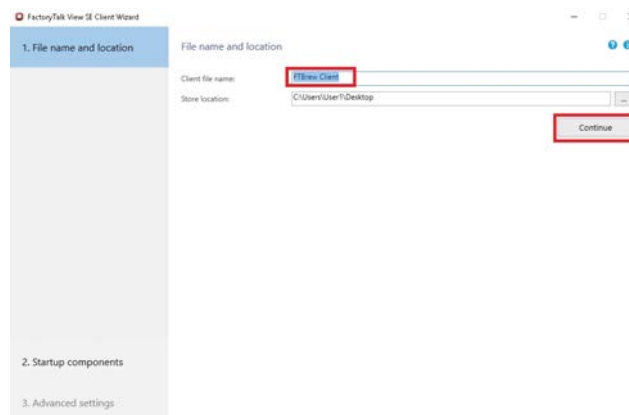


2. Select Create a FactoryTalk View SE Client configuration file.

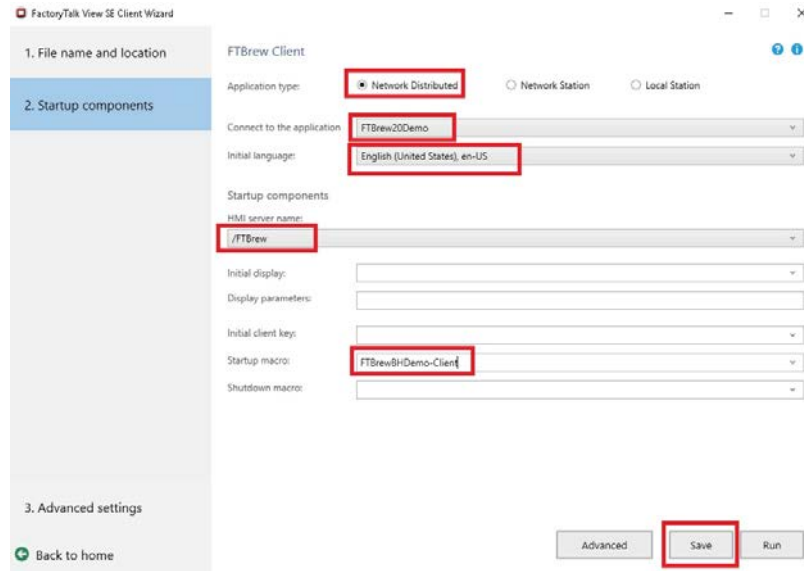


3. In the Client file name box, enter a client file name.
4. Click Continue.

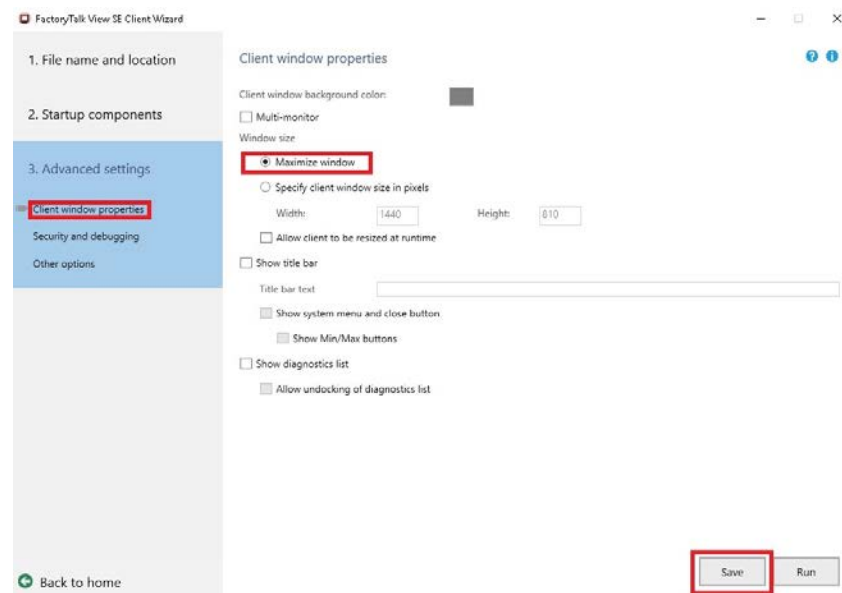
Default store location for the Client file is on the desktop. Store location can be modified as an option.



5. Click Network Distributed as Application type.
6. Connect to the application FTBrew20Demo.
7. Choose Initial language and default HMI server name.
8. Choose Startup macro FTBrewBHDemo-Client
9. Click Save.

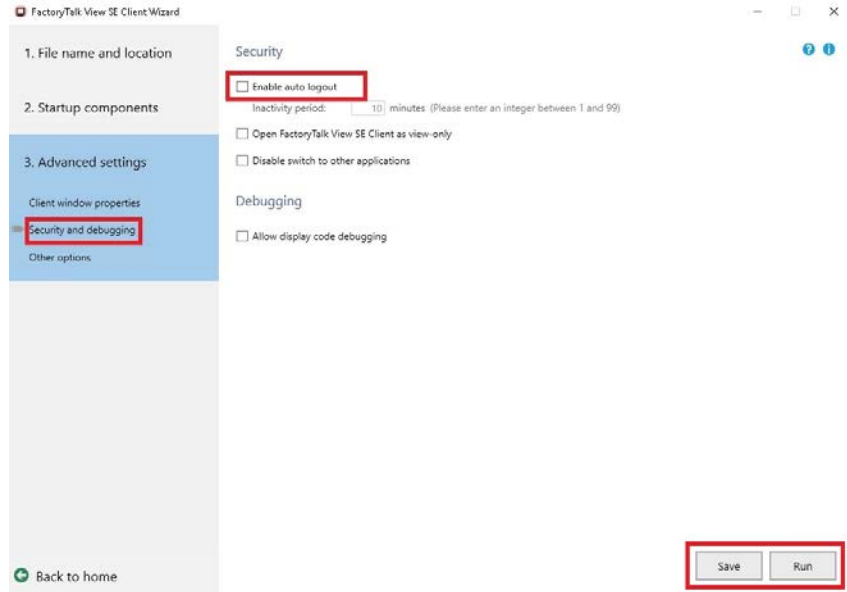


10. Choose Advanced settings> Client window properties> Window size.
11. Click Maximize window.
12. Uncheck all other boxes
13. Click Save.

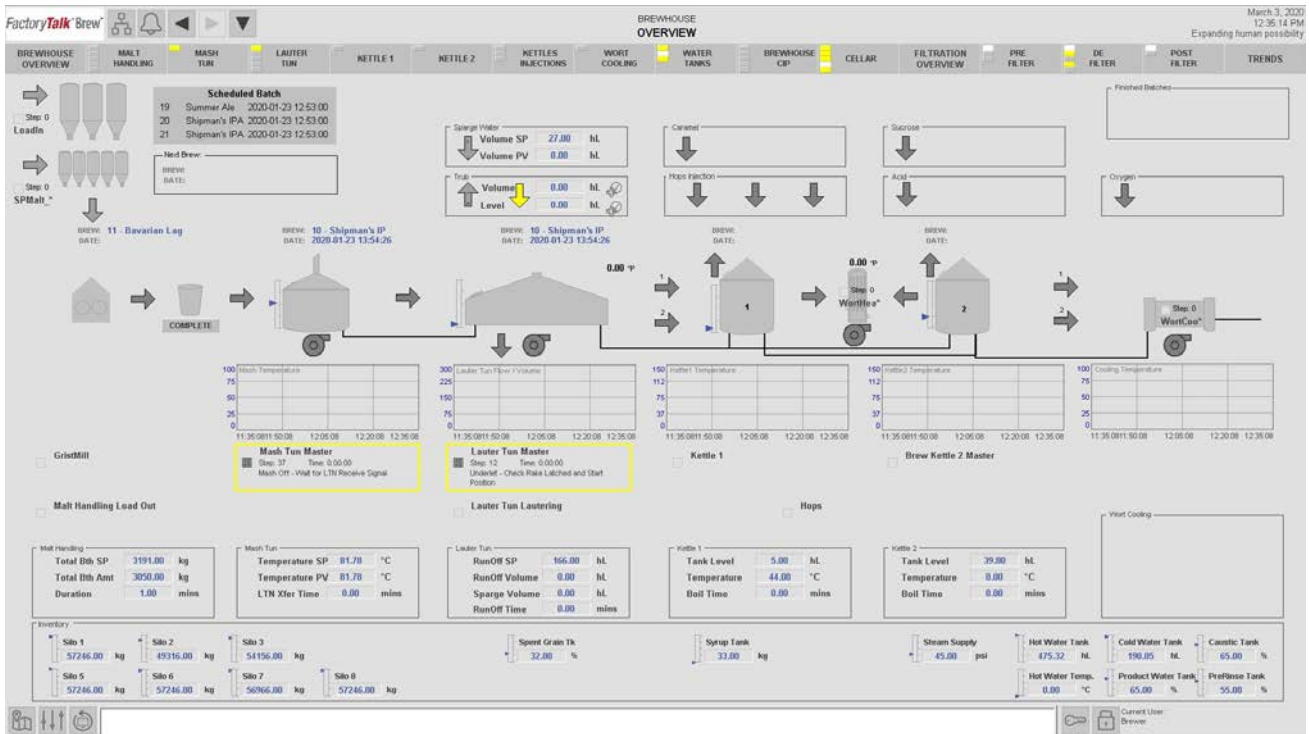




14. Choose Advanced settings>Security and debugging>Security.
15. Uncheck Enable auto logout.
16. Click Save.
17. Click Run.



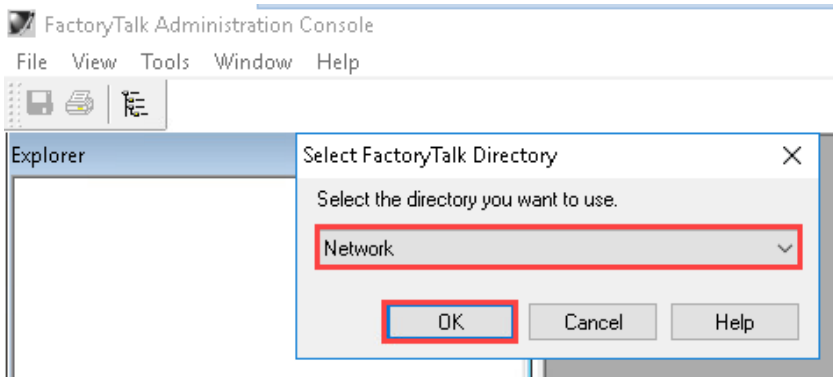
The FactoryTalk Brew Demo is now up and running.



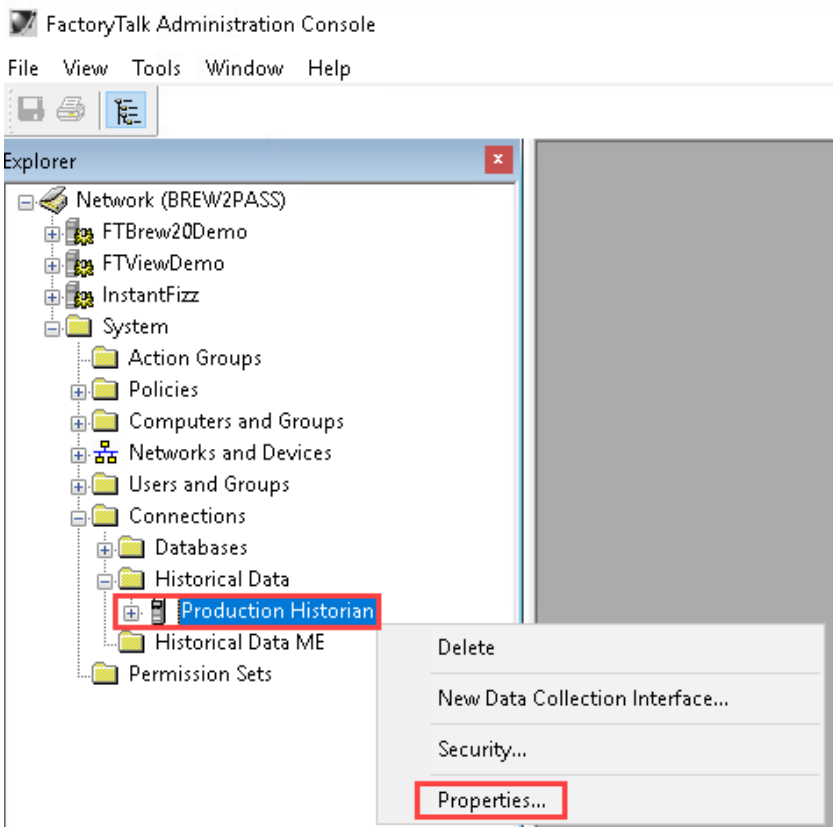
## Configuring FactoryTalk Historian SE

If you plan to use Historian with the FactoryTalk Brew implementation, perform the following steps.

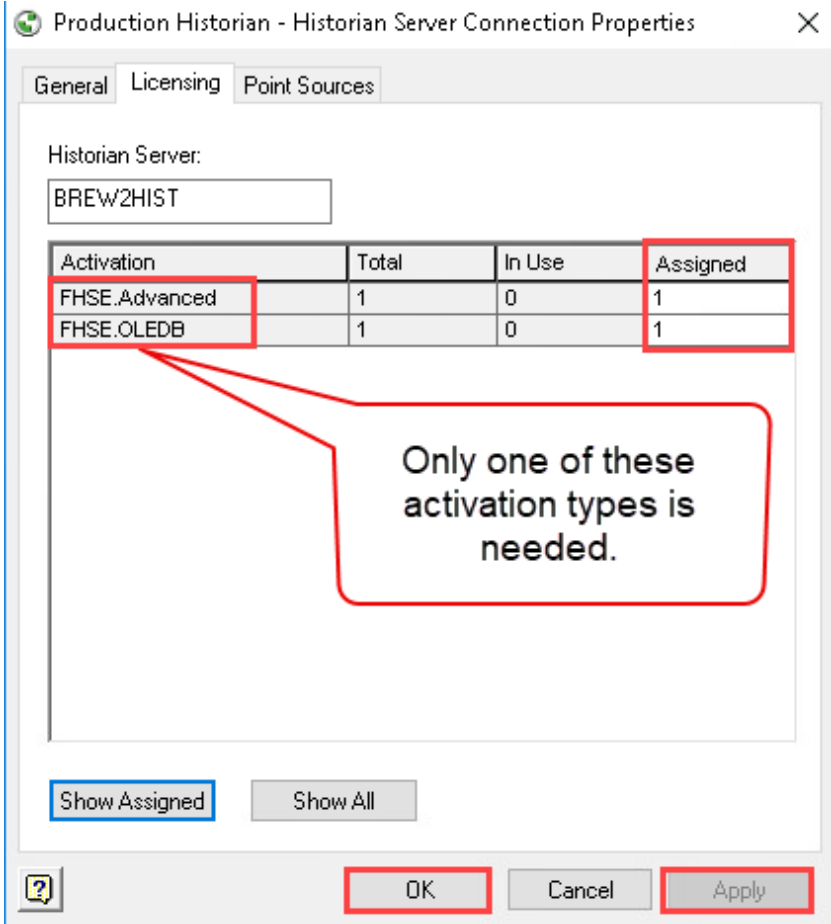
1. On the Historian Server, open the FactoryTalk Administration Console.
2. Select network.
3. Click OK.



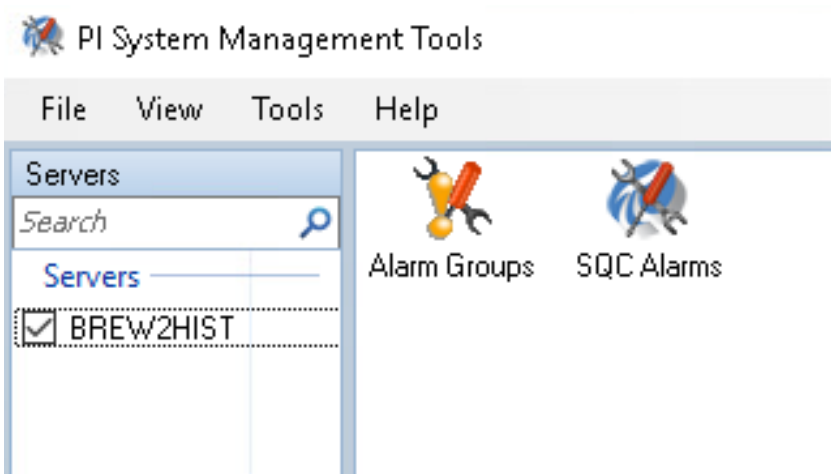
4. From the Explorer panel, Choose System>Connections>Historical Data>Production Historian.
5. Right-click on Production Historian.
6. Select Properties...



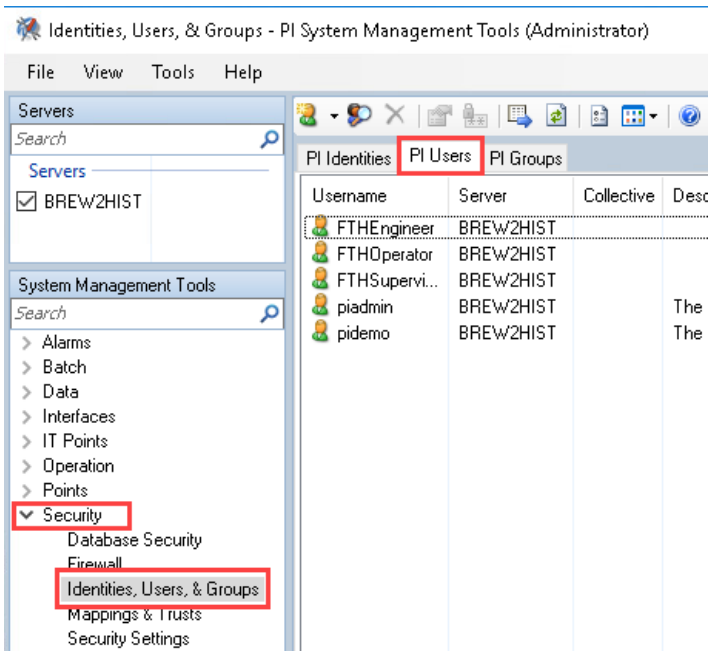
7. Click the Licensing tab.
8. Assign one FHSE.Advanced license, or one FHSE.OLEDB license.
9. Click Apply.
10. Click OK.



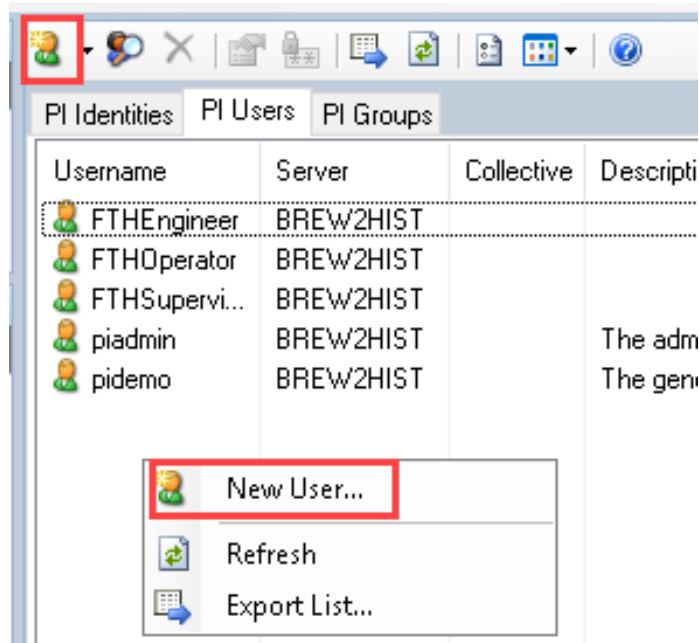
11. Run PI System Management Tools as an Administrator and connect to the Historian server.



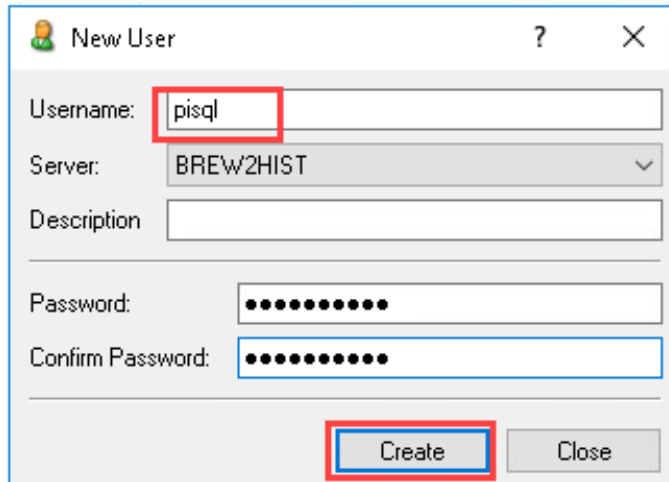
12. In the System Management Tools panel, choose Security>Identities, Users, & Groups.
13. Select the PI Users tab.



14. Right-click in the user table and select New User... from the pop-up menu or click the New User icon on the toolbar.



15. In the Username box, enter: pisql
16. In the Password box enter: pipassword
17. In the Confirm Password box enter: pipassword
18. Click create.

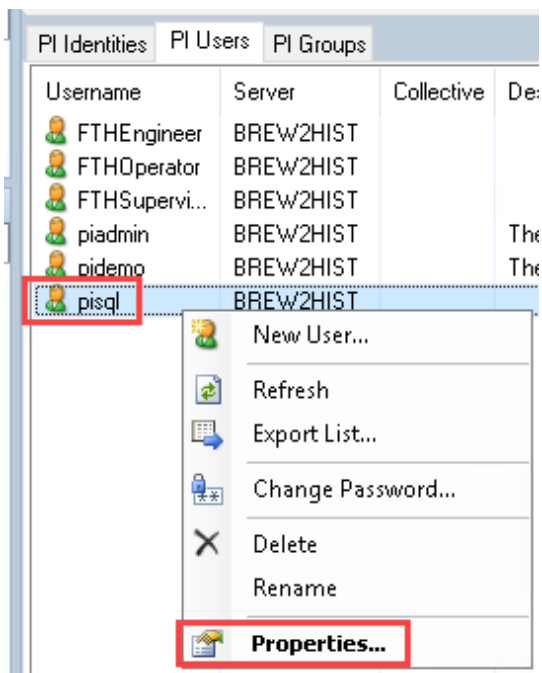


The screenshot shows a 'New User' dialog box with the following fields and values:

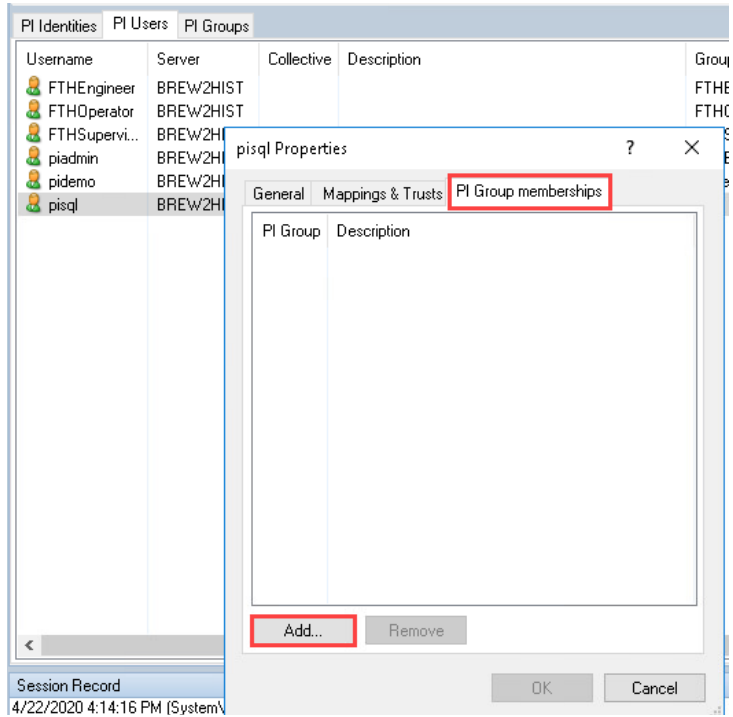
- Username: pisql
- Server: BREW2HIST
- Description: (empty)
- Password: (masked with 10 dots)
- Confirm Password: (masked with 10 dots)

The 'Create' button is highlighted with a red box.

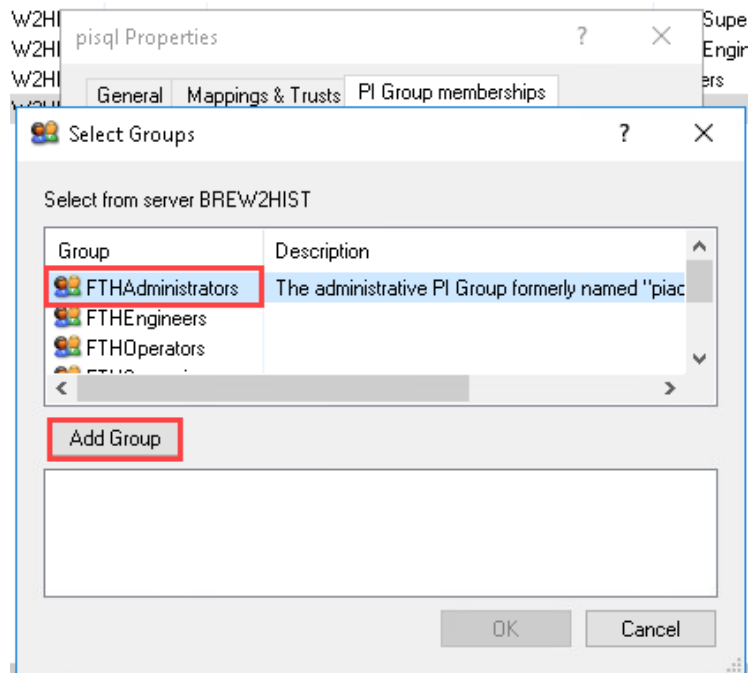
19. From the PI Users menu, right-click on pisql (the user you just created).
20. From the pop-up menu, choose Properties...



21. Choose the PI Group memberships tab.
22. Click Add...

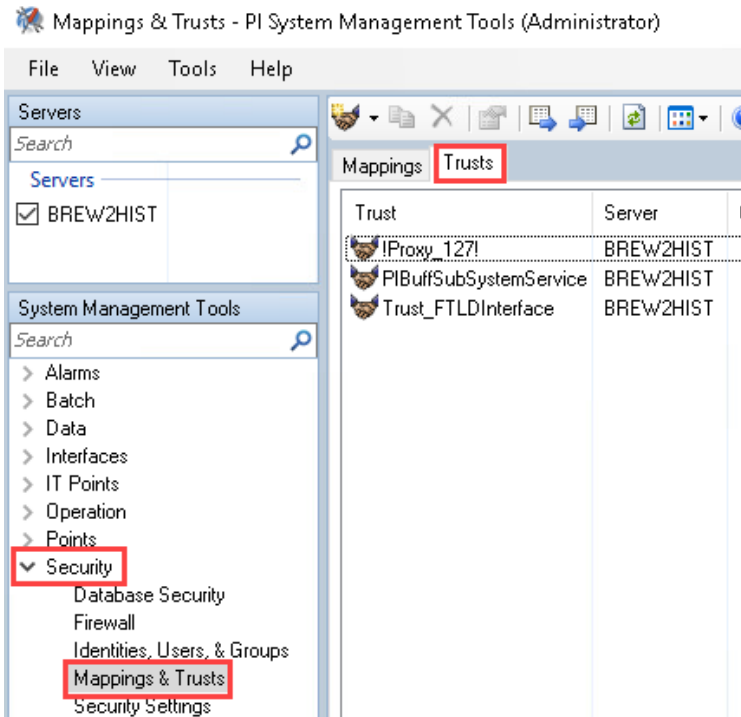


23. From the Select Groups menu, choose FTHAdministrators.
24. Click Add Group
25. Click OK to close the Select Groups menu.

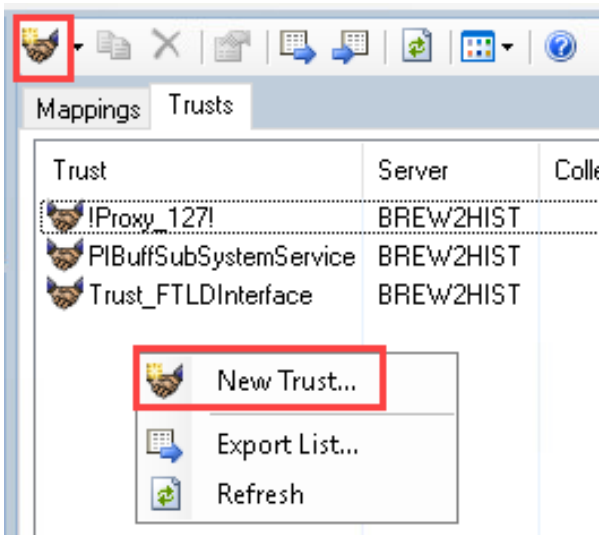


26. Click OK to close the pisql Properties menu.

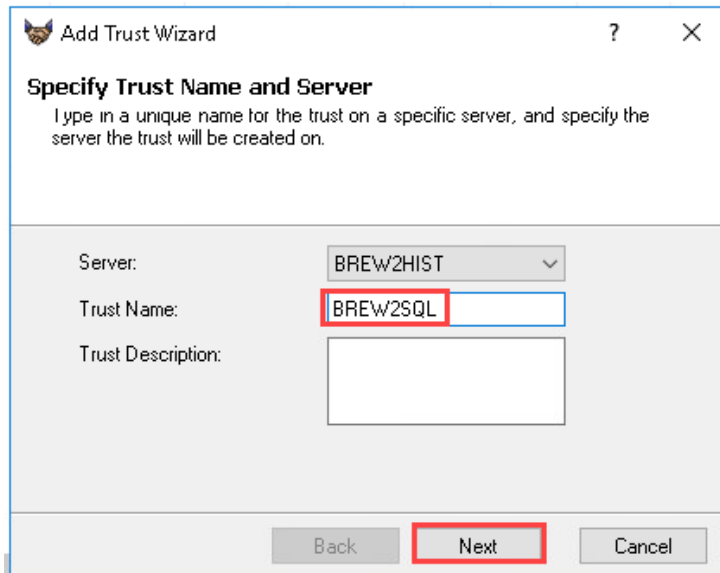
27. In the System Management Tools panel, choose Security> Mappings & Trusts.
28. Choose the Trusts tab.



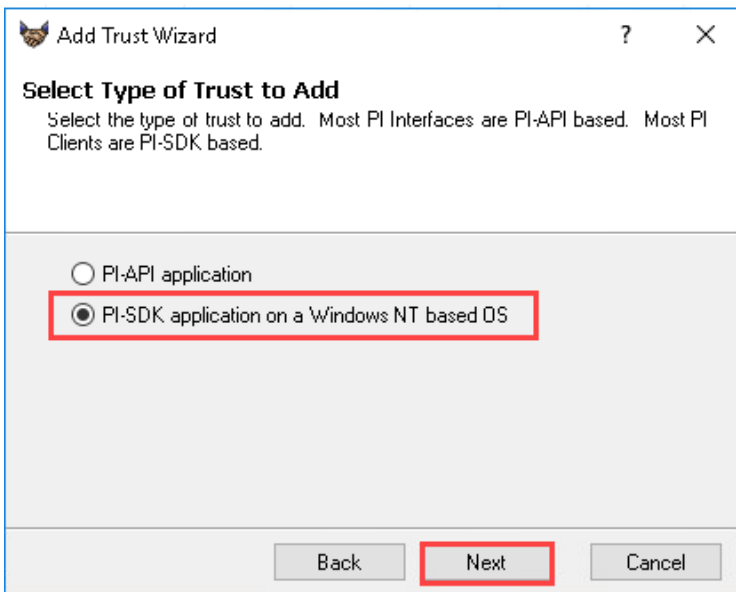
29. Right-click in the trusts table and select New Trust... from the pop-up menu or click the New Trust Icon on the toolbar.



30. In the Trust Name box, enter the name of your SQL Server
31. Click Next.



32. Select PI-SDK application on a Windows NT based OS.
33. Click Next.

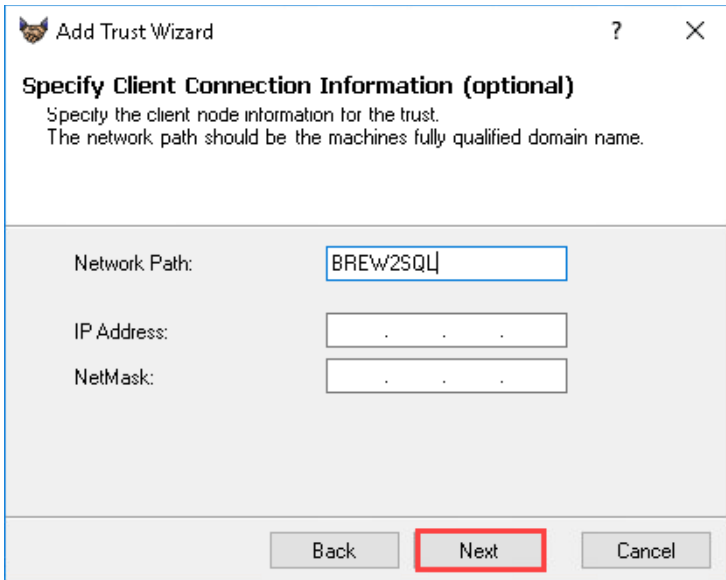


A dialog box appears to Specify an Application Name and Windows Login (optional). Leave this dialog blank.

34. Click Next.

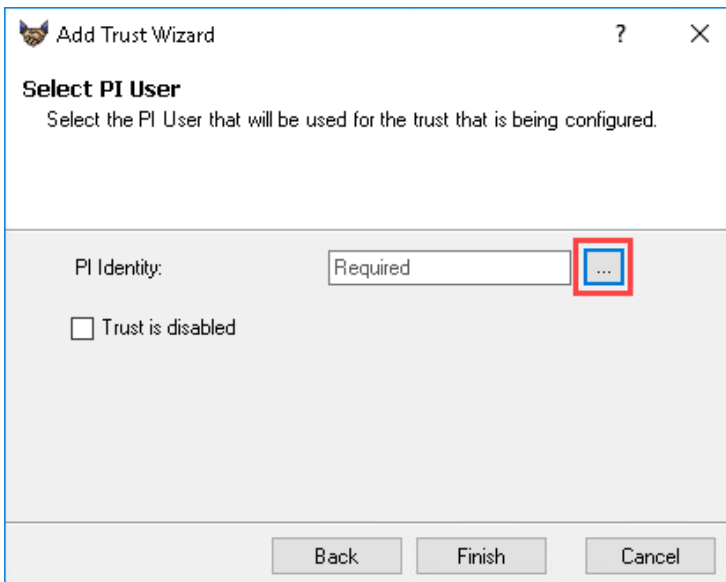


- A dialog appears to Specify Client Connection Information (optional).
35. In the Network path box, enter the name of the server that houses your Microsoft SQL Server installation.
  36. Leave the IP Address and NetMask boxes blank.
  37. Click Next.



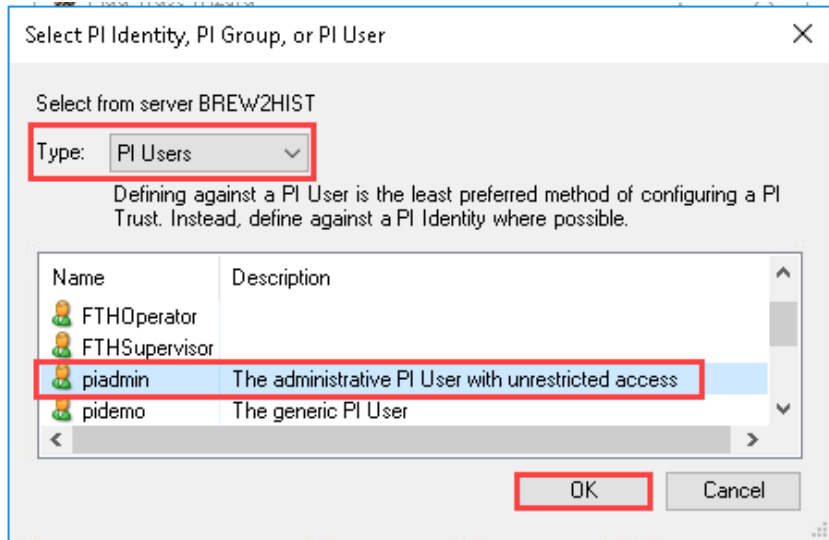
The screenshot shows the 'Add Trust Wizard' dialog box. The title bar reads 'Add Trust Wizard' with a question mark and a close button. The main heading is 'Specify Client Connection Information (optional)'. Below the heading, there is a sub-heading 'Specify the client node information for the trust.' and a note 'The network path should be the machines fully qualified domain name.' The dialog contains three input fields: 'Network Path:' with the text 'BREW2SQL', 'IP Address:' with three dots, and 'NetMask:' with three dots. At the bottom, there are three buttons: 'Back', 'Next' (highlighted with a red box), and 'Cancel'.

38. Click the ellipsis '...' icon next to the PI Identity box.

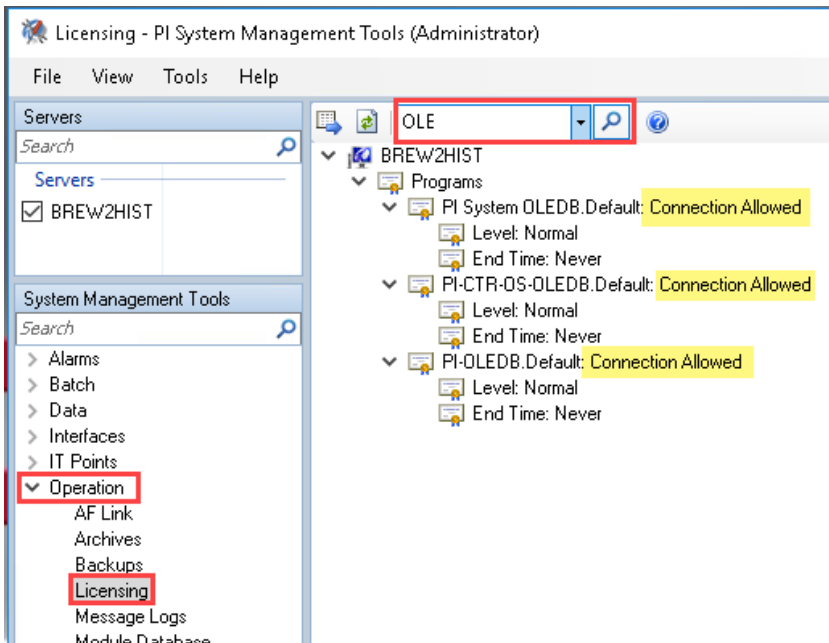


The screenshot shows the 'Add Trust Wizard' dialog box. The title bar reads 'Add Trust Wizard' with a question mark and a close button. The main heading is 'Select PI User'. Below the heading, there is a sub-heading 'Select the PI User that will be used for the trust that is being configured.' The dialog contains one input field: 'PI Identity:' with the text 'Required' and an ellipsis '...' icon (highlighted with a red box). Below the input field, there is a checkbox labeled 'Trust is disabled'. At the bottom, there are three buttons: 'Back', 'Finish', and 'Cancel'.

39. On the Select PI Identity, PI Goup, or PI User screen, select PI Users from the Type dropdown.
40. Choose piadmin from the list box.
41. Click OK.



42. Click Finish.
43. In the System Management Tools panel, choose Operation>Licensing.
44. Enter 'OLE' in the search bar and press enter.
45. Make sure all the programs show 'Connection Allowed.'

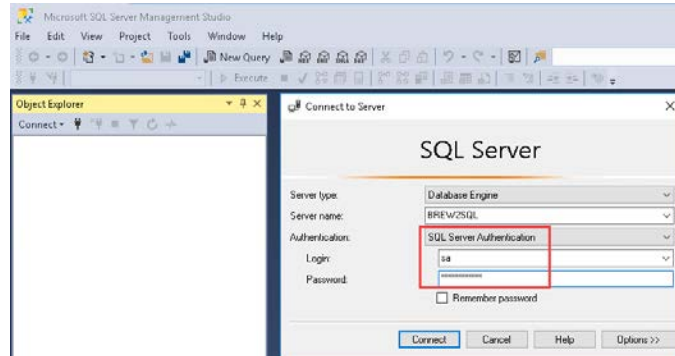


46. Close the PI System Management Tools application.

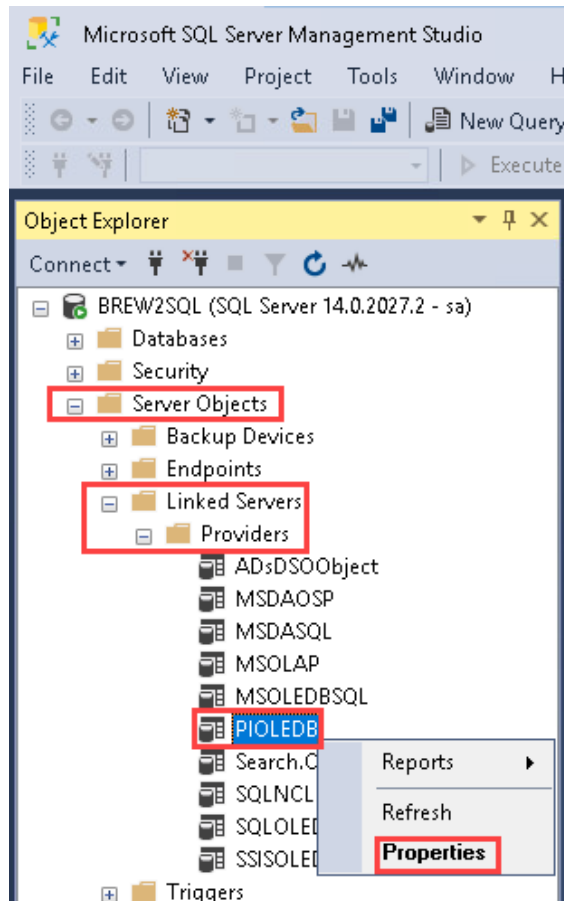
47. On your SQL image, install the PI OLEDB provider.

The setup program is available in the FactoryTalk Historian Installation media. Refer to the Install OLEDB Provider section of the FactoryTalk Historian SE Installation and Configuration Guide [HSE-IN025](#).

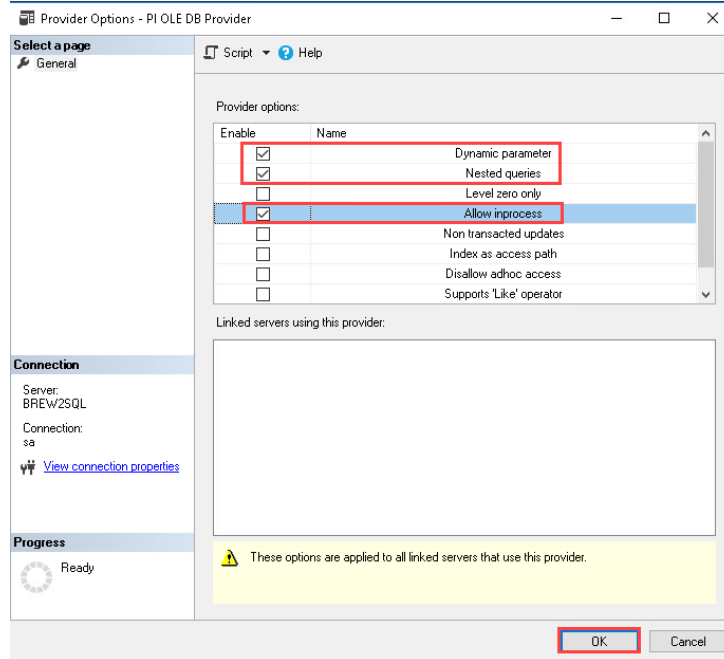
48. On your SQL image, Open Microsoft SQL Server Management Studio  
49. Connect to SQL Sserver as 'sa'.



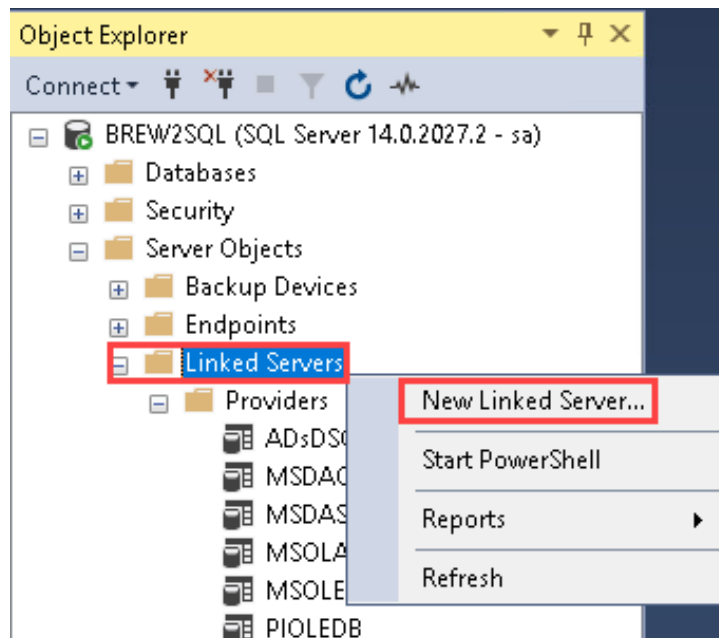
50. From the Object Explorer menu, choose Server Objects>Linked Servers>Providers>PIOLEDB.  
51. Right-click PIOLEDB  
52. From the pop-up menu, choose Properties.



53. Check Dynamic parameter.
54. Check Nested queries.
55. Check Allow inprocess.
56. Click OK.

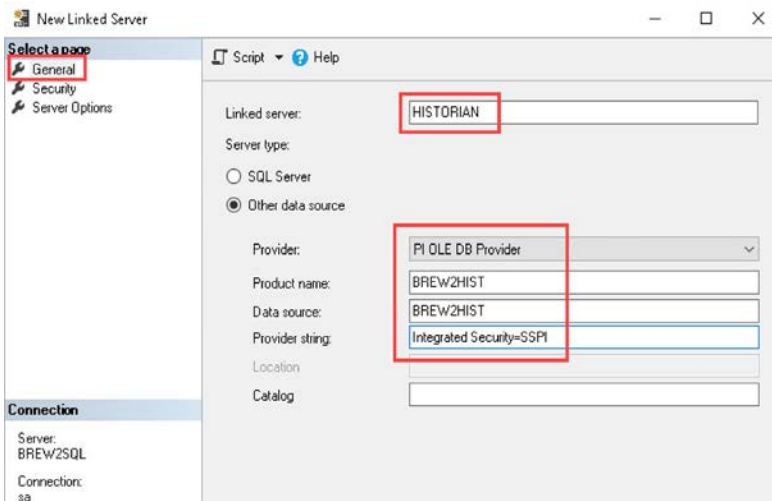


57. From the Object Explorer menu, choose Server Objects> Linked Servers.
58. Right-click on Linked Servers
59. Select New Linked Server... from the pop-up menu.

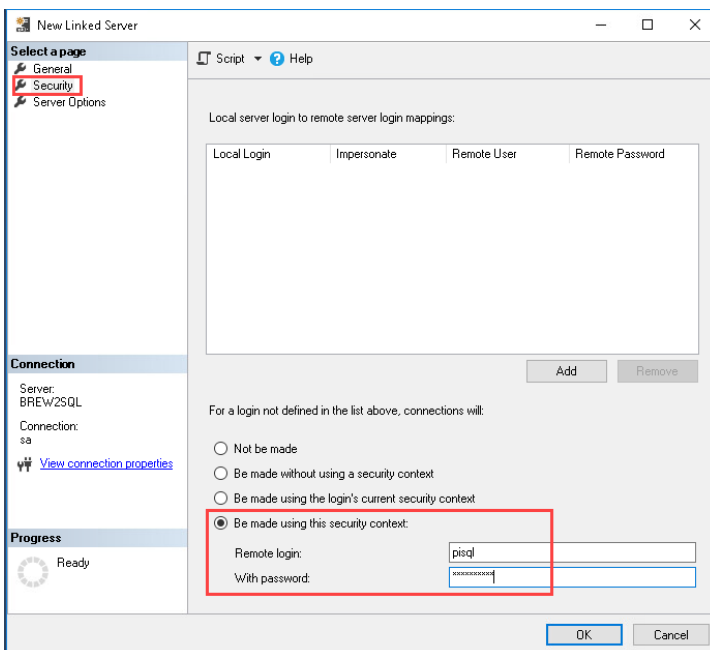


The New Linked Server dialog box appears. The dialog box has three pages that require configuration. Enter the following information for each page as follows:

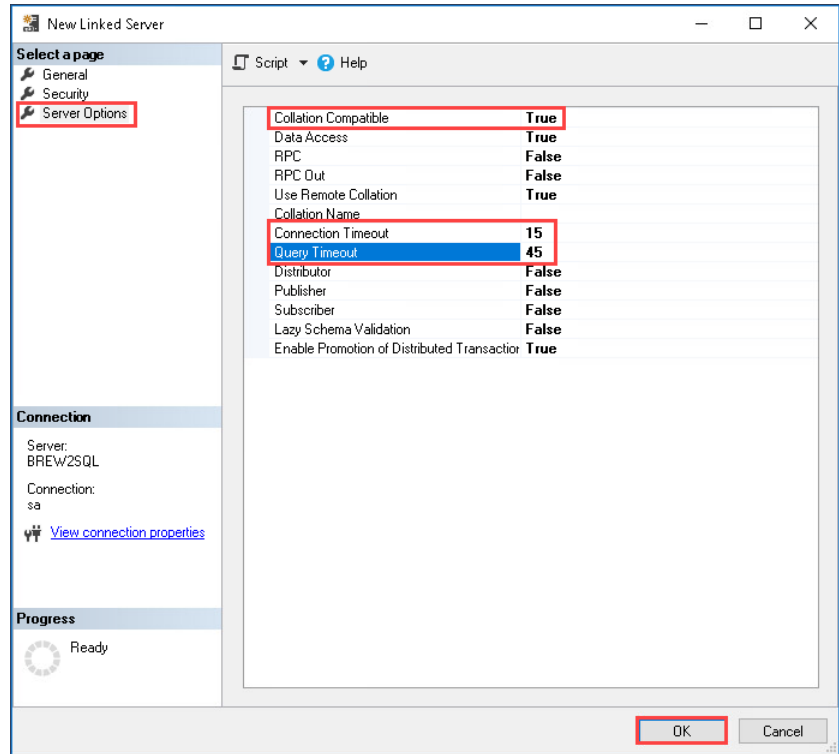
60. On the General page:
  - In the Linked server box, enter HISTORIAN.
  - For Server type, Click Other data source.
  - In the Provider box, select PI OLE DB Provider.
  - In the Product name box, enter the name of your Historian server.
  - In the Data source box, enter the name of your Historian server.
  - In the Provide string box, enter Integrated Security=SSPI.



61. On the Security page:
  - Click Be made using this security context
  - In the Remote login box, enter psql.
  - In the With password box, enter pipassword.



- 62. On the Server Options page:
  - In the Collation Compatible box, enter True.
  - In the Connection Timeout box, enter 15.
  - In the Query Timeout box, enter 45.



- 63. Click OK.

## Configure FactoryTalk Brew

Topic	Page
Web Application Menu	104
Create Controllers and Install Licenses	106
Create Units and Tanks	110
Configure Parameters Within Units	117
Procedures	125
Controller Code	129
Recipes	136
Reports	143
Logix Application Development	144
Controller Module	149
FactoryTalk View SE Application Development	151
FactoryTalk Brew Library of Process Objects	151
FactoryTalk Brew Counter Module (MCounter)	152
FactoryTalk Brew Data Control Module (MDataCntrl)	155
FactoryTalk Brew Digital Controller Module (MDigCntrl)	157
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FactoryTalk Brew Flag Module (MFlag)	165
FactoryTalk Brew Latch Module (MLatch)	167
FactoryTalk Brew Unit Parameter Module (MPar)	169
FactoryTalk Brew Pulse Module (MPulse)	172
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FactoryTalk Brew Report Module (MRpt)	179
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FactoryTalk Brew Profile Module (MProfile)	184

## Web Application Menu

The FactoryTalk® Brew™ web application consists of the following menu items.









The web application consists of the menu items listed below. Page numbers are included for quick reference, but we recommend following the workflow outlined later in this chapter:

- Area [page 108](#)
- Unit Config
  - Units [page 110](#)
  - Recipe Parameters [page 117](#)
  - Unit Parameters [page 117](#)
- System Config
  - Licenses [page 106](#)
  - Controllers [page 106](#)
  - Devices [page 115](#)
  - Commands [page 132](#)
  - Device List [page 132](#)
  - Device Reference [page 133](#)
  - Pipes [page 195](#)
  - Routes [page 198](#)
  - Trend Report Items [page 134](#)
  - Import Controller Template [page 129](#)
  - Import Unit Template [page 130](#)
  - Export Unit Program [page 131](#)
  - Export Controller Program [page 130](#)
- Procedures [page 125](#)
- Tanks [page 189](#)
- Recipes
  - Recipe Report [page 136](#)
  - Recipes [page 136](#)
  - Ingredients [page 140](#)
  - Add Recipe [page 137](#)
  - Edit Recipe [page 138](#)
  - Delete Recipe [page 139](#)
  - Copy Recipe [page 139](#)
- Schedule [page 141](#)
  - Reports [page 143](#)



The following sections describe the menu functions in detail.

The FactoryTalk® Brew™ web application uses several common icons across all screens to perform similar functions: The following sections describe these functions in the context of each menu screen where they appear.

	Add an item
	Edit an item
	Delete an item
	Create a parameter device
	Download changes to the controller
	Upload items from the controller
	Export items to a CSV file
	Import items from a CSV file

## System Configuration Workflow

As indicated in Chapter 1, when starting with a new installation and an empty system database, this is the recommended workflow:

- Create Controllers.
- Assign Licenses to Controllers.
- Create Units and Tanks within the Areas.
- Create Devices within the Units.
- Configure Unit Parameters and Recipe Parameters within each Unit.
- Create one or more Procedures for each Unit.
- Generate the controller code and download it to the controller.

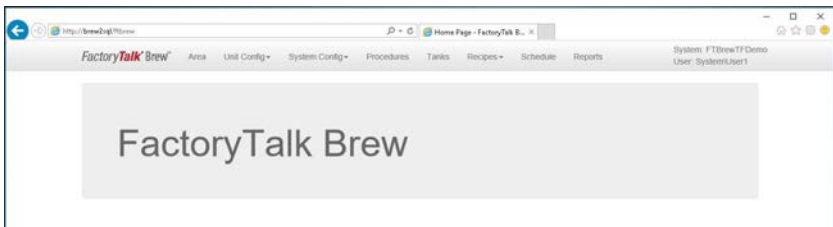
## Create Controllers and Install Licenses

FactoryTalk Brew defines a system as a process area in the brewery that correlates directly to the controller for that area. A controller can be used for more than one process area based on controller memory, but we recommend that you use one controller per process area. If one controller spans multiple process areas, these process areas must be configured and contained within the same FactoryTalk Brew system. In FactoryTalk Brew terminology, the terms Area, System, and Controller can be considered interchangeable.

If you have not done so already, make sure you are logged into the FactoryTalk Brew server as a domain user with FTB Engineer privileges. This is the highest level of security, which provides full access to all system functionality. Also, at this point, you should have already downloaded the software activations to your FactoryTalk Activation server, running version 4.04 or higher.

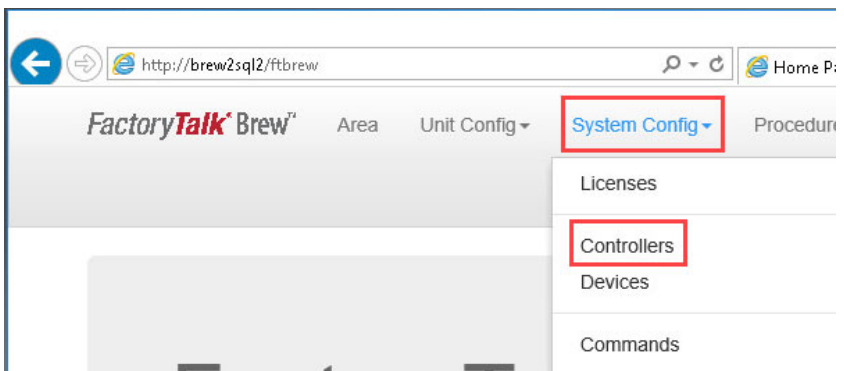
Open a web browser and go to <http://localhost/FTBrew>. Note that this localhost syntax assumes you are accessing the web interface directly from the FactoryTalk Brew server. You can access the web interface from any computer on the domain, simply by replacing the word 'localhost' with your FactoryTalk Brew server name in the URL: <http://yourservername/FTBrew>

**Figure 15 - FactoryTalk Brew URL**

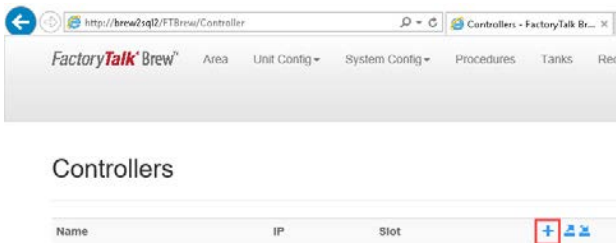


## Create a New Controller

From System Config, choose Controllers.



1. Click the add icon to add a new controller.



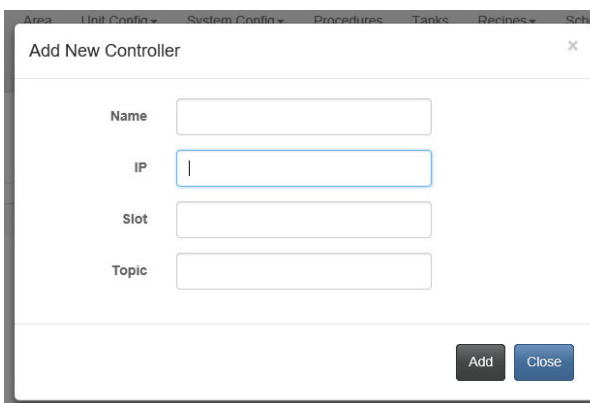
2. Enter the information for the controller's name, IP address, Slot, and Topic.

---

**IMPORTANT** The controller names in the web interface and RSLinx® must be identical. Refer to the [ControlLogix System User Manual](#) for more information on RSLinx configuration.

---

- 3.



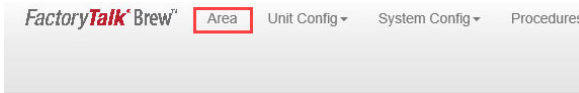
4. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

## Area

### Select Area and Add Licenses

Once you have created at least one controller, you must first select it from the Area menu before continuing with the configuration.

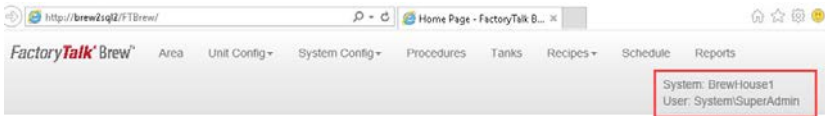
1. From the FactoryTalk Brew menu, choose Area.
2. From the Controller drop-down list, select the desired controller
3. Click Select.



#### Select Area

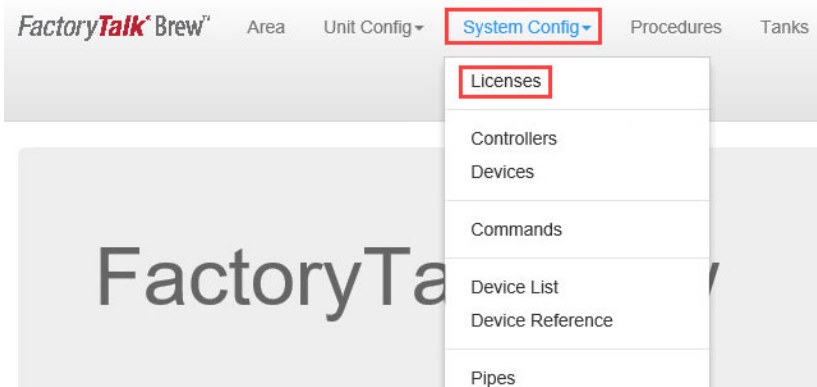


The interface updates to display the selected controller, as well as the current logged-in user. In FactoryTalk Brew terminology, the terms Area, System, and Controller can be considered interchangeable.



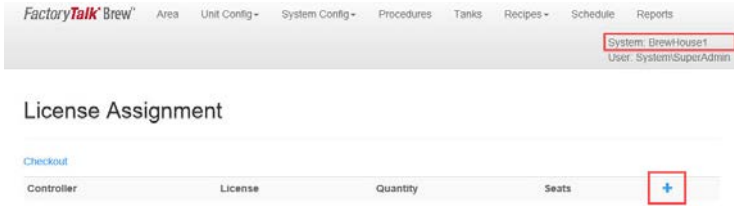
Once you have created a controller and selected it from the Area menu, you must assign license(s) to it in order to continue with the configuration.

4. From System Config, choose Licenses.

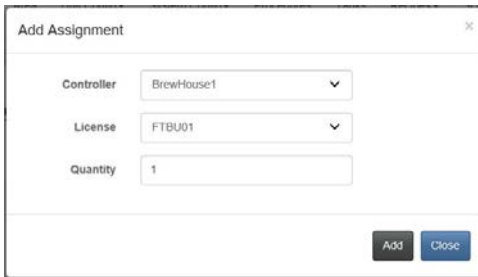


The licenses you are about to assign will apply to the selected controller shown in the upper right. If this is not the desired controller, either use the Area menu to select the correct controller or use the drop-down list that will appear in the Add Assignment dialog box.

5. Click the plus icon to add a new license assignment.



6. Select the controller and license type.
7. Enter a quantity.



8. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.
9. After assigning a license, you must click Checkout to activate it.

### License Assignment



Upon successful checkout, the screen will update the number of seats.

### License Assignment



10. Repeat this process for each controller by first selecting it from the area menu, and then assigning licenses to it.

## Other License Operations

- To delete an existing license assignment, click the X icon.
- To edit an existing license assignment, click the edit icon.

### License Assignment

















Checkout				
Controller	License	Quantity	Seats	
BrewHouse1	FTBU01	1	1	  

## Create Units and Tanks

## Length and Offset

Now that you have created Areas and assigned licenses, the next step is to create units within each area. Before adding units, it's important to understand FactoryTalk Brew's concepts of Offset and Length. When you create units within an area, FactoryTalk Brew creates an array within the controller code to store recipe parameters associated with each unit. The offset and length settings dictate how FactoryTalk Brew reserves specific ranges within the recipe parameter array for each unit. The unit's length indicates how many recipe parameters it will have. The unit's offset indicates the first array position for its recipe parameters. Consider the following example.

### Units

Unit#	Description	Name	Tank Unit	Offset	Length	
1	Malt Handling	_uMaltHandling	<input type="checkbox"/>	0	100	 
2	Mash Tun	_uMashTun	<input type="checkbox"/>	100	100	 
3	Lauter Tun	_uLauterTun	<input type="checkbox"/>	200	300	 
4	Kettle 1	_uKettle1	<input type="checkbox"/>	500	100	 
5	Kettle 2	_uKettle2	<input type="checkbox"/>	600	100	 
6	Utility	_uUtility	<input type="checkbox"/>	700	100	 
7	CIP	_uCIP	<input type="checkbox"/>	800	100	 
9	Kettle Common	_uKettleCom	<input type="checkbox"/>	900	100	 

The first unit is Malt Handling. Malt Handling is expected to have no more than 100 recipe parameters. Malt Handling parameters will be the first ones in the array. Malt Handling will have an offset of 0 and a length of 100.

For each subsequent unit added, the next unit's offset must be derived by adding the prior unit's length and offset values. In this example, the second unit is the Mash Tun. The previous unit (Malt Handling) started with an offset of 0 and a length of 100. The offset for the Mash Tun will be  $0 + 100 = 100$ . The Mash Tun is also expected to have no more than 100 parameters, so its length will be 100.

The offset for the third unit (Lauter Tun) will start at 200 (Mash Tun Offset 100 + Mash Tun Length 100). The Lauter Tun is expected to have significantly more recipe parameters, so its length is set as 300. The same pattern continues for the rest of the units: Kettle 1 Offset = Lauter Tun Offset + Lauter Tun Length = 200 + 300 = 500.

**IMPORTANT**

There is no limit on the number of recipe parameters in the application. A length of 100 parameters is typically sufficient for all units, except for Lauter Tuns, which typically require 300 recipe parameters. However, at this point in the configuration process, it is acceptable to use values that are higher than these typical values if desired.

## Creating Units

Make sure the desired Area (System) is selected

1. From Unit Config, choose Units.



2. Click the add icon to add a new unit.

### Units

Unit#	Description	Name	Tank Unit	Offset	Length	
						+

The Add New Unit dialog box appears.

3. Enter the appropriate data into the Add New Unit Dialog. When entering the Unit Name, note that the following restrictions apply:
  - Upper and lowercase letters A...Z
  - Numbers 0...9
  - Underscores, no consecutive or trailing
  - May not begin with a number
  - No spaces
  - Maximum 40 characters

If the unit is a tank, make sure the Tank Unit box is checked. Refer to [Chapter 7](#) for details on the functionality unique to Tank Units.

4. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### Other Unit Operations

- To delete an existing unit, click the X icon.
- To edit an existing unit, click the edit icon.

#### Units

Unit#	Description	Name	Tank Unit	Offset	Length	+   @   ⚙   ⏴   ⏵
1	Malt Handling	_uMaltHandling	<input type="checkbox"/>	0	100	

Any changes made to the FactoryTalk Brew configuration after creating and downloading the initial controller code must be downloaded to the controller. To download changes to the units, click the download icon.

#### Units

Unit#	Description	Name	Tank Unit	Offset	Length	+   @   ⚙   ⏴   ⏵
1	Malt Handling	_uMaltHandling	<input type="checkbox"/>	0	100	
2	Mash Tun	_uMashTun	<input type="checkbox"/>	100	100	
3	Lauter Tun	_uLauterTun	<input type="checkbox"/>	200	300	











## Bulk Handling of Units

For cases where there many items to create, FactoryTalk Brew offers the capability to export and import to/from CSV files. For example, suppose you want to copy a set of units from one brewhouse system to another.

### Export File

1. Click the export icon to create an export file.

#### Units

Unit#	Description	Name	Tank Unit	Offset	Length	
1	Malt Handling	_uMaltHandling	<input type="checkbox"/>	0	100	
2	Mash Tun	_uMashTun	<input type="checkbox"/>	100	100	
3	Lauter Tun	_uLauterTun	<input type="checkbox"/>	200	300	
4	Kettle 1	_uKettle1	<input type="checkbox"/>	500	100	
5	Kettle 2	_uKettle2	<input type="checkbox"/>	600	100	
6	Utility	_uUtility	<input type="checkbox"/>	700	100	
7	CIP	_uCIP	<input type="checkbox"/>	800	100	
9	Kettle Common	_uKettleCom	<input type="checkbox"/>	900	100	

2. Save the file. A CSV file that matches the table layout is created.

```

FTBrewBHDemo Units.csv - Notepad
File Edit Format View Help
Controller,Unit,Description,Offset,Length
FTBrewBHDemo,_uMaltHandling,Malt Handling,0,100
FTBrewBHDemo,_uMashTun,Mash Tun,100,100
FTBrewBHDemo,_uLauterTun,Lauter Tun,200,300
FTBrewBHDemo,_uKettle1,Kettle 1,500,100
FTBrewBHDemo,_uKettle2,Kettle 2,600,100
FTBrewBHDemo,_uUtility,Utility,700,100
FTBrewBHDemo,_uCIP,CIP,800,100
FTBrewBHDemo,_uKettleCom,Kettle Common,900,100
    
```

### Edit file

If you are adapting this configuration for another system, you can edit the file in Excel® or a text editor. Alter the controller name to match the destination system as well as any other desired changes.

```

FTBrewBHDemo Units.csv - Notepad
File Edit Format View Help
Controller,Unit,Description,Offset,Length
BrewHouse1,_uMaltHandling,Malt Handling,0,100
BrewHouse1,_uMashTun,Mash Tun,100,100
BrewHouse1,_uLauterTun,Lauter Tun,200,300
BrewHouse1,_uKettle1,Kettle 1,500,100
BrewHouse1,_uKettle2,Kettle 2,600,100
BrewHouse1,_uUtility,Utility,700,100
BrewHouse1,_uCIP,CIP,800,100
BrewHouse1,_uKettleCom,Kettle Common,900,100
    
```

### Import file

1. To import the CSV file into a system, use the Area menu to select the destination System.
2. From the Unit Config menu, choose Units.

3. Click the Import icon in the units screen.



4. Click browse and select the CSV file.
5. Click Upload.

### Import Units



6. After the import completes, you must edit the unit numbers. The unit numbers are not included in the import/export process. Also, for any new units created by the import, you must manually create an MCtrl device. When you create units directly through the web interface, the system automatically creates a corresponding MCtrl device by default.

### Units

Unit#	Description	Name	Tank Unit	Offset	Length	+   @   [ ]
0	Malt Handling	_uMaltHandling	<input type="checkbox"/>	0	100	<a href="#">/</a> <a href="#">x</a>
0	Mash Tun	_uMashTun	<input type="checkbox"/>	100	100	<a href="#">/</a> <a href="#">x</a>
0	Lauter Tun	_uLauterTun	<input type="checkbox"/>	200	300	<a href="#">/</a> <a href="#">x</a>
0	Kettle 1	_uKettle1	<input type="checkbox"/>	500	100	<a href="#">/</a> <a href="#">x</a>
0	Kettle 2	_uKettle2	<input type="checkbox"/>	600	100	<a href="#">/</a> <a href="#">x</a>
0	Utility	_uUtility	<input type="checkbox"/>	700	100	<a href="#">/</a> <a href="#">x</a>
0	CIP	_uCIP	<input type="checkbox"/>	800	100	<a href="#">/</a> <a href="#">x</a>
0	Kettle Common	_uKettleCom	<input type="checkbox"/>	900	100	<a href="#">/</a> <a href="#">x</a>

## Create Devices within the Units

Now that you have created Units, the next step is to create Devices within each Unit.

1. From the System Config menu, choose Devices.



2. Select the appropriate Unit from the drop-down menu.
3. Select the appropriate Type from the drop-down menus. If you need guidance on the available device types and their properties, refer to [Create the Physical and Virtual Control Devices on page 145](#).
4. Click the add icon to add a new device.

### Devices



The Add New Device dialog box appears.

5. Enter the appropriate data into the Add New Device Dialog.
6. When entering the Device Name, note the following restrictions apply:
  - Upper and lowercase letters A through Z
  - Numbers 0 through 9
  - Underscores, no consecutive or trailing
  - May not begin with a number
  - No spaces
  - Max 40 characters

- If the device must be controlled by another unit, make sure the Primary? box is unchecked. In this case, use the drop-down boxes to select the Source Area, Source Unit, and Source Device that control the device you are adding.

- Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### Other Device Operations

- To delete an existing device, click the X icon.
- To edit an existing device, click the edit icon.

#### Devices

Unit:  Total: 1

Type:

Name	Description	Index	Primary?	Source Unit	Source Device	
FL_Seq03_Complete	Dispense Sequence Complete	301	<input checked="" type="checkbox"/>			 

Note that prior to downloading any items to the controller, you must first generate the initial controller code and verify that the applicable devices are available in the controller.

## Configure Parameters Within Units

### Introduction to Parameters

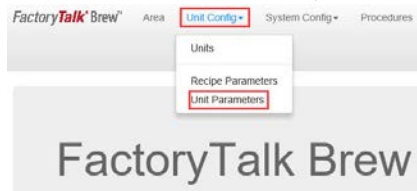
The screens to configure Unit Parameters and Recipe Parameters share similar features and functionality.

To configure the parameter information, follow these steps:

- To create a unit, See [Unit Parameters Creation on page 117](#)
- To create a recipe, See [Recipe Parameters Creation on page 117](#)
- To download changes, See [Download Parameter Changes on page 123](#)
- To upload, See [Upload Parameters on page 123](#)
- To import, See [Import Parameter on page 124](#)
- To export, See [Export Parameter on page 124](#)

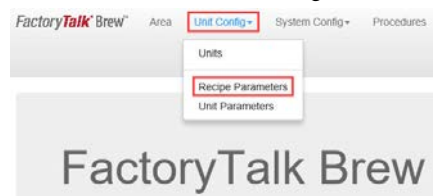
#### Unit Parameters Creation

1. From the Unit Config menu, choose Unit Parameters.



#### Recipe Parameters Creation

1. From the Unit Config menu, choose Recipe Parameters.



[Figure 16](#) shows an example of the Unit Parameters screen. The note in the yellow banner points out a feature of unit parameters. Every unit parameter must have a corresponding device created in the configuration. FactoryTalk Brew can create these parameter devices automatically as long as the unit parameter contains ‘\_\_UP\_\_’ in its name.

**Figure 16 - Unit Parameter Screen**

#### Unit Parameters

Only unit parameters with "\_\_UP\_\_" in the Name can be created in device.

Operations: + | A | X

Malt Handling | Mash Tun | **Lauter Tun** | Kettle 1 | Kettle 2 | Utility | CIP | Kettle Common | New Unit

Total Parameters: 41

Name	Description	Setpoint	Scale	Unit	Offset	IsEnable	IsWritable	
MT_UP_DrainTime	Drain Time	0.00	1	secs	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">/</a> <a href="#">X</a>
MT_UP_P103Heat	P103 Heating Speed	80.00	1	%	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">/</a> <a href="#">X</a>
MT_UP_P103Recirc	P103 Recirculation Speed	60.00	1	%	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<a href="#">/</a> <a href="#">X</a>

As with Unit Parameters, Recipe parameters must have corresponding devices created, as shown in [Figure 17](#). FactoryTalk Brew can create the recipe parameter devices automatically for all recipe parameters that contain ‘\_\_RC\_\_’ in their name.

If you installed the sample application, you might notice that the parameters do not always follow these 'RC' and 'UP' naming conventions. The sample project was adapted from an earlier version of FactoryTalk Brew and is for demonstration purposes only.

**Figure 17 - Recipe Parameters**

Recipe Parameters

Only recipe parameters with "\_\_RC\_" in the Name can be created in device

Operations: + | A | B | C | D | E

Malt Handling Mash Tun Lauter Tun Kettle 1 Kettle 2 CIP

Total Parameters: 29

Name	Description	Scale	Unit	Offset	Type	Setpoint Enable?	Setpoint Writable?	Report Enable	Report Writable?	
RC_HMI_Comment2	MASH STARTUP	1		0	Decimal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<a href="#">/</a> <a href="#">x</a>
MT_RC_FoundTemp	Foundation Water Temperature	1	°C	1	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<a href="#">/</a> <a href="#">x</a>
MT_RC_FoundVol	Foundation Water Volume	1	HL	2	Decimal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<a href="#">/</a> <a href="#">x</a>

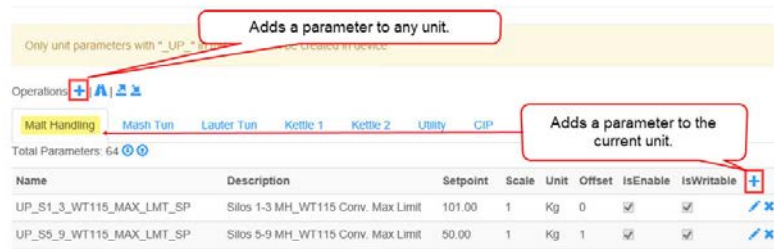
Once you have created all the necessary unit parameters, as described in [Create Parameters on page 119](#), you must click the create parameter icon to create the corresponding unit parameter devices. Likewise, after creating all the necessary recipe parameter devices, click the create parameter icon to create the corresponding recipe parameter devices. When you click the create parameter icon, the corresponding Report Devices are also created.

<p>Unit Parameters</p> <p>Only unit parameters with "__UP_" in the Name can be created in device</p> <p>Operations: +   A   B   C   D   E</p> <p>Malt Handling Mash Tun Lauter Tun Kettle 1 Kettle 2</p> <p>Total Parameters: 64 <a href="#">/</a> <a href="#">x</a></p>	<p>Recipe Parameters</p> <p>Only recipe parameters with "__RC_" in the Name can be created in device</p> <p>Operations: +   A   B   C   D   E</p>
--	---

## Create Parameters

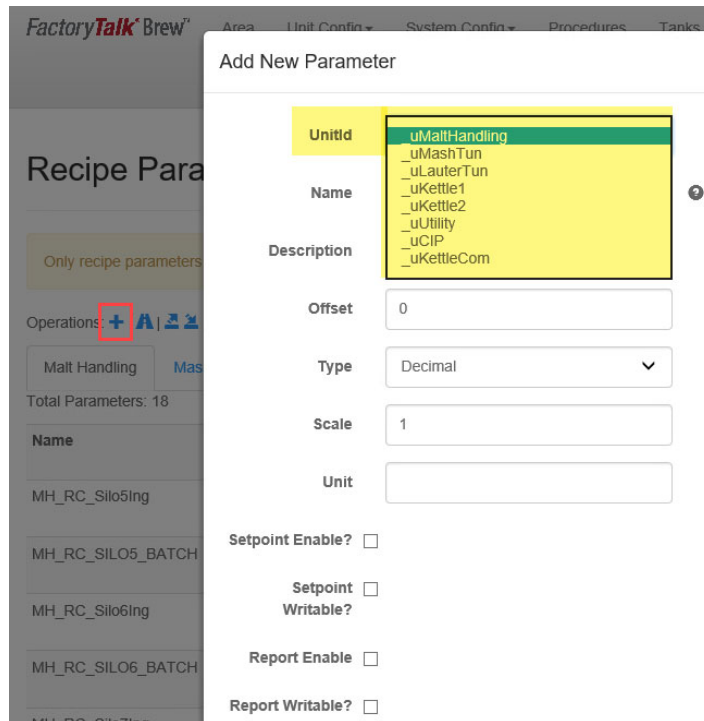
On both the Unit Parameter screen and the Recipe Parameter screen there is one tab for each unit. Clicking on a tab brings up the list of parameters for that unit. There are two add icons on the screen. The left add icon creates a parameter in any user-selected unit. The right add icon creates a new parameter in the current unit.

### Unit Parameters

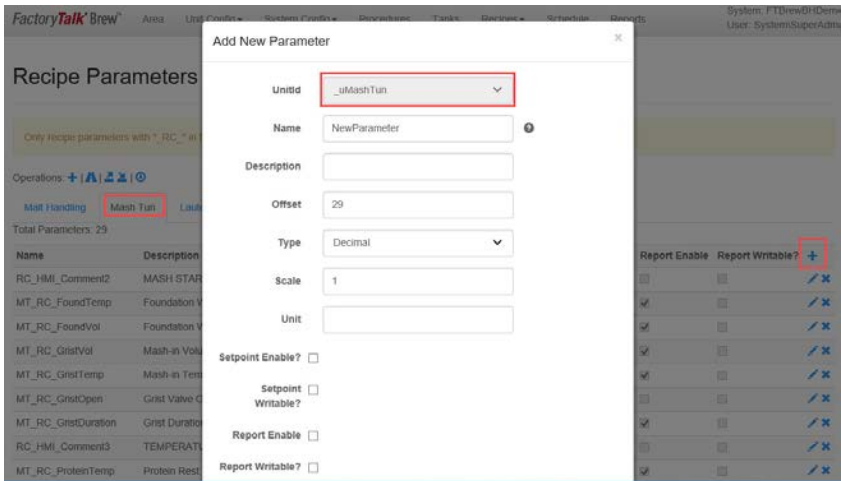


The resulting dialog is the same, except in one case the unit selection dialog box is enabled and in the other it is fixed on the current unit and disabled.

Add a new parameter, any unit. The UnitId drop-down is list enabled.



Add a new parameter, current unit. The UnitId drop-down list defaults to current selected tab and is disabled.



When entering the Parameter Name, note that the following restrictions apply:

- Upper and lowercase letters A...Z
- Numbers 0...9
- Underscores, no consecutive or trailing
- May not begin with a number
- No spaces
- Max 40 characters

As discussed earlier, keep in mind the ‘\_UP\_’ and ‘\_RC\_’ features when naming unit and recipe parameters, respectively.

1. To add unit parameters, click one of the add icons
2. Enter the information in the dialog box.
3. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

Note that in the Unit Parameter dialog:

- The offset indicates the parameter's position in the array, and must be unique for a given unit and type. For a given unit, each unit parameter must have a unique offset value.
- Scale will typically have a value of one. The exception is for time-based parameters, which should have a scale value expressed in terms of seconds. For example, if the unit of measure is minutes, the scale value would be 60; if the unit of measure is hours, the scale value would be 3600.



Add New Unit Parameter ×

---

Unit	<input type="text" value="_uMaltHandling"/>
Name	<input type="text" value="NewParameter"/> ⓘ
Description	<input type="text"/>
Scale	<input type="text" value="1"/>
Setpoint	<input type="text"/>
Unit	<input type="text"/>
Offset	<input type="text" value="100"/>
IsEnable	<input type="checkbox"/>
IsWritable	<input type="checkbox"/>

---

1. To add Recipe parameters, click one of the Add icons and fill out the dialog box.
2. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

Note that in the Recipe Parameter dialog:

- the offset indicates the parameter's position in the array, and must be unique for a given unit and type. For a given unit, each recipe parameter must have a unique offset value.

- Scale will almost always have a value of one. The exception is for time-based parameters, which should have a scale value expressed in terms of seconds. For example, if the unit of measure is minutes, the scale value would be 60; if the unit of measure is hours, the scale value would be 3600.

Add New Parameter ✕

---

Unitid:

Name:  ⊕

Description:

Offset:

Type:

Scale:

Unit:

Setpoint Enable?

Setpoint Writable?

Report Enable?

Report Writable?

---

### Other Parameter Operations

- To delete an existing parameter, click the delete icon.
- To edit an existing parameter, click the edit icon.



Any changes made to the FactoryTalk Brew configuration after creating and downloading the initial controller code must be downloaded to the controller.



Note that prior to downloading any items to the controller, you must first generate the initial controller code and verify that the applicable devices are available in the controller.

### Download Parameter Changes



To download changes to the parameters, click the download icon. Note that the download icon is located in different places on the unit and recipe parameter screens.

#### Unit Parameters

Only unit parameters with "\_UP\_" in the Name can

Operations: + | A |  | 




Malt Handling Mash Tun Lauter Tun

Total Parameters: 41  

Name	Description
------	-------------

#### Recipe Parameters

Only recipe parameters with "\_RC\_" in the Name can be created in device

Operations: + | A |  |  | 

Malt Handling Mash Tun Lauter Tun Kettle 1 Kettle 2 CIP

Total Parameters: 18



Name	Description	Scale	Unit	Offset	Type
------	-------------	-------	------	--------	------

### Upload Parameters




1. To upload unit parameters from the controller, click the upload icon on the Unit parameters screen.

#### Unit Parameters

Only unit parameters with "\_UP\_" in the Name c

Operations: + | A |  |  | 

Malt Handling Mash Tun Lauter Tun

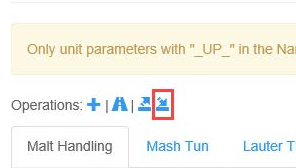
Total Parameters: 41   

The process for importing and exporting parameters works the same as it does for other configuration items.

### Import Parameter

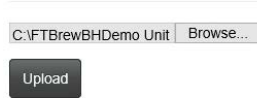
1. To import parameters, click the import icon.

### Unit Parameters



2. Browse and select the import file.
3. Click upload.

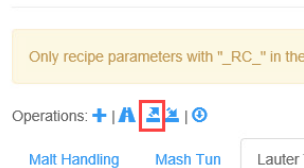
### Import Unit Parameters



### Export Parameter

1. To export parameters, click the export icon.

### Recipe Parameters



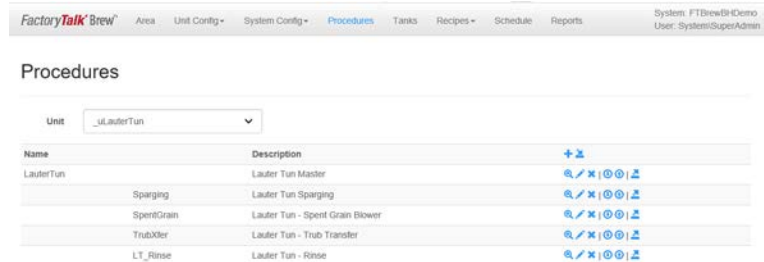
2. The browser will prompt you for a location to save the file.

## Procedures

After creating all the parameters, the next step is to create one or more procedures for each unit.

To access procedures, follow these steps.

1. From the menu, select Procedures. The Procedures dialog box appears.



2. Select the desired unit from the Unit pull-down menu.

## Procedure Configuration

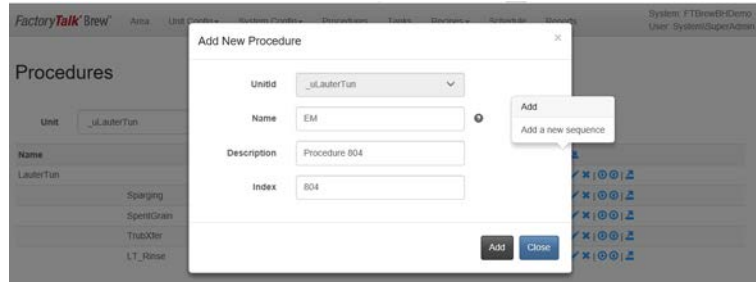
To configure the procedure information, follow these steps:


- To add a procedure, See [Add a Procedure on page 126](#)
- To edit a procedure, See [Edit a Procedure on page 127](#)
- To delete a procedure, See [Delete a Procedure on page 128](#)
- To export a procedure, See [Export a Procedure on page 128](#)
- To import a procedure, See [Import a Procedure on page 128](#)
- To download a procedure, See [Download a Procedure on page 128](#)
- To upload a procedure, See [Upload a Procedure on page 128](#)

### Add a Procedure

To create a new procedure, follow these steps.

1. Click the plus icon. The Add New Procedure dialog box appears.



2. In the Add New Procedure dialog box, enter the required information.
3. Click Add to save the new procedure.
4. To add sequence detail for the new procedure, click the  icon to the right of the new procedure.
5. Click the add icon to add step information for the new procedure.

The Add New Step dialog box appears.



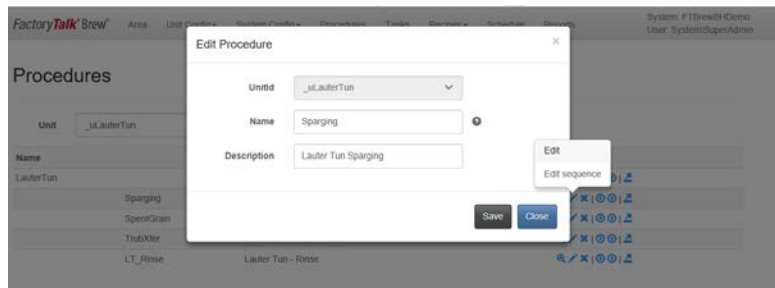
6. Enter Step, Name, and Time as needed.
7. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.


### *Edit Procedure*

To edit a Procedure, follow these steps:

1. Click the edit icon to the right of an existing procedure.

The Edit Procedure dialog box appears.



2. In the Edit Procedure dialog box, modify the information as needed.
3. Click Save. To cancel, click Close or the X in the upper right-hand corner of the dialog box
4. To view sequence detail for the procedure, click the  icon to the right of the procedure.

### *Edit Steps and Add Interlocks*

To edit steps and add interlocks, follow these steps:

1. Click the edit icon to the right of the procedure.

The Edit Step dialog box appears.

2. To edit and add interlocks to the steps, click the edit icon to the right of the procedure.

3. In the Edit Step dialog box, modify the information as needed.
4. Click Save. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### *Delete a Procedure*

To delete a procedure, follow these steps:

1. Click the delete icon.

The Delete Procedure dialog box appears.

2. Click Delete. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### *Export a Procedure*

To export a procedure to a csv file, follow these steps:

1. Click the export icon.
2. Enter a file name.
3. Click Save to export the procedure to an .xml file.

### *Import a Procedure*

To import procedure from a csv file, follow these steps:

1. Click the import icon.
2. Select a CSV file that has a procedure stored in it,
3. Click Open.

### *Download a Procedure*

---

**IMPORTANT** Only procedures in a 'Hold' or 'Idle' state are available for download.

---

To download a procedure to the controller, click the download icon. Note that prior to downloading any items to the controller, you must first generate the initial controller code and verify that the applicable devices are available in the controller.

### *Upload a Procedure*

1. To upload a procedure from the controller, click the upload icon.



## Controller Code

### Generate Initial Controller Code and Download it to the Controller

At this point in the workflow, you have created all the required configuration entities: controllers, license assignments, units, devices, unit parameters, recipe parameters, and procedures. You are now ready to generate the initial controller code and download it to the controller.

### Import the Templates

Prior to generating controller code for the first time, you must import templates into the system, as a one-time setup task. There are two required files, both in L5X format. One file for a controller and one file for a unit. The L5X files are located in the FactoryTalk Brew installation media, within the \FTBrew\_Control\_Application\_Files\Template for Import folder.

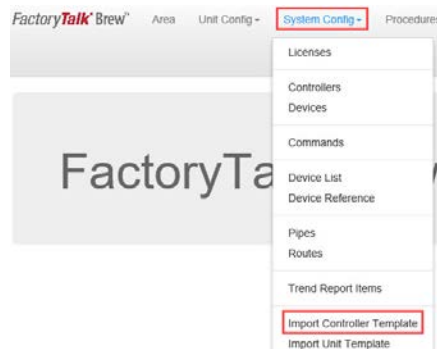
Note that the parent folder contains two additional files:

- A readme file that contains details on software versions and additional setup instructions.
- The ACD file that was used as the source for generating the L5X templates. This ACD file has all the necessary options and should not be modified. Contact your Rockwell Automation representative for guidance if controller memory becomes an issue.

Perform the following steps to use the L5X files to set up the system.

#### *Import Controller Template*

1. From the System Config menu, choose Import Controller Template.



2. Click the browse button and navigate to the import folder within the installation media.
3. Select the L5X Controller Template file and click Open.
4. Click Import.

Import Controller Template (.L5X)

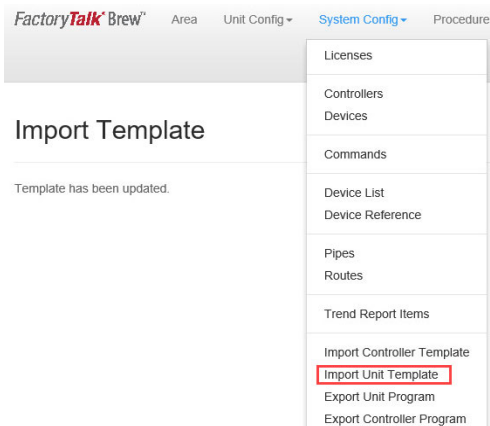
C:\Install Files\FTB-RelC\ Browse...

Import

You will receive a message that the template has been updated.

### Import Unit Template

1. From the System Config menu, choose Import Unit Template.



2. Click browse and navigate to the import folder in the installation media.
3. Select the L5X Unit Template file and click Open.
4. Click Import.

You will receive a message that the template has been updated. The system is now ready to generate controller code for FactoryTalk Brew, based on user inputs to the web interface.

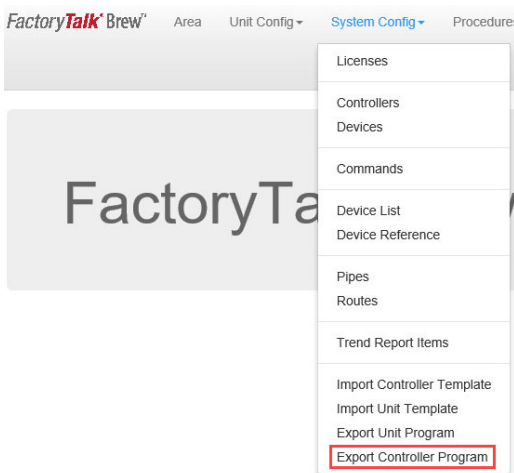
### Creating the Controller Code

To create controller code from the web interface, you must export a controller program to an L5X format and then load it into RSLogix.

#### Export Controller Program

Perform the following steps:

1. From the System Config menu, choose Export Controller Program.



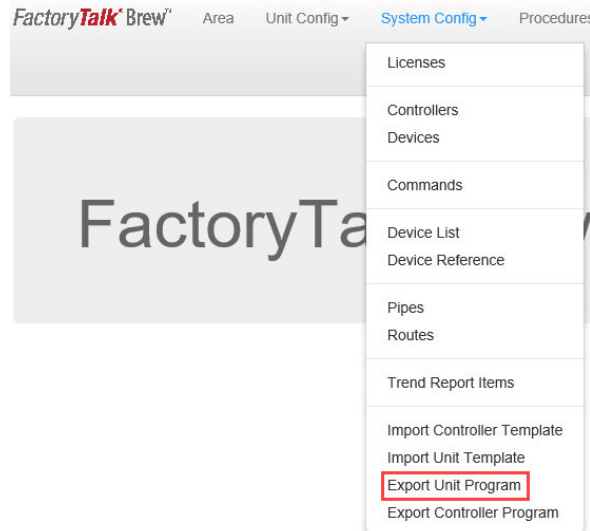
The browser will prompt you for a location to save the resulting file.

2. Move the resulting file to the EWS server and use it to create an ACD file for use in the controller.

### *Export Unit Program*

If you only need to create a single unit program, perform the following:

1. From the System Config menu, choose Export Unit Program.



2. Use the Unit drop-down menu to select the desired unit.

### Export Unit Program (.L5X)

Unit  ▼

3. Click Export.

The browser will prompt you for a location to save the resulting file.

4. Move the resulting file to the EWS server and use it to create or update an ACD file for use in the controller.

## Commands

Commands are the building blocks to create procedures. To view a reference table of all available commands:

1. From the System Config menu, choose Commands.

Name	Description	Type	ParamNumber	Param1	Param2	Param3	Param4
ERI	Jump next if operator acknowledge	INT	0				
ANP	Jump next if all conditions TRUE	INT	0				
JN	Jump next if condition TRUE	INT	1	DG			
JS	Jump to step (Param2) if condition (Pa	INT	2	DG	CN		
JGC	Jump next step if Param1 > Constant	INT	2	AN	CN		
JLC	Jump next step if Param1 < Constant	INT	2	AN	CN		
JGV	Jump next if Param1 > Param2	INT	2	AN	AN		
JEV	Jump next if Param1 = Param2	INT	2	AN	AN		
JEC	Jump next if Param1 = Constant	INT	2	AN	CN		
JNMEC	Jump next if Mode Value = Constant	INT	2	AN	CN		
JNMEV	Jump next if Mode Value = Variable	INT	2	AN	AN		
AND	Jump next if both conditions TRUE	INT	2	DG	DG		
JGOC	Jump next if Param1 - Param2 > Constant	INT	3	AN	AN	CN	
JSLC	Jump to step (Param3) if Param1 < Constant	INT	3	AN	CN	CN	
JSEV	Jump to step (Param3) if Param1 = Param2	INT	3	AN	AN	CN	
JSGEV	Jump to step (Param3) if Param1 >= Param2	INT	3	AN	AN	CN	

The Commands screen appears

## Device List

FactoryTalk Brew provides a list of all the devices that have been created in the configuration. To view a reference table of all devices:

1. From the System Config menu, choose Device List.

Unit	Type	Name	Index	Primary?	Source Unit	Source Device
_uMathHandling	MPar	EP_S1_3_WT115_M	T115 Conv. Max	0		
_uMathHandling	MPar	EP_S5_9_WT115_M	T115 Conv. Max	1		
_uMathHandling	MPar	EP_MH_M115_LDT_1	ing Spd Silo 1-3	2		
_uMathHandling	MPar	EP_MH_M115_LD2_1	ing Spd Silo 5-9	3		
_uMathHandling	MPar	EP_MH_M115_DIS_S	arge Spd	4		
_uMathHandling	MPar	EP_MH_MIN_FREEE		5		
_uMathHandling	MPar	EP_MH_LOW_LIMIT	w Limit	6		
_uMathHandling	MPar	EP_MH_SILO1_LL		8		
_uMathHandling	MPar	EP_MH_SILO1_HL	MH Silo 1 High Limit	9		
_uMathHandling	MPar	EP_MH_SILO2_LL	MH Silo 2 Low Limit	10		
_uMathHandling	MPar	EP_MH_SILO2_HL	MH Silo 2 High Limit	11		
_uMathHandling	MPar	EP_MH_SILO3_LL	MH Silo 3 Low Limit	12		
_uMathHandling	MPar	EP_MH_SILO3_HL	MH Silo 3 High Limit	13		
_uMathHandling	MPar	EP_MH_M115_RUN_TIME1	Silo 5-9 Drag Scd Max Run Time	15		
_uMathHandling	MPar	EP_MH_M115_RUN_TIME2	Silo 1-3 Drag Scd Max Run Time	16		
_uMathHandling	MPar	EP_MH_M115_RUN_TIME_SP		17		

The Device List appears.

### Sort Order

You can change the sort order of the list by clicking on the column headings.

Similar to other screens, the device list provides the ability to:

- Export import the devices to/from CSV files
- Download all devices to the controller
- Download an individual device to the controller



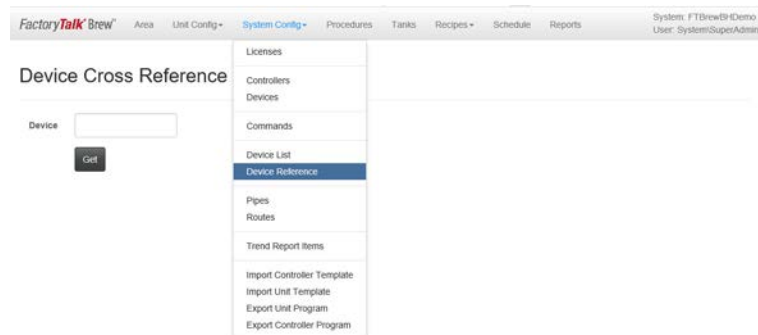
Note that prior to downloading any items to the controller, you must first generate the initial controller code and verify that the applicable devices are available in the controller.

### Device Reference

The device reference function allows users to generate a list of all the places in procedures where an individual device is used.

To access device cross reference information:

1. From the System Config menu, choose Device Reference.



The Device Cross Reference screen appears.

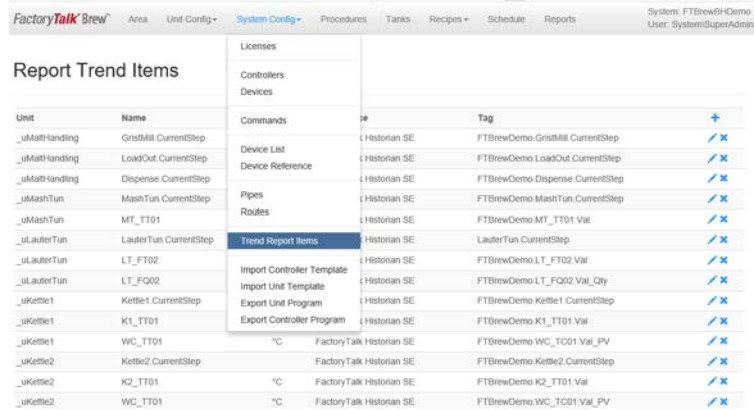
2. Type a device name
3. Click Get to view all the procedures that use the device.

## Report Trend Items

Use report trend items to place parameters into trend reports.

To access device cross reference information:

1. From the System Config menu, choose Trend Report Items.

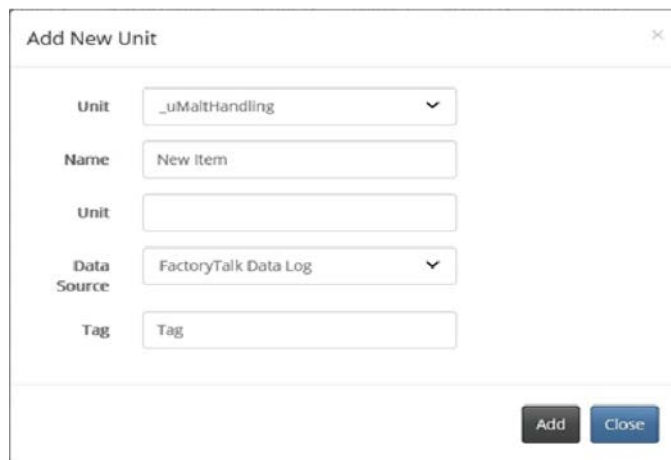


The batch report items that have been configured are shown on the Report Trend Items screen.

### Add Report/Trend Item

To add a new report/trend item, follow these steps.

1. Click the Add icon.



The Add Unit dialog box appears.

2. In the Add New dialog box, enter the required information.

Note that there are two options for adding report items, depending on whether the system will use FactoryTalkViewSE Datalog or FactoryTalk Historian SE. The format for designating tags varies slightly for each. For example:

- Datalog ::[FTBrewBHDemo]Program:\_uLauterTun.LT\_FT02.Val
  - Historian - FTBrewDemo.LT\_FT02.Val
3. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### *Edit a Report/Trend Item*

To edit a report/trend item, follow these steps:

1. Click the edit icon.

The Edit dialog box appears.

2. In the Edit Unit dialog box, modify the report/trend item information as needed.
3. Click Save. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### *Delete a Report/Trend Item*

To delete a report/trend item, follow these steps:

1. Click the delete icon.

The Delete Report Item dialog box appears.

2. Click Delete to permanently remove the report/trend item. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

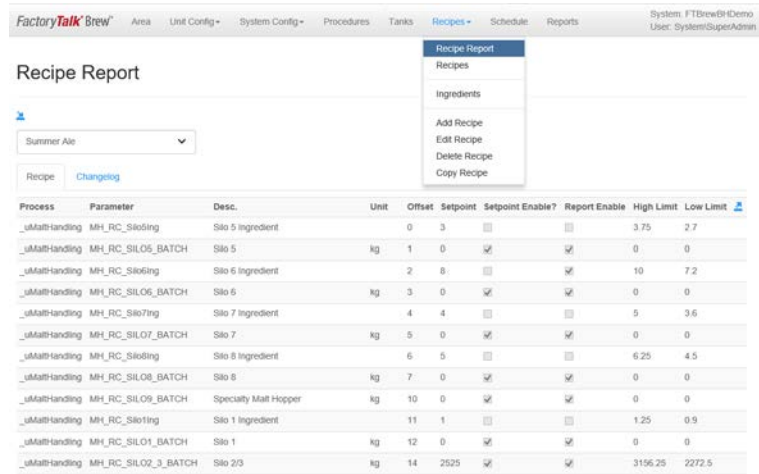
# Recipes

Use Recipes to create recipes in multiple areas.

## Recipe Report

To access recipe list information, follow these steps:

1. From the Recipes menu, choose Recipe Report.

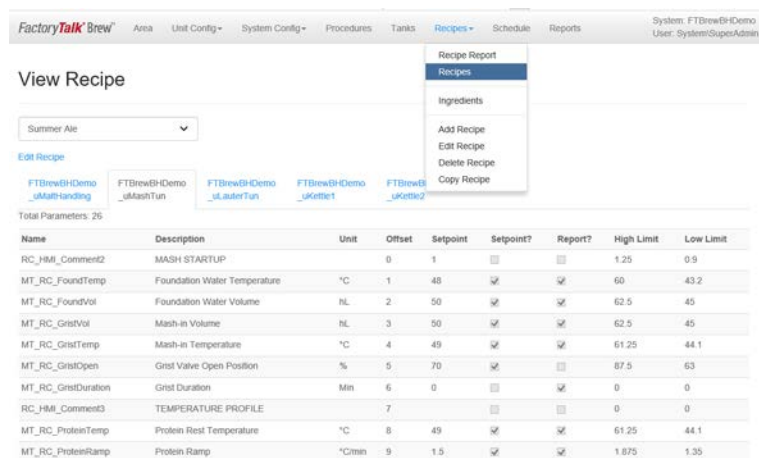


The Recipe Report screen appears and shows the list of recipes available for all the Units. The changelog tab allows users to view the history of all changes made to the selected recipe.

## Recipe

To view the list of available recipes in the selected Unit, follow these steps:

1. From the Recipes menu, choose Recipes.



To view recipe parameters in other Units, click the desired tab.



## Recipe Configuration

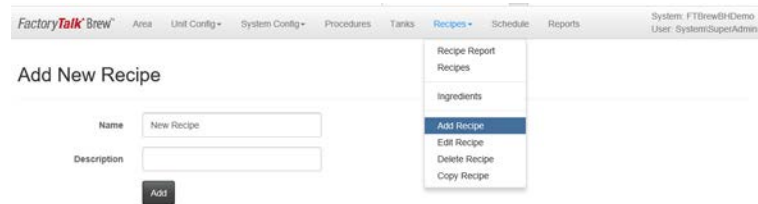
To configure the procedure information, follow these steps:

- To add a Recipe, See [Add Recipe on page 137](#)
- To edit a Recipe, See [Edit Recipe on page 138](#)
- To delete a Recipe, See [Delete Recipe on page 139](#)
- To copy a Recipe, See [Copy Recipe on page 139](#)

### Add Recipe

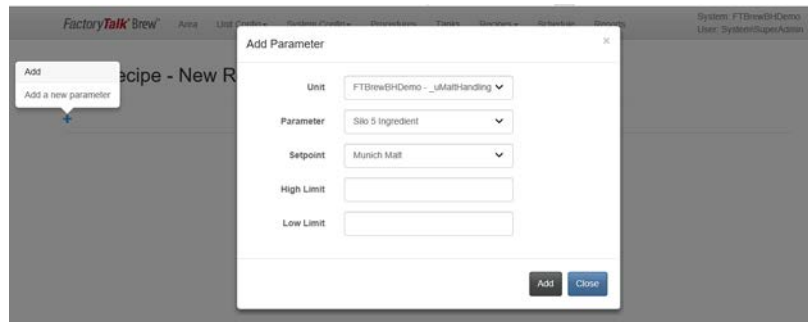
To add a recipe, follow these steps:

1. From the Recipes menu, choose Add Recipe.



The Add New Recipe dialog box appears.

2. Enter the name and description for the recipe and click Add.
3. The Edit Recipe - New Recipe dialog box appears.
4. To add new parameters for the new recipe, click the add icon.

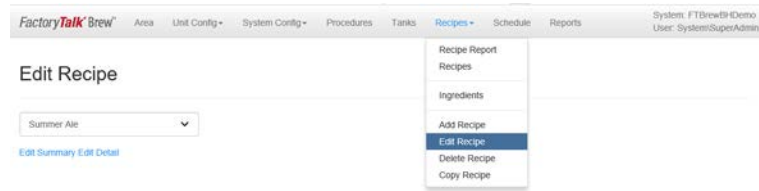


5. The Add Parameter dialog box appears.
6. In the Add Parameter dialog box, enter the Process, Parameter, Setpoint, High Limit, and Low Limit values.
7. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

## Edit Recipe

To edit a recipe, follow these steps:

1. From the Recipes menu, choose Edit Recipe.

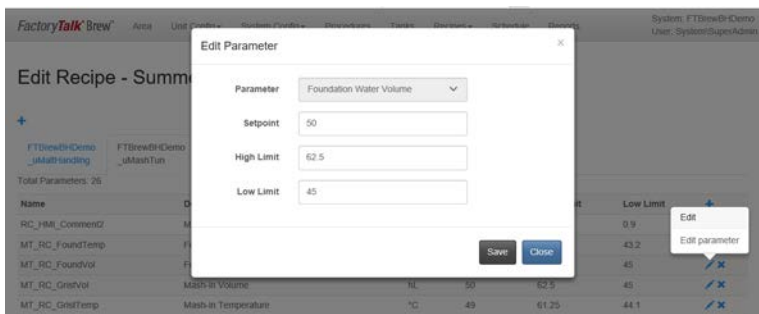


The Edit Recipe dialog box appears.

2. From the Edit Recipe menu, choose a recipe to edit and click Edit Detail.

The Edit Recipe - Summary dialog box appears

3. Click the edit icon next to the parameter that needs to be edited.



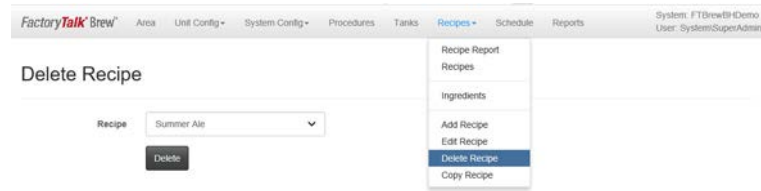
The Edit Parameter dialog box appears.

4. In the Edit Parameter dialog box, change the setpoint values as desired.
5. Click Save. To cancel, click Close or the X in the upper right-hand corner of the dialog box.
6. To delete a parameter, click the delete icon next to the unwanted parameter. Click Delete to confirm the deletion. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### Delete Recipe

To delete a recipe, follow these steps:

1. From the Recipe menu, choose Delete Recipe.



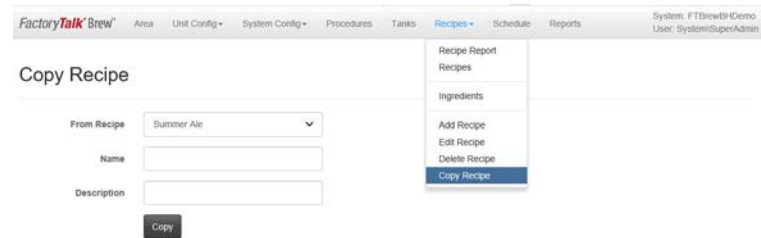
The Delete Recipe dialog box appears.

2. From the Recipe menu, choose a recipe to delete and click Delete. A dialog box will appear to ask you confirm or cancel.

### Copy Recipe

To copy a recipe, follow these steps.

3. From the Recipes menu, choose Copy Recipe.



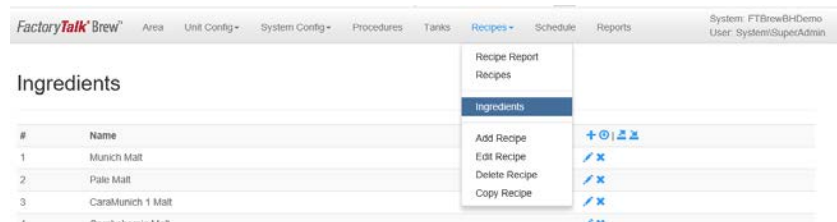
The Copy Recipe dialog box appears.

4. From the From Recipe menu, choose a recipe to copy.
5. Type a new recipe name and click Copy.

## Ingredients

To view the list of the ingredients available recipes, follow these steps:

From the Recipes pull-down menu, choose Ingredients to access the Ingredient list. The current ingredients that are available for recipes are shown on the Ingredients screen.



### Add an Ingredient

To add an ingredient, follow these steps:

1. Click the add icon.



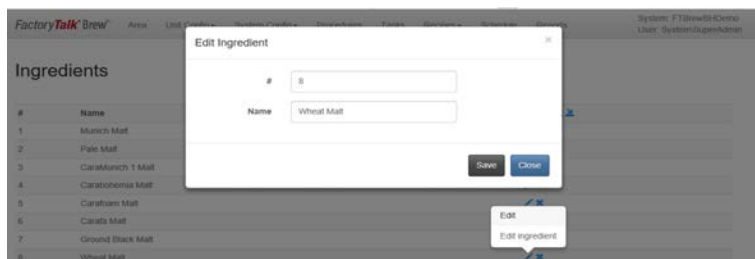
The Add New Ingredient dialog box appears.

2. In the Add New Ingredient dialog box, enter the required information.
3. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### Edit an Ingredient

To edit an ingredient, follow these steps:

1. Click the edit icon.



The Edit Ingredient dialog box appears.

2. In the Edit Ingredient dialog box, modify the ingredient information as needed.
3. Click Save. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### Delete an Ingredient

To delete an ingredient, follow these steps:

1. Click the delete icon.

The Delete Ingredient dialog box appears.

2. Click Delete. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### Download Ingredients

1. To download all ingredients to controller, click the download icon.

## Schedule

To access scheduled batch information, follow these steps.

1. Select an Area
2. Click Schedule to access the scheduled batches.

The Batch Schedule dialog box appears.

No.	Brand (Recipe)	Batch Year	Batch Number	Automatic Download?	Schedule Time	
1	Summer Ale	2020	19	<input checked="" type="checkbox"/>	2020-01-23 12:53	✎ ✕ ⌂
2	Shipman's IPA	2020	20	<input checked="" type="checkbox"/>	2020-01-23 12:53	✎ ✕ ⌂
3	Shipman's IPA	2020	21	<input checked="" type="checkbox"/>	2020-01-23 12:53	✎ ✕ ⌂

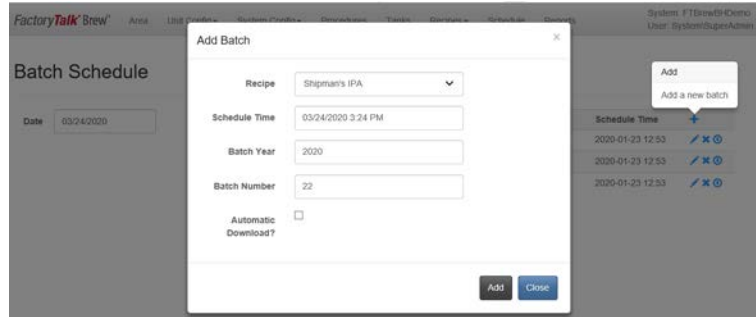
To configure the batch information, follow these steps:

- To add a batch, See [Add a Batch on page 142](#)
- To edit a batch, See [Edit a Batch on page 142](#)
- To delete a batch, See [Delete a Batch on page 142](#)

### Add a Batch

To add a new batch, follow these steps.

1. Click the add icon.



The Add Batch dialog box appears.

2. In the Add Batch dialog box, enter the required information.
3. Check Automatic Download to automatically download the selected batch when the conditions are met.
4. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box..

### Edit a Batch

To edit a batch, follow these steps:

1. Click the edit icon.

The Edit Batch dialog box appears.

2. In the Edit Batch dialog box, modify the information as needed.
3. Check/clear the Automatic Download checkbox as applicable.
4. Click Save. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### Delete a Batch

To delete a batch, follow these steps.

1. Click the delete icon next to the batch you want to delete.

The Delete Batch dialog box appears.

2. Click Delete to permanently remove the batch. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

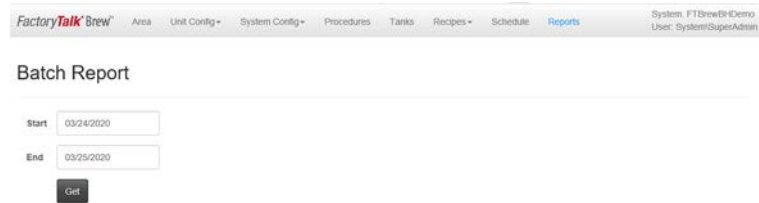
# Reports

Use Reports to access Batch reports.

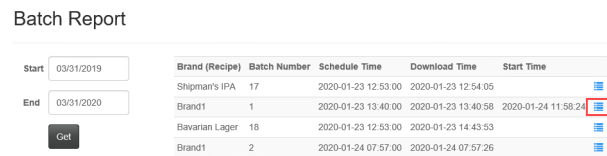
## Batch Reports

To access Batch reports, follow these steps.

3. Click Reports to access the Batch Report page.
4. Enter a start date and an end date for the report date range.
5. Click Get.



6. A list of available batches appears. To view the batch detail for a batch, click the view report icon on the far right.



## Logix Application Development

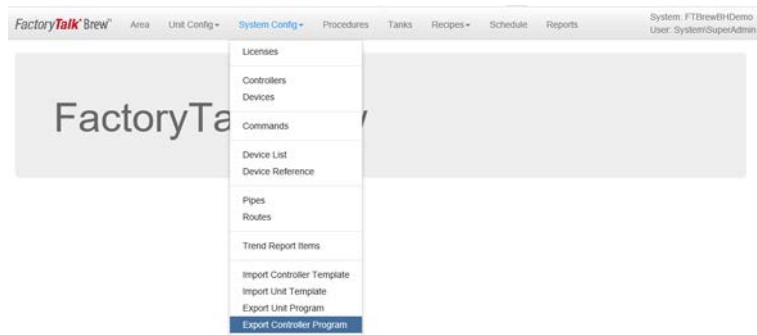
After using the web application to configure the brewery, the next step in the design process is to create the controller project file (ACD).

FactoryTalk Brew provides a sample ACD file that you can use as a guide for configuration. To use the sample project, deploy FTBrewBHDemo.ACD.

For instructions to deploy the Logix designer content, refer to the [ControlLogix User Manual](#).

### Create the Controller Program

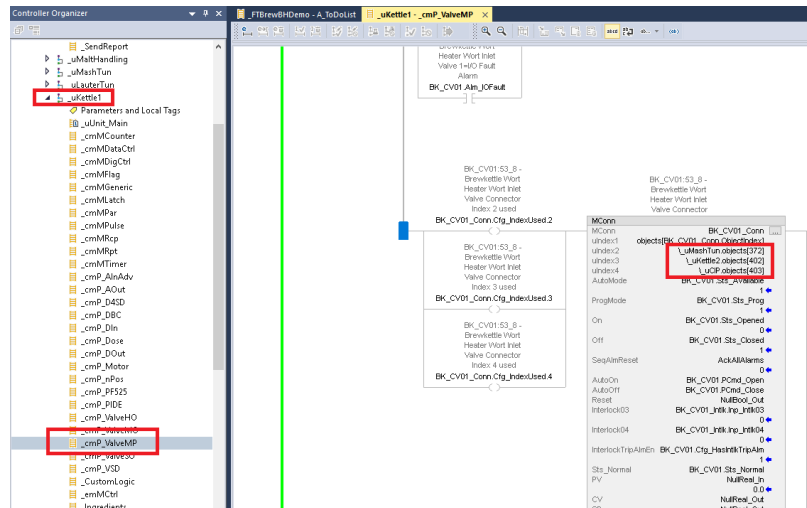
1. From the System Config menu, choose Export Controller Program.



The Export Controller Program will create a .L5X file which can be opened to generate an .ACD file in Studio 5000®.

There will be a routine called A\_ToDoList in the main program. Follow the instructions in that routine to complete the application development.

Note that Secondary devices will need to be entered in their MConn AOI indexes. For example, in the Sample Application the Brew Kettle has a primary valve (BK\_CV01) that is shared by the MashTun, Kettle2 and CIP (all secondary). Locate the AOI and enter the valve index for each of the configured valves as shown below.





Reference the index numbers from the device list on the web interface shown below.

_uMashTun	P_ValveMP	BK_CV01	Brewkettle Wort Heater Wort Inlet Valve	372	<input type="checkbox"/>
_uKettle1	P_ValveMP	BK_CV01	Brewkettle Wort Heater Wort Inlet Valve	323	<input checked="" type="checkbox"/>
_uKettle2	P_ValveMP	BK_CV01	Brewkettle Wort Heater Wort Inlet Valve	402	<input type="checkbox"/>
_uCIP	P_ValveMP	BK_CV01	Brewkettle Wort Heater Wort Inlet Valve	403	<input type="checkbox"/>

## Create the Physical and Virtual Control Devices

FactoryTalk Brew uses the PlantPAx Libraries for the physical devices. See [Figure 18](#).

Refer to the appropriate PlantPAx Library manuals for details about these devices.

**Figure 18 - Physical Devices**

P\_AInAdv  
P\_AOut  
P\_D4SD  
P\_DBC  
P\_DIn  
P\_Dose  
P\_DOut  
P\_Motor  
P\_nPos  
P\_PF525  
P\_PIDE  
P\_ValveHO  
P\_ValveMO  
P\_ValveMP  
P\_ValveSO  
P\_VSD  
RMPS

In addition to the PlantPAx libraries, FactoryTalk Brew uses the virtual control devices shown in [Figure 19](#).

**Figure 19 - Virtual Control Devices**

MCounter  
MCtrl  
MDataCtrl  
MDigCtrl  
MFlag  
MGeneric  
MLatch  
MPar  
MProfile  
MPulse  
MRcp  
MREM  
MRpt  
MTimer

For more information about FactoryTalk Brew specific libraries, see [FactoryTalk Brew Library of Process Objects on page 151](#).

## \_Conn Connector Device

The \_Conn connector device connects physical devices to virtual devices.

The \_Conn add-on module provides a connection between PlantPAx Device Modules and the FactoryTalk Brew Procedure Controller.

## Faceplate

To open the faceplate, click on a device and then click on the Display More Information button on the device faceplate.

---

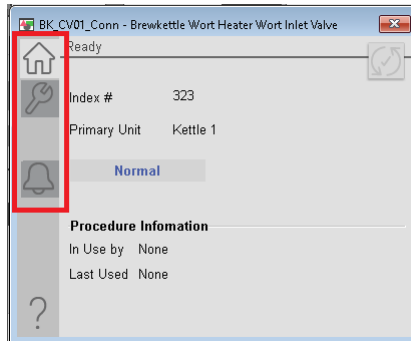
**IMPORTANT**

Access to certain configuration options and operations is protected by the access level of the user. For more information about protected access refer to Rockwell Automation Library of Process Objects, publication PROCES-RM002 Appendix E, for a list of security codes and descriptions.

---

The faceplate controls are organized in tabs, Home, Maintenance, and Alarms as shown in the following figure.

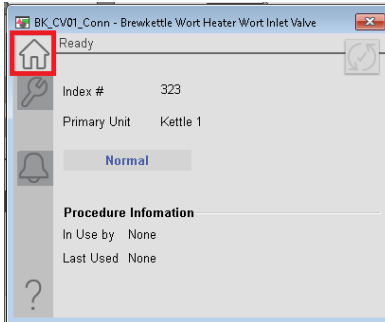
**Figure 20 - Faceplate Tabs**



### Home Tab

The Home tab contains read only information related to the device that it is connecting to. The Home tab provides the index number, the state of the MConn module, the sequence that is currently using the module, and the sequence that last used this device. See [Figure 21](#).

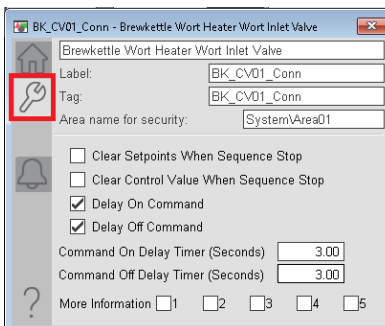
**Figure 21 - \_Conn Faceplate Panel; Home Tab**



### Maintenance Tab

The Maintenance tab contains two sections. Use the upper section of the Maintenance tab to rename the description and tag of the instance of \_Conn. Use the configurable parameters in the lower section of the Maintenance tab to customize how sequence commands are handled for the device that is linked with the connector.

**Figure 22 - \_Conn Faceplate Panel; Maintenance Tab**

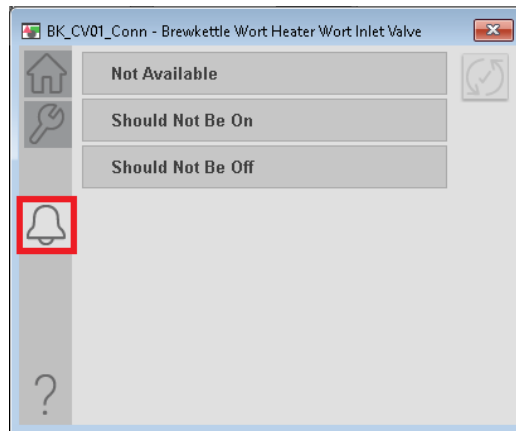


Parameters	Checked	Uncheck
Clear Setpoints When Sequence Stop	The Connector clears the setpoint command value as soon as the sequence stops calling for the device.	The Connector retains last known setpoint command value.
Clear Control Value When Sequence Stop	The Connector clears the control value as soon as the sequence stops calling for the device.	The Connector retains last known control value.
Delay On Command	The Connector delays the command ON request to the linked device. Display the Command ON Delay Timer parameter.	The Connector commands the link device to turn ON as soon as sequence command is received. Hide the Command ON Delay Timer parameter
Delay Off Command	The Connector delays the command OFF request to the linked device. Display the Command OFF Delay Timer parameter.	The Connector commands the link device to turn OFF as soon as sequence command is received. Display the Command OFF Delay Timer parameter.
Command ON Delay Timer	Visibility control by Delay On Command Timer setpoint in seconds—Min: 0 ; Max: 5	
Command OFF Delay Timer	Visibility control by Delay Off Command, Timer setpoint in seconds—Min: 0 ; Max: 5	

### Alarm Tab

The Alarm tab indicates the active alarms within the FTBrew Connector Module. These alarms are set by the sequencer.

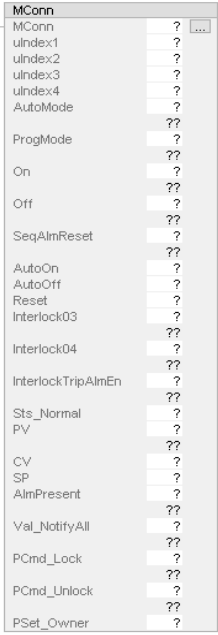
**Figure 23 - \_Conn Faceplate Panel; Alarm Tab**



## Controller Module

The \_Conn is a universal connector that works with PlantPAx device modules.

Samples of typical mapping for common devices are shown in [Module Mapping on page 150](#).

	Tag	Purpose
	MConn	Module tag. For HMI to display proper information of the MConn Add-On Instruction, the controller tagname for MConn tag must add suffix _Conn to the device tag. For example, if the device tag is Valve01, then MConn tag is Valve01_Conn.
	ulIndex1	Device number/index. (Primary) Assigned an array number to the device based on MConn.Objects data type.
	ulIndex2	Device number/index. (Secondary 1)
	ulIndex3	Device number/index. (Secondary 2)
	ulIndex4	Device number/index. (Secondary 3)
	AutoMode	This is linked with the Sts_Available signal from the device. The purpose is to let the sequencer know if this device is ready for use.
	ProgMode	This is linked with the Sts_Program signal from the device. The purpose is to let the sequencer know if this device is ready for use.
	On	Map to device on feedback.
	Off	Map to device off feedback. If it does not exist, map to device on feedback and set Cfg_InvertStatusOff to 1.
	SeqAlmReset	Map to global alarm acknowledge bit for alarm acknowledgment purposes.
	AutoOn	Map to program command on of device module.
	AutoOff	Map to program command off of device module.
	Reset	Map to program device reset command, usually only used for totalizer device.
	Interlock03 <sup>(1)</sup>	Map to one of the inputs of the P_Intlk module of the device, if applicable.
	Interlock04	Fault device if enabled
	InterlockTripAlmEn	Enables Intrelock04 on device for HMI status
	Sts_Normal	Status of PCmd_Normal from device
	PV	Process Value, if applicable.
	CV	Control Value, if applicable.
	SP	Setpoint, if applicable.
	AlmPresent	Map Device alarms into MConn to make sure the sequencer knows that the device has an alarm.
	Val_NotifyAll	Feedback fault information from device
	PCmd_Lock	Sets device program mode lock
	PCmd_Unlock	Sets device program mode unlock
	PSet_Owner	Sets Device Owner

(1) If a device has a P\_Intlk module, reserve one input for sequence interlock and map it accordingly on the MConn module.

## Internal Configuration

Internal configuration is not accessible from HMI. These configuration settings are set up by the programmer and do not need to be changed during module usage.

**Table 5 - MConn Internal Configuration Parameters**

Parameters	Purpose
Cfg_InvertStatusOff	If the same feedback is used for ON and OFF, set this parameter to 1 to indicate OFF status is inverted. Default: 0
Cfg_MinTimerPreset	The minimum delay time that is permitted. Default: 0
Cfg_MaxTimerPreset	The maximum delay time that is permitted. Default: 5
Cfg_DelayFdbkOnPreset	Effective when Delay On command is used, this parameter sets a buffer time for device to respond after delay command is sent. Default: 2
Cfg_DelayFdbkOffPreset	Effective when Delay Off command is used, this parameter sets a buffer time for device to respond after delay command is sent. Default: 2

## Module Mapping

When the Logix Application file is created using the Web interface, all of the configured devices will automatically be mapped so there is no need to manually create the mapping for MConn.

## FactoryTalk View SE Application Development

Use the sample project or blank template project as a starting point to configure the project screens based on the brewery configuration. The sample and blank project files are found on the FactoryTalk Brew install media.

For instructions to deploy the View Studio content and View Clients refer to [FactoryTalk Site Edition User's Guide](#).

## FactoryTalk Brew Library of Process Objects

### Overview

The FactoryTalk® Brew™ HMI is based on the PlantPAX® library of process automation. PlantPAX is a collection of objects and design strategies built in FactoryTalk® View SE for process automation. For general principles and additional reference material, consult the literature library for PlantPAX systems. The purpose of this appendix is to describe the functionality of the following FactoryTalk Brew Library of process objects:

- [FactoryTalk Brew Counter Module \(MCounter\) on page 152](#)
- [FactoryTalk Brew Data Control Module \(MDataCntrl\) on page 155](#)
- [FactoryTalk Brew Digital Controller Module \(MDigCntrl\) on page 157](#)
- [FactoryTalk Brew Procedure Controller Module \(MCtrl\) on page 161](#)
- [FactoryTalk Brew Flag Module \(MFlag\) on page 165](#)
- [FactoryTalk Brew Latch Module \(MLatch\) on page 167](#)
- [FactoryTalk Brew Unit Parameter Module \(MPar\) on page 169](#)
- [FactoryTalk Brew Pulse Module \(MPulse\) on page 172](#)
- [FactoryTalk Brew Parameter Module \(MRcp\) on page 175](#)
- [FactoryTalk Brew Report Module \(MRpt\) on page 179](#)
- [FactoryTalk Brew Timer Module \(MTimer\) on page 181](#)
- [FactoryTalk Brew Profile Module \(MProfile\) on page 184](#)

## FactoryTalk Brew Counter Module (MCounter)

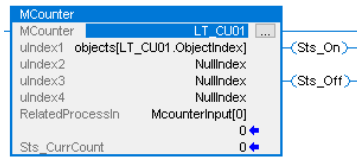
### HMI Object

There are no HMI Objects associated with this device.

### Controller Module

The MCounter module can be controlled by the FactoryTalk Brew Sequence Controller or directly via Logic.

**Figure 24 - MCounter Add-On Instruction**



**Table 6 - MCounter Module Parameters**

Parameters	Purpose
MCounter	Module tag.
uIndex1	Device primary (uIndex1) and secondary (uIndex2,3,4) numbers. Assigned an array number to the device based on the object data type of the unit.
uIndex2-uIndex4	The procedure is used as a shared device index number in other Unit. If it is not shared, enter NullIndex.
RelatedProcessIn	Used by Configuration if the counter only increases or decreases based on a process related signal in combination with an activation signal.



*Controller Data Type***Table 7 - MCounter Datatype Tags**

<b>Tag</b>	<b>Purpose</b>
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Cmd_On	Module On command. Use if controller direct control is desired.
Cmd_Off	Module Off command. Use if controller direct control is desired.
Cmd_ResetAckAll	If the module has an active alarm, this bit can be toggled to reset it. This bit is linked with FTAE banner acknowledge command.
Cmd_Reset	Reset Counter.
Cfg_RelatedProcessMode	1=Monitor RelatedProcessIn Status in addition to activation command prior to counting.
Cfg_InhibitHi	1=Do Not Monitor for Counter Hi Alarm. 0=Monitor for Counter Hi Alarm.
Sts_On	Module On Status.
Sts_Off	Module Off Status.
Sts_DirectCtrl	Indicate if module is directly controlled. 1= Cmd_On or Cmd_Off is in use.
Rdy_Reset	1= Alarm Exist, but not Reset. Used to handle the alarm needs.
Rdy_ResetAckAll	1=Alarm Exist, but not Reset and Acknowledge. Used to handle the alarm needs.
Alm_NotAvailable	1=Not Available Alarm is tripped. If the module receives a control command from the Sequence Controller and the Sts_DirectCtrl bit is ON, then this alarm is tripped.
Alm_ShouldNotBeOn	1=Should Not Be On Alarm is tripped.
Alm_ShouldNotBeOff	1=Should Not Be Off Alarm is tripped.
Alm_Hi	1=Counter Hi Alarm is tripped.
RelatedProcessIn	Input from related process.
Cfg_HighAlarmSetpoint	Counter High Alarm Setpoint.
Cfg_HighAlarmDebounce	Counter High Alarm Debounce Timer Setpoint.
Sts_CurrCount	Current Counter Status.
Cfg_HiSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_ShouldNotBeOffSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_ShouldNotBeOnSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_NotAvailableSeverity	This is a hard-coded value used to handle the alarm needs.

The MCounter module is controlled with discrete command, where on command increases the count and off command decreases the count—it does not go below zero. Therefore, setpoints that are written to the module do not do anything.

To directly control the MCounter module via a controller program, the programming ladder logic based on the desired condition with Cmd\_On and Cmd\_Off controls the MCounter module.

---

**IMPORTANT** If an MCounter module is controlled via controller code, do not control the module by the Sequence Controller at the same time. The module can be monitored by the controller, but not controlled.

---

### Internal Configuration

Internal configuration is not accessible from HMI. These configuration settings are set up by the programmer and do not need to be changed during module usage.

**Table 8 - MCounter Internal Configuration Tags**

Tag	Usage
Cfg_RelatedProcessMode	1=Monitor RelatedProcessIn Status in addition to activation command prior to counting. Default: 0
Cfg_InhibitHi	If a Hi duration alarm is desired, set this parameter to 0. Default: 1
Cfg_HighAlarmSetpoint	This parameter is the time setpoint for Hi duration alarm. Default: 0 Seconds
Cfg_HighAlarmDebounce	This is the debounce timer for the Hi duration alarm. It is intended to delay the actual trigger of the alarm status. Default: 5 seconds

## FactoryTalk Brew Data Control Module (MDataCntrl)

This add-on module handles report data on a vessel to vessel basis.

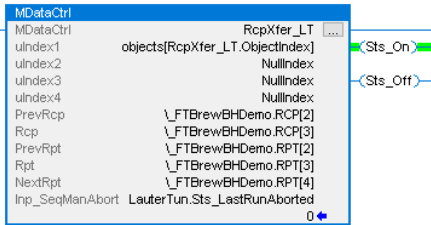
### HMI Object

There are no HMI Objects associated with this device.

### Contoller Module

The MDataCntrl module can be controlled by the FactoryTalk Brew Sequence Controller or directly via Logic. The purpose of this module is to move recorded data during the run of a batch for its assigned unit to the next unit. The structure of the report provides data for each batch with all relevant vessels as part of the report.

**Figure 25 - MDataCntrl Add-On Instruction**



**Table 9 - MDataCntrl Parameters**

Parameters	Purpose
MDataCntrl	Module tag.
ulIndex1	Device primary (ulIndex1) and secondary (ulIndex2,3,4) numbers. Assigned an array number to the device based on the object data type of the unit.
ulIndex2-ulIndex4	The procedure is used as a shared device index number in other Unit. If it is not shared, enter NullIndex.
PrevRcp	Array tag for Previous Vessel Recipe Structure.
Rcp	Array tag for Current Vessel Recipe Structure.
PrevRpt	Array tag for Previous Vessel Report Structure.
Rpt	Array tag for Current Vessel Report Structure.
NextRpt	Array tag for Next Vessel Report Structure.
Inp_SeqManAbort	Status tag of the sequence that is responsible for enabling the module.

## Controller Data Type

**Table 10 - MDataCntrl Datatype Tags**

Tag	Purpose
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Inp_SeqManAbort	Status tag of the sequence that is responsible for enabling the module.
Cmd_On	Module On command. Use if controller direct control is desired.
Cmd_Off	Module Off command. Use if controller direct control is desired.
Cmd_ResetAckAll	If the module has an active alarm, this bit can be toggled to reset it. This bit is linked with FTAE banner acknowledge command.
Sts_On	Module On Status.
Sts_Off	Module Off Status.
Sts_DirectCtrl	Indicate if module is directly controlled. 1= Cmd_On or Cmd_Off is in use.
Rdy_Reset	1= Alarm Exist, but not Reset. Used to handle the alarm needs.
Rdy_ResetAckAll	1=Alarm Exist, but not Reset and Acknowledge. Used to handle the alarm needs.
Alm_NotAvailable	1=Not Available Alarm is tripped. If the module receives a control command from the Sequence Controller and the Sts_DirectCtrl bit is ON, then this alarm is tripped.
Alm_ShouldNotBeOn	1=Should Not Be On Alarm is tripped.
Alm_ShouldNotBeOff	1=Should Not Be Off Alarm is tripped.
Cfg_ShouldNotBeOffSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_ShouldNotBeOnSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_NotAvailableSeverity	This is a hard-coded value used to handle the alarm needs.

The MDataCntrl module functions as a digital device. Therefore, SP or CV written to the module from the Sequence Controller do not have an effect.

To directly control the MDataCntrl module via a controller program, the programming ladder logic based on the desired condition with Cmd\_On and Cmd\_Off controls the MDataCntrl module.

---

**IMPORTANT**

If an MDataCntrl module is controlled via controller code, do not control the module by the Sequence Controller at the same time. It is not recommended to use MDataCntrl with ladder logic because the purpose of this module is for data management that is specific to the operating vessel. Control the module with Sequence Controller to have a better grasp of the time in the process.

---

### Internal Configuration

Internal configuration is not accessible from HMI. These configuration settings are set up by the programmer and do not need to be changed during module usage.

## FactoryTalk Brew Digital Controller Module (MDigCntrl)

The MDigCntrl add-on module provides conditional control of up to two devices based on a signal control condition with the FactoryTalk Brew Sequence Controller.

### HMI Object

There are no HMI Objects associated with this device.

### Controller Module

The MDigCntrl module can be controlled by the Sequence Controller or directly via Logic.

Figure 26 - MDigCntrlAdd-On Instruction

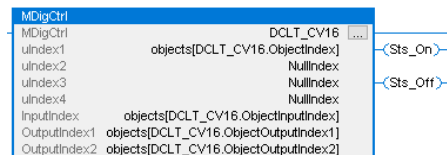


Table 11 - MDigCntrl Parameters

Parameters	Purpose
MDigCntrl	Module tag.
ulIndex1	Device primary (ulIndex1) and secondary (ulIndex2,3,4) numbers. Assigned an array number to the device based on the object data type of the unit.
ulIndex2-ulIndex4	The procedure is used as a shared device index number in other Unit. If it is not shared, enter NullIndex.
InputIndex	Device number/index of target condition device. The module uses the current status of this device in combination with activation command to activate the target control device(s).
OutputIndex1	Device number/index of target control device.
OutputIndex2	Device number/index of target control device.

*Controller Data Type***Table 12 - MDigCtrl Datatype Tags**

<b>Tag</b>	<b>Purpose</b>
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Cmd_On	Module On command. Use if controller direct control is desired.
Cmd_Off	Module Off command. Use if controller direct control is desired.
Cmd_ResetAckAll	If the module has an active alarm, this bit can be toggled to reset it. This bit is linked with FTAE banner acknowledge command.
Cfg_SecondDeviceEN	1=Module controls two devices.
Cfg_Output1Mode	Output Device 1 responds configuration bit.
Cfg_Output2Mode	Output Device 2 responds configuration bit.
Sts_On	Module On Status.
Sts_Off	Module Off Status.
Sts_DirectCtrl	Indicate if module is directly controlled. 1= Cmd_On or Cmd_Off is in use.
Rdy_Reset	1= Alarm Exist, but not Reset. Used to handle the alarm needs.
Rdy_ResetAckAll	1=Alarm Exist, but not Reset and Acknowledge. Used to handle the alarm needs.
Alm_NotAvailable	1=Not Available Alarm is tripped. If the module receives a control command from the Sequence Controller and the Sts_DirectCtrl bit is ON, then this alarm is tripped.
Alm_ShouldNotBeOn	1=Should Not Be On Alarm is tripped.
Alm_ShouldNotBeOff	1=Should Not Be Off Alarm is tripped.
Cfg_LimitLo	Low Limit/Deviation Analog Control Mode.
Cfg_LimitHi	High Limit/Deviation Analog Control Mode.
Cfg_ControlMode	Control Mode Selection.
Cfg_DefaultSP	Default Setpoint for use in Analog Deviation mode.
Cfg_ShouldNotBeOffSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_ShouldNotBeOnSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_NotAvailableSeverity	This is a hard-coded value used to handle the alarm needs.

When the MDigCntrl module is controlled via the Sequence Controller, it is important to know how the module is configured. There are three modes to operate the module: Discrete, Analog Absolute, and Analog Deviation:

- In Discrete mode, the module monitors the ON/OFF status of the input device to determine whether the output device(s) needs to operate.
- In Analog Absolute mode, the module monitors the process value of the input device and compares the value with Cfg\_LimitHi and Cfg\_limitLo to control the output device.
- In Analog Deviation mode, the module calculates the range at which the device operates based on a setpoint, Cfg\_LimitHi, and Cfg\_limitLo (use as deviation limit) to control the output device. Therefore, it is important to write a setpoint into the module. If the module setpoint is not being written, the value of Cfg\_DefaultSetpoint is used instead.

Configure Cfg\_Output1Mode and Cfg\_Output2Mode for different responses of the output device.

To directly control the MDigCntrl module via a controller program, the programming ladder logic based on the desired condition with Cmd\_On and Cmd\_Off controls the MDigCntrl module. If the Analog Deviation Control mode is selected, the setpoint that the deviation is controlled from must be set via Cfg\_DefaultSetpoint.

---

**IMPORTANT** If an MDigCntrl module is controlled via controller code, do not control the module by the Sequence Controller at the same time.

---

**Table 13 - MDigCntrl Configuration Tags**

Tag	Usage
Cfg_SecondDeviceEN	1=Module controls two devices. Default=0
Cfg_Output1Mode	For OutputDevice1. Use with Discrete Control. 1=Output Device Activate with Input off. 0=Output Device Follow Input Signal. Use with Analog Input Control. 1=Within Deviation or PV higher than high Limit. 0=Not Within Deviation or PV lower than lower Limit. Default=0
Cfg_Output2Mode	Same function as Cfg_Output1Mode, but for Device 2. Default=0
Cfg_ControlMode	Select Module Control Mode: 0=Discrete 1=Analog Absolute 2=Analog Deviation Default=0
Cfg_DefaultSP	Analog Deviation Use If in direct control or SP not written from sequencer, this value is the basis for the Deviation calculation. Default=0
Cfg_LimitLo	Analog Absolute: Low Limit Analog Deviation: Low Deviation (Written setpoint subtracts value to determine lower limit). Default=0
Cfg_LimitHi	Analog Absolute: High Limit Analog Deviation: High Deviation (Written setpoint adds value to determine upper limit). Default=0
Limit Check for Cfg_LimitLo and CfgLimitHi	Analog Absolute: High greater than Low Analog Deviation: High and Low must be greater than zero.

### Internal Configuration

Internal configuration is not accessible from HMI. These configuration settings are set up by the programmer and do not need to change during module usage.



## FactoryTalk Brew Procedure Controller Module (MCtrl)

The MCtrl add-on module is the core of FactoryTalk Brew. This central control module works with all of the modules.

### HMI Object

The MCtrl module appears as a small banner on the HMI. The banner shows the name, status, and step description of the procedure that it represents. The banner is available in Global Objects (RA-FTBrew) Process Objects.

Figure 27 - MCtrl Access Banner (Template)



Figure 28 - MCtrl Access Banner Parameter Setup

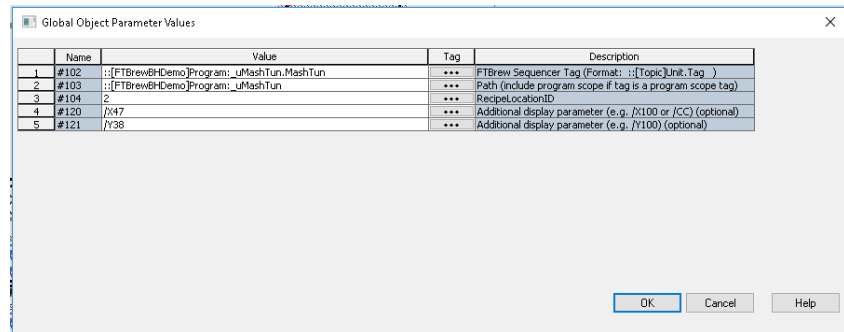


Table 14 - MCtrl Access Banner Names

Name	Description
#102	FTBrewBH: is the OPC topic name and is set up in RSLinx Enterprise. _uMashTun: is the Unit Subroutine Name in the controller. MashTun: is the Unit Procedure Name in the controller. Syntax: ::[Topic Name]Program:UnitName.UnitProcedure
#103	::[Topic Name]Program:UnitName
#104	Unit location is based on how the recipe parameters are set up. Refer to the Parameter Module (MPara) for more information.
#120	Popup window horizontal position. (optional)
#121	Popup window vertical position. (optional)

Figure 29 - MCtrl Access Banner (Idle State)

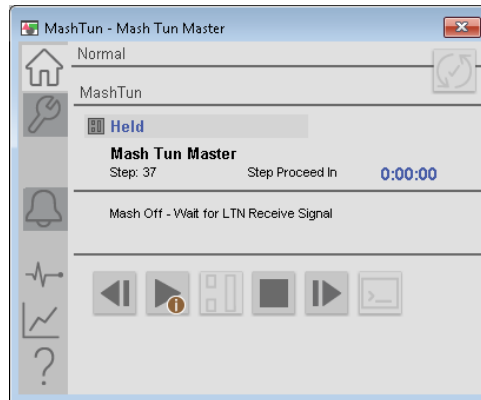


To open the MCtrl faceplate, (RA-FTB) P\_FTBBrewCtrl-Quick, click the banner object to access operation and configuration options. From the Quick faceplate you can navigate to a more detailed screen.

**IMPORTANT** Access to certain configuration options and operations is protected by the access level of the user. For more information about protected access refer to Rockwell Automation Library of Process Objects, publication [PROCES-RM002](#) Appendix E, for a list of security codes and descriptions.








Faceplate Quick

Figure 30 - (RA-FTB)P\_FT BrewCtrl\_Quick



Procedure information is shown on the top half of the FT BrewCtrl-Quick faceplate and control buttons are shown on the button half of the faceplate.

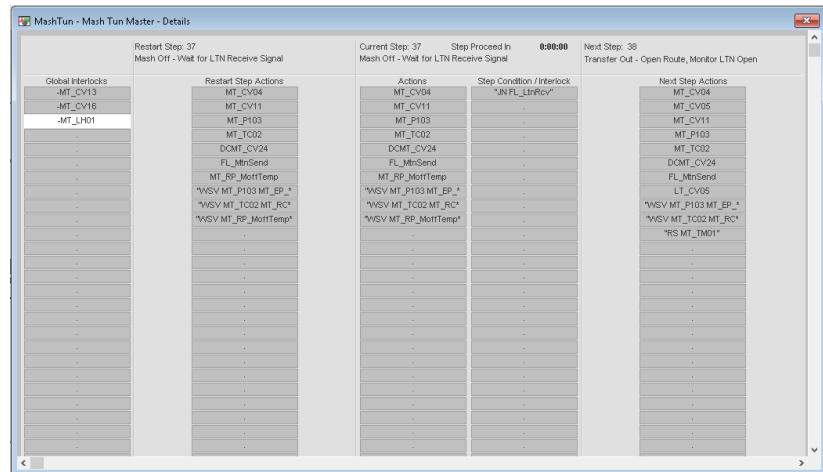
Table 15 - FT BrewCtrl-Quick Faceplate Control Buttons

Button	Function
	Hold/Pause Procedure
	Acknowledge Alarm
	Skip to Previous Step
	Start Procedure
	Stop Procedure
	Skip to Next Step
	Open Detail Control Faceplate

Procedure information is shown on the top half of the FT BrewCtrl-Quick faceplate and control buttons are shown on the button half of the faceplate.

## Faceplate Full

Figure 31 - Faceplate Full, Detail



The top section of the Detail faceplate shows the same information that is shown on the Quick faceplate. The bottom section of the Detail faceplate has columns of tiles that are used to display the status of the devices that are controlled by the procedure.

The first column (left side of the screen) shows a list of global interlocks that are programmed for the procedure. The Procedure Controller checks that all devices listed in the Global Interlocks section are in their required state. If any of the devices are not in the required state during the operation of the procedure, the Procedure Controller faults the procedure immediately.

The second column lists the restart steps. The Procedure Controller can be programmed with a dedicated restart step when it faults during the operation. This option provides a means for a safe restart. The column lists the name of the restart step, the restart step number, and the list of devices being activated in that step.

The third column contains two tiles. The tile on the left lists the active step action and the tile on the right lists the interlocks. The action column shows the active devices that are controlled by the procedure. The interlock column shows the device that is interlocked by the active step (step interlocks) and the step transition condition. Step interlocks are only monitored during the activation of the particular steps that it is programmed in as compared to global interlocks that are monitored as soon as the procedure is running.

The fourth column shows the possible next step. Or, if there is only a single possible next step, then it shows the list of devices that are activated during the next step.

## Controller Module

The FactoryTalk Brew Procedure Controller is a combination of seven Add-On Instructions. Of the seven Add-On Instructions, MCtrl is the only Add-On Instruction that needs to be programmed by the user. The other six Add-On Instructions are interconnected within this one Add-On Instruction. There are three Procedure Controller Add-On Instruction sizes, MCtrl\_L, MCtrl\_M, and MCtrl\_S.

Figure 32 - MCtrl Add-On Instruction

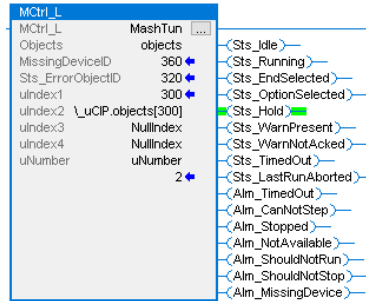


Table 16 - MCtrl Parameters

Parameters	Purpose
MCtrl_L	Unit procedure tag. Depends on procedure to select different size for optimizing memory utilization.
Objects	FTBrewObjects Array.
MissingDeviceID	Missing device index number, read only for diagnostic.
Sts_ErrorObjectID	Error object index number, read only for diagnostic.
uIndex1	The procedure index number in this Unit.
uIndex2-uIndex4	The procedure is used as a shared device index number in other Unit. If it is not shared, enter NullIndex.

## FactoryTalk Brew Flag Module (MFlag)

The MFlag add-on module provides additional signaling between the FactoryTalk Brew Sequence Controller and a non-device driven condition. The MFlag module functions like a momentary push button that defaults to OFF state, where the command condition must be maintained for the module status to remain in ON state.

### HMI Object

There are no HMI Objects associated with this device.

### Controller Module

The MFlag module can be controlled by the FactoryTalk Brew Sequence Controller or directly via Logic.

Figure 33 - MFlag Add-On Instruction

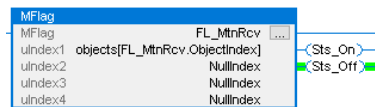


Table 17 - MFlag Parameters

Parameters	Purpose
MFlag	Module tag.
uIndex1	The procedure index number in this Unit.
uIndex2-uIndex4	The procedure is used as a shared device index number in other Unit. If it is not shared, enter NullIndex.

### Controller Datatype

To directly control the MFlag module via a controller program, the programming ladder logic based on the desired condition with Cmd\_On and Cmd\_Off controls the MFlag module.

---

**IMPORTANT** The condition for Cmd\_On must remain true for the module to stay ON.

---

The MFlag module functions as a digital device. Therefore, SP or CV written to the module from the Sequence Controller do not have an effect.

---

**IMPORTANT** If an MFlag module is controlled via controller code, do not control the module by the Sequence Controller at the same time. The module can be monitored by the controller, but not controlled.

---

**Table 18 - MFlag Datatype Tags**

Tag	Purpose
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Cmd_On	Module On command. Use if controller direct control is desired.
Cmd_Off	Module Off command. Use if controller direct control is desired.
Cmd_ResetAckAll	If the module has an active alarm, this bit can be toggled to reset it. This bit is linked with FTAE banner acknowledge command.
Cfg_ShouldNotBeOnEn	Enable Should Not Be On Alarm. 1=Enable 0=Disable Must be configured in controller. Default value: 0
Cfg_ShouldNotBeOffEn	Enable Should Not Be Off Alarm. 1=Enable 0=Disable Must be configured in controller. Default value: 0
Sts_On	Module On Status.
Sts_Off	Module Off Status.
Sts_DirectCtrl	Indicate if Module is directly controlled. 1= Cmd_On or Cmd_Off is in use.
Rdy_Reset	1= Alarm Exist, but not Reset. Used to handle the alarm needs.
Rdy_ResetAckAll	1=Alarm Exist, but not Reset and Acknowledge. Used to handle the alarm needs.
Alm_NotAvailable	1=Not Available Alarm is tripped. If the module receives a control command from the Sequence Controller and the Sts_DirectCtrl bit is ON, then this alarm is tripped.
Alm_ShouldNotBeOn	1=Should Not Be On Alarm is tripped.
Alm_ShouldNotBeOff	1=Should Not Be Off Alarm is tripped.
Cfg_ShouldNotBeOffSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_ShouldNotBeOnSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_NotAvailableSeverity	This is a hard-coded value used to handle the alarm needs.

## Internal Configuration

Internal configuration is not accessible from HMI. These configuration settings are set up by the programmer and do not need to change during module usage.

**Table 19 - MFlag Datatype Internal Configuration Tags**

Tag	Usage
Cfg_ShouldNotBeOnEn	For the MFlag module, the Should Not Be On Alarm is enabled based on the condition that it represents. Therefore, this configuration is only done once and the alarm faults the sequencer as needed.
Cfg_ShouldNotBeOffEn	For the MFlag module, the Should Not Be Off Alarm is enabled based on the condition that it represents. Therefore, this configuration is only done once and the alarm faults the sequencer as needed.

## FactoryTalk Brew Latch Module (MLatch)

The MLatch add-on module provides additional signaling between the FactoryTalk Brew Sequence Controller and a non-device driven condition. The MLatch module maintains the state of the last issued command.

### HMI Object

There are no HMI Objects associated with this device.

### Controller Module

The MLatch module can be controlled by the Sequence Controller or directly via Logic.

Figure 34 - MLatch Add-On Instruction

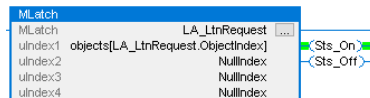


Table 20 - MLatch Parameters

Parameters	Purpose
MLatch	Module tag.
ulIndex1	The procedure index number in this Unit.
ulIndex2-ulIndex4	The procedure is used as a shared device index number in other Unit. If it is not shared, enter NullIndex.

### Controller Datatype

To directly control the MLatch module via a controller program, the programming ladder logic based on the desired condition with Cmd\_On and Cmd\_Off controls the MLatch module.

---

**IMPORTANT** The module maintains the state of the last issued command. For example, if Cmd\_On is issued, the module remains in the ON state until a Cmd\_Off is issued.

---

The MLatch module functions as a digital device. Therefore, SP or CV written to the module from the Sequence Controller do not have an effect.

---

**IMPORTANT** If an MLatch module is controlled via controller code, do not control the module by the Sequence Controller at the same time. The module can be monitored by the controller, but not controlled.

---

**Table 21 - MLatch Datatype Tags**

Tag	Purpose
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Cmd_On	Module On command. Use if controller direct control is desired.
Cmd_Off	Module Off command. Use if controller direct control is desired.
Cmd_ResetAckAll	If the module has an active alarm, this bit can be toggled to reset it. This bit is linked with FTAE banner acknowledge command.
Sts_On	Module On Status.
Sts_Off	Module Off Status.
Sts_DirectCtrl	Indicate if Module is directly controlled. 1= Cmd_On or Cmd_Off is in use.
Rdy_Reset	1= Alarm Exist, but not Reset. Used to handle the alarm needs.
Rdy_ResetAckAll	1=Alarm Exist, but not Reset and Acknowledge. Used to handle the alarm needs.
Alm_NotAvailable	1=Not Available Alarm is tripped. If the module receives a control command from the Sequence Controller and the Sts_DirectCtrl bit is ON, then this alarm is tripped.
Alm_ShouldNotBeOn	1=Should Not Be On Alarm is tripped.
Alm_ShouldNotBeOff	1=Should Not Be Off Alarm is tripped.
Cfg_ShouldNotBeOffSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_ShouldNotBeOnSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_NotAvailableSeverity	This is a hard-coded value used to handle the alarm needs.



## FactoryTalk Brew Unit Parameter Module (MPar)

The MPar add-on module provides access between the Procedure Controller and parameter data point.

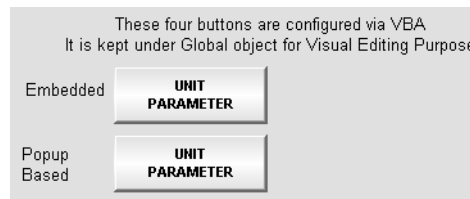
### HMI Object

The HMI Object of the MPar module is shown as an embedded panel or popup on a screen that uses the Procedure Controller.

These items must be imported to FTView HMI:

- (RA-FTBrew) Process Objects  
[Global; Object access button]

**Figure 35 - Unit Parameter Data Access Button**



- (RA-FTB)P\_FTBBrewM-Page

**Figure 36 - Unit Parameters Display**

UNIT PARAMETER		RECIPE
<b>Setpoints</b>		
1	Protein Start CV	Parameters
	<input type="text" value="30.0"/> %	Par 20
2	Protein Start Time	
	<input type="text" value="15.0"/> secs	
3	Conversion 1 Start CV	
	<input type="text" value="35.0"/> %	
4	Conversion 1 Start Time	
	<input type="text" value="15.0"/> secs	
5	Conversion 2 Start CV	
	<input type="text" value="40.0"/> %	
6	Conversion 2 Start Time	
	<input type="text" value="15.0"/> secs	
7	Mash Off Start CV	
	<input type="text" value="45.0"/> %	
8	Mash Off Start Time	
	<input type="text" value="30.0"/> secs	
9		
10		

As shown in [Figure 35](#), the buttons must be configured in VBA to make sure the proper data is shown.

A maximum of 100 parameters can be shown on the parameter display. There are 10 pages—selectable on the left—within each display and contain 10 parameters on each page. Therefore, arrange the parameters in multiples of 10.

## Controller Module

The MPar module is not a controllable module. The MPar configuration is pushed down directly from the web application.

---

**IMPORTANT** MPar uses the same UDT as MRcp.

---

**Figure 37 - MPar Add-On Instruction**

Parameter	Value
MRCp	MT_EP_DrainTime
uIndex1	objects[MT_EP_DrainTime.ObjectIndex]
uIndex2	NullIndex
uIndex3	NullIndex
uIndex4	NullIndex
Par_Enabled	PAR.Recipe_En[MT_EP_DrainTime.ObjectOffset] 1
Par_DDW	PAR.Recipe_DDW[MT_EP_DrainTime.ObjectOffset] 1
Par_Scale	PAR.Recipe_Scale[MT_EP_DrainTime.ObjectOffset] 1
Par_Par	PAR.Par[MT_EP_DrainTime.ObjectOffset] 1

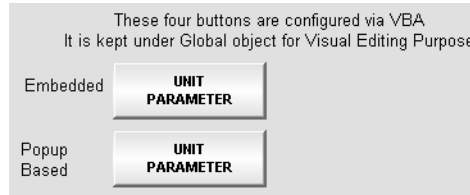
**Table 22 - MPar Parameters**


Parameters	Purpose
MRcp	The tag name. (The same as web configuration).
uIndex1	Device number/index. Assigned an array number to the device based on the object data type of the unit.
uIndex2-uIndex4	The Parameter is used as a shared device index number in other Units. If it is not shared, enter NullIndex.
Par_Enabled	Parameter Enabled Signal.
Par_DDW	Parameter Direct Data Write Signal.
Par_Scale	The scale factor index number.
Par_Par	Parameter value index number.

## Unit Parameter HMI Setup

To set up HMI for machine or recipe parameters access, follow these steps.

1. Copy a button from the (FTBrew) Process Objects.



2. Paste the button on the desired screen.
3. Right-click the button and choose VBA Code.
4. Click  and view the code.
5. View the Configuration Parameters section in the code.

```
'Configuration Parameters
strTopic = "FTBrewBH"

' The strUnit Parameter needs
strUnit = "_uMashTun"

intStartingParameter = 0
intEndingParameter = 100
```

strTopic	The OPC Topic name configured in RsLinx Enterprise.
strUnit	The Unit Name where the Unit Parameters are used.
intStartingParameter	Always 0.
intEndingParameter	Always 100

## FactoryTalk Brew Pulse Module (MPulse)

The MPulse add-on module provides the ability to pulse the activation of one or two devices by the FactoryTalk Brew Sequence Controller.

### HMI Object

There are no HMI Objects associated with this device.

### Controller Module

The MPulse module can be controlled by the FactoryTalk Brew Sequence Controller or directly via Logic. The MPulse module can issue pulse commands to up to two devices, depending on the configuration. The MPulse module can also be configured to monitor status of another device in combination with the regular activation command prior to executing the pulsing command.

Figure 38 - MPulse Add-On Instruction

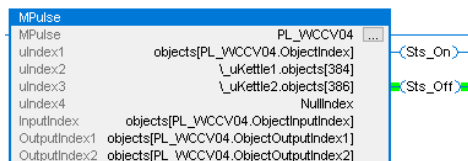


Table 23 - MPulse Parameters

Parameters	Purpose
MLatch	Module tag.
ulIndex1	Device number/index. Assigned an array number to the device based on the object data type of the unit.
ulIndex2-ulIndex4	The Parameter is used as a shared device index number in other Units. If it is not shared, enter NullIndex.
ENIndex	Device number/index of target dependent device. This index is used if the pulse module operation depends on the activated status of another device. Use of this feature is configurable.
OutputIndex1	Device number/index of target control device.
OutputIndex2	Device number/index of target control device.

*Controller Data Type***Table 24 - MPulse Datatype Tags**

Tag	Purpose
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Cmd_On	Module On command. Use if controller direct control is desired.
Cmd_Off	Module Off command. Use if controller direct control is desired.
Cmd_ResetAckAll	If the module has an active alarm, this bit can be toggled to reset it. This bit is linked with FTAE banner acknowledge command.
Cfg_InpDeviceEn	1=Monitor ENIndex ON Status in addition to activation command prior to commanding pulsing.
Cfg_SecondDeviceEn	1=Pulse Second device: OutputIndex2
Sts_On	Module On Status.
Sts_Off	Module Off Status.
Sts_DirectCtrl	Indicate if module is directly controlled. 1= Cmd_On or Cmd_Off is in use.
Rdy_Reset	1= Alarm Exist, but not Reset. Used to handle the alarm needs.
Rdy_ResetAckAll	1=Alarm Exist, but not Reset and Acknowledge. Used to handle the alarm needs.
Alm_NotAvailable	1=Not Available Alarm is tripped. If the module receives a control command from the Sequence Controller and the Sts_DirectCtrl bit is ON, then this alarm is tripped.
Alm_ShouldNotBeOn	1=Should Not Be On Alarm is tripped.
Alm_ShouldNotBeOff	1=Should Not Be Off Alarm is tripped.
Cfg_OnTime	Duration of On Command.
Cfg_PulseOnDelayTime	Duration of delay prior to issuing On Command.
Cfg_CycleTime	Pulse Cycle Time.
Cfg_ShouldNotBeOffSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_ShouldNotBeOnSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_NotAvailableSeverity	This is a hard-coded value used to handle the alarm needs.

If a setpoint is written to the MPulse Module from the FactoryTalk Brew Sequence Controller, the setpoint overwrites the Cfg\_OnTime setting. However, the written value is still subjected to a limit check against Cfg\_PulseOnDelayTime and Cfg\_CycleTime.

To directly control the MPulse module via a controller program, the programming ladder logic based on the desired condition with Cmd\_On and Cmd\_Off controls the MPulse module.

---

**IMPORTANT** If an MPulse module is controlled via controller code, do not control the module by the Sequence Controller at the same time.

---

## Internal Configuration

Internal Configuration is not accessible from HMI. These configuration settings are set up by the programmer and do not change during module usage.

**Table 25 - MPulse Internal Configuration Tags**

Tag	Usage
Cfg_InputDeviceEn	If the pulsing activation is dependent on the status of another device, set this parameter to 1. Default: 0
Cfg_SecondDeviceEn	If an index number is mapped to OutputIndex2, set this parameter to 1. Default: 0
Cfg_OnTime	On Command duration. This value can be changed from the Sequence Controller. If this value is set up, it is used as a predefined pulse on the time that the module uses whenever it is activated.
Cfg_PulseOnDelayTime	Pulse On Delay. This value is the amount of time the Pulse module waits prior to issuing the Pulse On Command.
Cfg_CycleTime	Cycle Time. This value must be greater than or equal to the summation of Cfg_OnTime and Cfg_PulseOnDelayTime. Rule for Timer Setpoint: $Cfg\_CycleTime > (Cfg\_OnTime + Cfg\_PulseOnDelayTime)$

## FactoryTalk Brew Parameter Module (MRcp)

The MRcp add-on module provides access between the Sequence Controller and parameter data point.

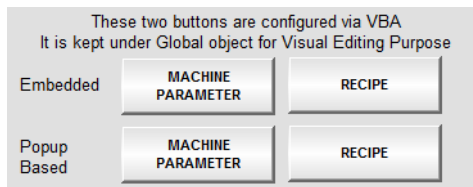
### HMI Object

The HMI Object of the MRcp module is shown as an embedded panel or popup on a screen that uses the Sequence Controller.

These items must be imported to FTView HMI:

- Process Objects  
[Global; Object access button]

**Figure 39 - Machine Parameter and Recipe Data Access Button**



- P\_FTbrewR-Page

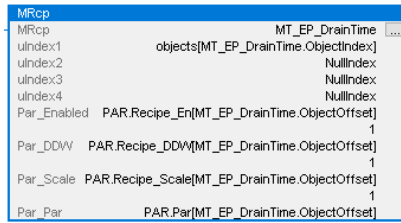
**Figure 40 - Recipe and Report Parameters Display**

UNIT PARAMETER	Setpoints	Actual	RECIPE
1	Protein Rest Time	0.0	Min RCP 110
2	Conversion 1 Temperature	68.0	68.4 °C
3	Conversion 1 Ramp	1.5	0.0 °C/min
4	Conversion 1 Time	30.0	30.0 Min
5	Conversion 2 Temperature	71.0	71.3 °C
6	Conversion 2 Ramp	1.5	0.0 °C/min
7	Conversion 2 Time	5.0	5.0 Min
8	Mash Off Temperature	78.0	10.0 °C
9	Mash-Off Ramp	1.5	0.0 °C/min
10	LTN Transfer Time	0.0	Min

As shown in [Figure 39](#), the buttons must be configured in VBA to make sure the proper data is shown.

A maximum of 100 parameters can be shown on the parameter display. There are 10 pages—selectable on the left—within each display and contain 10 parameters on each page. Therefore, arrange the parameters in multiples of 10.

## Controller Module



The MRcp module is not a controllable module. The MRcp module configuration is directly pushed down from the server.

**Table 26 - MRcp Parameters**

Parameters	Purpose
MRcp	Module tag MUST be named as follows: For Recipe: SqrRcp[###] For Report: SqrRpt[###] For Machine: SqrMPar[###] ### = Parameter array size (Limit: 1...1000)
ulIndex1	Device number/index. Assigned an array number to the device based on the object data type of the unit.
ulIndex2-ulIndex4	The Parameter is used as a shared device index number in other Units. If it is not shared, enter NullIndex.
Par_Enabled	Parameter Enabled Signal.
Par_DDW	Parameter Direct Data Write Signal.
Par_Val	Parameter Value.

The mapping of Par\_Enable, Par\_DDW, and Par\_Val is based on a dedicated UDT that can be written from the FactoryTalk web application. There are two UDTs to select from, RCP and RPT.

**Table 27 - MRcp Mapping Parameters**

Parameter	UDT	Tagname	Comments
Recipe	RCP	RCP[##]	## = Number of Vessels, must match report.
Report	RPT	RPT[##]	## = Number of Vessels, must match recipe.
Machine	RCP	Mpar	Not vessel dependent.



*Controller Data Type***Table 28 - MRcp Datatype Tags**

<b>Tag</b>	<b>Purpose</b>
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Sts_DirectDataWrite	Indicate whether the parameter that is linked to the module can be modified from HMI.
Sts_Enabled	Indicate whether the parameter that is linked to the module is displayed on the HMI.
Sts_OprInputReq	Indicate whether the parameter is called for reporting.
Par_Enabled	Parameter Enabled Signal.
Par_DDW	Parameter Direct Data Write Signal.
Sts_Val	Parameter Value.

The MRcp module functions as a relay of analog values between the recipe, machine or report parameter array, and Sequence Controller. To change the parameter value, the Sequence Controller can write to the module setpoint entry or read from the module to use the value of the parameter for process purposes.

There is no direct control available.

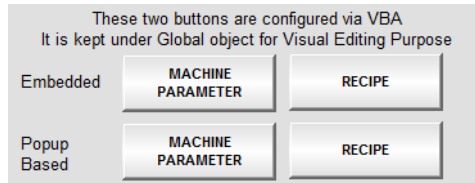
## Internal Configuration


Internal Configuration is not accessible from HMI. These configuration settings are set up by the programmer and do not change during module usage.

## Recipe, Report and Machine Parameter HMI Setup

To set up HMI for machine or recipe parameters access, follow these steps.

1. Copy a button from the Process Objects.



2. Paste the button on the desired screen.
3. Right-click the button and choose VBA Code.
4. Click  and view the code.
5. View the Configuration Parameters section in the code.
6. Modify the value of intStartingParameter and intEndingParameter to match the parameter index.

### Units

Unit#	Description	Name	Tank Unit	Offset	Length	
1	Malt Handling	_uMaltHandling	<input type="checkbox"/>	0	100	
2	Mash Tun	_uMashTun	<input type="checkbox"/>	100	100	

#### For Malt Handling (Unit 1):

```
'Configuration Parameters
strTopic = "FTBrewBHDemo"
strAreaSecurity = "Process/Area01"

intStartingParameter = 0 'This needs to be changed based on the area
intEndingParameter = 99 'This needs to be changed based on the area
intRecipeLocation = 1 'This needs to be changed based on the area
```

#### For Mash Tun (Unit 2):

```
'Configuration Parameters
strTopic = "FTBrewBHDemo"
strAreaSecurity = "Process/Area01"

intStartingParameter = 100 'This needs to be changed based on the area
intEndingParameter = 199 'This needs to be changed based on the area
intRecipeLocation = 2 'This needs to be changed based on the area
```

---

**IMPORTANT** Reporting parameters are used in connection with recipe parameters. The indexes must be a mirror image of each other.

---



---

**IMPORTANT** It is important to know the recipe storage location for the recipe. The recipe location is equivalent to the vessel location. To determine the value, access the FactoryTalk web application.

---

7. Save the VBA code and the screen that the button is on.
8. To test the buttons, run the full application.

## FactoryTalk Brew Report Module (MRpt)

The MRpt add-on module provides access between the Sequence Controller and reporting data point.

**Table 29 - MRpt Tags**

Tag	Purpose
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Sts_DirectDataWrite	Indicate whether the parameter linked to the module can be modified from HMI.
Sts_Enabled	Indicate whether the parameter linked to the module is displayed on the HMI.
Rpt_Enabled	Report Data Structure Enabled Signal.
Rpt_DDW	Report Data Structure Direct Data Write Signal.
Sts_Val	Value of the parameter linked to the module.

### HMI Object

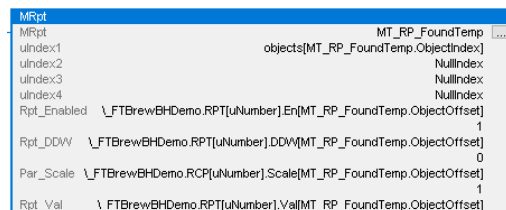
The HMI Object of the MRpt module is shown as an embedded panel or popup on a unit screen that uses the Sequence Controller. It is set up as part of the FactoryTalk Brew Recipe Module – MRcp – HMI. Refer to [FactoryTalk Brew Parameter Module \(MRcp\) on page 175](#) for more information.

### Controller Module

The MRpt module is not a controllable module. The MRpt configuration is directly pushed down from the server.

There are command bits that can be used to overwrite the configuration, but it is only for temporary/initial setup purposes. Do not use those commands after the system is operating as required.

**Figure 41 - MRpt Add-On Instruction**



**Table 30 - MRpt Parameters**

Parameters	Purpose
MRpt	Module tag.
ulIndex1	Device number/index. Assigned an array number to the device based on the object data type of the unit.
ulIndex2-ulIndex4	The Parameter is used as a shared device index number in other Units. If it is not shared, enter NullIndex.
Rpt_Enabled	Report Data Structure Enabled Signal.
Rpt_DDW	Report Data Structure Direct Data Write Signal.
Rpt_Par	Report Data Structure Parameter Value.

### *Controller Data Type*

The MRpt module functions as a relay of analog values between the report parameter array and the Sequence Controller. The Sequence Controller can change the parameter value by writing to the module setpoint entry or read from the module to use the value of the parameter for process purposes.

---

**IMPORTANT** The recipe parameters that work with the report parameter is a separate module; FactoryTalk Brew Recipe Module (MRcp). Refer to [FactoryTalk Brew Parameter Module \(MRcp\) on page 175](#) for more setup information.

---

There is no direct control available.

### **Internal Configuration**

Internal Configuration is not accessible from HMI. These configuration settings are set up by the programmer and do not change during module usage.

## FactoryTalk Brew Timer Module (MTimer)

The MTimer add-on module provides a controllable timer that is independent of the sequence steps for the use of Sequence Controller.

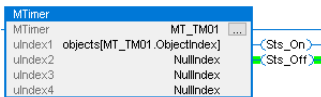
### HMI Object

There are no HMI Objects associated with this device.

### Controller Module

The MTimer module can be controlled by the FactoryTalk Brew Sequence Controller or directly via Logic. The MTimer module can be used as a retentive or non-retentive timer, depending on configuration. The MTimer module can also be configured to alarm when the timer exceeds a configurable duration.

**Figure 42 - MTimer Add-On Instruction**



**Table 31 - MTimer Parameters**

Parameters	Purpose
MTimer	Module tag.
ulIndex1	Device number/index. Assigned an array number to the device based on the object data type of the unit.
ulIndex2-ulIndex4	The Parameter is used as a shared device index number in other Units. If it is not shared, enter NullIndex.

## Controller Data Type

Table 32 - MTimer Datatype Tags

Tag	Purpose
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Cmd_On	Module On command. Use if controller direct control is desired.
Cmd_Off	Module Off command. Use if controller direct control is desired.
Cmd_ResetAckAll	If the module has an active alarm, this bit can be toggled to reset it. This bit is linked with FTAE banner acknowledge command.
Cmd_Reset	Reset Timer.
Sts_On	Module On Status.
Sts_Off	Module Off Status.
Sts_DirectCtrl	Indicate if module is directly controlled. 1= Cmd_On or Cmd_Off is in use.
Rdy_Reset	1= Alarm Exist, but not Reset. Used to handle the alarm needs.
Rdy_ResetAckAll	1=Alarm Exist, but not Reset and Acknowledge. Used to handle the alarm needs.
Alm_NotAvailable	1=Not Available Alarm is tripped. If the module receives a control command from the Sequence Controller and the Sts_DirectCtrl bit is ON, then this alarm is tripped.
Alm_ShouldNotBeOn	1=Should Not Be On Alarm is tripped.
Alm_ShouldNotBeOff	1=Should Not Be Off Alarm is tripped.
Alm_Hi	1=Duration High Alarm is tripped.
Cfg_RententiveTimer	1=Use module as retentive timer.
Cfg_InhibitHi	1=Do Not Monitor for Hi Duration Alarm. 0=Monitor for Hi Duration Alarm.
Sts_CurrTimerACC	Timer current accumulated valve.
Sts_ElapsedTimerMin	Timer Elapsed Minutes.
Sts_ElapsedTimerHour	Timer Elapsed Hours.
Cfg_TimerDefaultSP	Default Setpoint of Timer (Seconds).
Cfg_HighAlarmSetpoint	Setpoint for Hi Alarm (Seconds).
Cfg_HighAlarmDebounce	Hi Alarm Debounce (Seconds).
Cfg_HiSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_ShouldNotBeOffSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_ShouldNotBeOnSeverity	This is a hard-coded value used to handle the alarm needs.
Cfg_NotAvailableSeverity	This is a hard-coded value used to handle the alarm needs.

If a setpoint (in seconds) is written to the MTimer module from the Sequence Controller, it is written to the active timer. If the module is activated from the Sequence Controller, but no setpoint is written, then Cfg\_TimerDefaultSP or the last written setpoint is used.

To directly control the MTimer module via a controller program, the setpoint of the timer must be configured with Cfg\_TimerDefaultSP. The programming ladder logic based on the desired condition with Cmd\_On and Cmd\_Off controls the MTimer module.

---

**IMPORTANT** If an MTimer module is controlled via controller code, do not control the module by the Sequence Controller at the same time. The module can be monitored by the controller, but not controlled.

---

## Internal Configuration

Internal Configuration is not accessible from HMI. These configuration settings are set up by the programmer and do not change during module usage.

**Table 33 - MTimer Internal Configuration Tags**

Tag	Usage
Cfg_RetentiveTimer	If the Timer module needs to function as a retentive timer, set this parameter to 1. Default: 0
Cfg_InhibitHi	If a Hi Duration alarm is desired, set this parameter to 0. Default: 1
Cfg_TimerDefaultSP	Use this parameter as the default timer setpoint if the Sequence Controller activates the module without writing a setpoint, or if the timer is activated with controller logic. Set up this parameter with the desired operating setpoint and update based on the condition that the timer is using. Default: 60 seconds
Cfg_HighAlarmSetpoint	This parameter is the time setpoint for the Hi Duration alarm. Default: 0 Seconds.
Cfg_HighAlarmDebounce	This is the debounce timer for the Hi Duration alarm and is intended to delay the actual trigger of the alarm status. Default: 5 seconds

## FactoryTalkBrewProfile Module (MProfile)

The MProfile object provides a segmented, linear mapping of an input signal to an output signal. The mapping is configured via the Web interface recipe parameters and editable on the HMI. The module can be used for tank level translation, motor speed curves, temperature setpoints, and more.

### HMI Object

The MProfile has a faceplate for status and on-the-fly editing of the configuration.

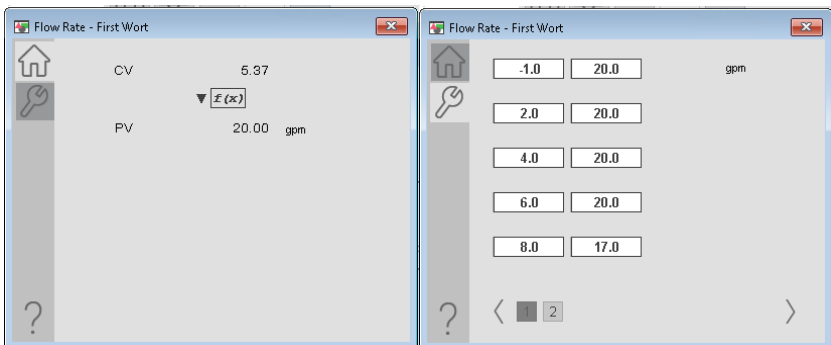
MProfile status:

- CV = input
- PV = output

MProfile configuration:

- Left column is input
- Right column is output mapping

Linear interpolation is performed between adjacent values.

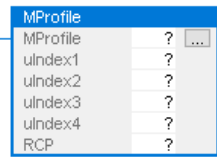


### Controller Module

The MProfile module is not a controllable module. The MProfile configuration is pushed down directly from the web application.



**Figure 43 - MProfileAdd-On Instruction**



**Table 34 - MProfile Parameters**

Parameters	Purpose
MProfile	Module tag.
ulIndex1	Device number/index. Assigned an array number to the device based on the object data type of the unit.
ulIndex2-ulIndex4	The Parameter is used as a shared device index number in other Units. If it is not shared, enter NullIndex.
RCP	Array tag for Current Recipe Structure.

*Controller Data Type*

**Table 35 - MProfile Datatype Tags**

Tag	Purpose
Enable In	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Enable Out	Add-On Instruction Default boolean for EnableINFlase Routine, not used by module.
Sts_DirectDataWrite	Indicate whether the parameter linked to the module can be modified from HMI.
Sts_Enabled	Indicate whether the parameter linked to the module is displayed on the HMI.
Sts_OprInputReq	Indicate whether the parameter is called for reporting.
Sts_Par	Value of the parameter linked to the module.
Cmd_DirectCtrl	Indicate if module is directly controlled. 1=Cmd_On or Cmd_Off is in use.
PSet_CV	CV Set Tag

### MProfile Recipe Parameter

MProfiles can only be configured as a recipe parameter.

1. Create a new Recipe Parameter.
2. Select 'Profile' as the Parameter Type.

The screenshot shows a 'Add New Parameter' dialog box with the following fields and values:

- UnitId:
- Name:
- Description:
- Offset:
- Type:
- Scale:
- Unit:
- Scale (x):
- Unit (x):
- Length:
- Setpoint Enable?:
- Setpoint Writable?:
- Report Enable?:
- Report Writable?:

Buttons at the bottom right: Add, Close

3. Enter the information into the fields.
  - a. Scale (x) is specific to Profiles. It determines the scaling factor for the input variable
  - b. Unit (x) is specific to Profiles. It determines the Unit string for the input variable for display purposes.
  - c. Length is specific to Profiles. It determines the length of the memory area allocated to the Profile. The Length should be set to the number of input variable values required for the desired input/output relationship.
4. Click Add.
5. Navigate to System Conofig>Devices.
6. Select the unit for the profile.
7. Select MProfile as the device type.
8. Click Add.
9. Enter the name of the Profile object that was entered in Step 5.
10. Click Save.

### **Using the MProfile in a recipe**

When a Profile is added to a recipe, a unique editor is used to define the Profile configuration.

When editing a recipe, click the edit icon next to a Profile Parameter.

The Edit Profile pop-up shows a preview of the profile that will map the input variable. The lower section of the pop-up allows configuration of individual points of the profile.

Optionally, the profile supports a High and Low deviation configuration independent functions. Supply the MProfile AOI with a PV value to use the High and/or Low deviation bounds.

The Length value of the parameter determines the maximum number of unique input (x) values. If the High and Low profiles do not share an x value with the Setpoint, the Length may need to be increased to allow more configuration.



### Sequence control of MProfile

Give the MProfile an input value with a WCV action command and use the process value as an input to a control loop PID, Report Parameter, or other object.

## Tanks, Pipes, and Routes

Topic	Page
Manage Tanks, Pipes, and Routing	189
Tank Configuration	189

### Manage Tanks, Pipes, and Routing

This chapter discusses how to configure FactoryTalk® Brew™ to manage tanks, pipes, and routings. Before you begin configuration, make sure:

- You are logged into the system as a domain user with FTB Engineer privileges. This is the highest level of security, which provides full access to all system functionality.
- You have downloaded the necessary software activations to your FactoryTalk Activation server, running version 4.04 or higher. Tanks and routes each require separate, additional licenses, as described in [Table 1 on page 12](#)

### Tank Configuration

Perform the following steps in order to configure the system:

#### Prepare the Tank System

1. Create a controller for the tank area and assign it the appropriate licenses. See [Create Controllers and Install Licenses on page 106](#).

2. Create a unit for each tank. See [Create Units and Tanks on page 110](#). When creating the tank units, be sure to select the option that identifies it as a tank.

**Add New Unit**

Unit#

Name

**Tank Unit**

Description

Offset

Length

Unit#	Description	Name	Tank Unit	Offset	Length	
9	Cellar 1 Fermentation	_uCellar1	<input type="checkbox"/>	0	100	<a href="#">+</a> <a href="#">-</a> <a href="#">↺</a> <a href="#">↻</a>
0	Route Core	_uRouteCore	<input type="checkbox"/>	0	0	<a href="#">+</a> <a href="#">-</a> <a href="#">↺</a> <a href="#">↻</a>
1	Cellar 1 Tank 1	_uC1_TK1	<input checked="" type="checkbox"/>	0	50	<a href="#">+</a> <a href="#">-</a> <a href="#">↺</a> <a href="#">↻</a>
2	Cellar 1 Tank 2	_uC1_TK2	<input checked="" type="checkbox"/>	0	50	<a href="#">+</a> <a href="#">-</a> <a href="#">↺</a> <a href="#">↻</a>

## Tank States

Starting with version 2.0, FactoryTalk Brew allows users to define state control for tanks. This provides more flexible control and provides built-in ability to restrict which states can transition to other states.

1. To access and configure this functionality, select Tanks from the menu.
2. Click the modes icon of the desired tank.

FactoryTalk<sup>®</sup> Brew<sup>™</sup> Area Unit Config System Config Procedures **Tanks** Recipes Schedule Reports

System: FTBrewTFDemo  
User: SystemSuperAdmin

### Tanks

Unit	Name	Description	Index	
_uC1_TK1	C1_TK1	TK1	200	<a href="#">+</a> <a href="#">-</a> <a href="#">↺</a> <a href="#">↻</a> <a href="#">⊞</a> <a href="#">⊟</a> <a href="#">⊠</a> <a href="#">⊡</a>
_uC1_TK2	C1_TK2	TK2	200	<a href="#">+</a> <a href="#">-</a> <a href="#">↺</a> <a href="#">↻</a> <a href="#">⊞</a> <a href="#">⊟</a> <a href="#">⊠</a> <a href="#">⊡</a>

The tank modes screen appears.

### \_uC1\_TK1 - C1\_TK1 Modes

Number	Name	Start Step	Ready Step	Transition Value	
0	Empty	1	1	6	<a href="#">+</a> <a href="#">-</a>
1	CIP	11	12	4	<a href="#">+</a> <a href="#">-</a>
2	Clean	13	13	11	<a href="#">+</a> <a href="#">-</a>
3	Filling	2	3	113	<a href="#">+</a> <a href="#">-</a>
4	Fermenting	4	4	97	<a href="#">+</a> <a href="#">-</a>
5	Cooling	7	7	81	<a href="#">+</a> <a href="#">-</a>
6	Ageing	8	8	129	<a href="#">+</a> <a href="#">-</a>
7	Transfer	9	10	65	<a href="#">+</a> <a href="#">-</a>

### Add Tank States

1. Click the add icon to access the New Procedure State dialog box. You must first create all the states, and then go back and edit them to define the transitions.
2. Enter a Name for the state.
3. Select a Start Step to determine at which step in the procedure the state will start.
4. Choose a Ready Step to determine at which step the state will be ready.

New Procedure State ×

---

**Number**

**Name**

**Start Step**  ▼

**Ready Step**  ▼

**Transition Value**












---

5. Click Add. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

### Edit Tank States

1. Once all the states are created, click edit to configure the transitions.

\_uC1\_TK1 - C1\_TK1 Modes

Number	Name	Start Step 	Ready Step 	Transition Value	
0	Empty	1	1	6	 
1	CIP	11	12	4	 
2	Clean	13	13	11	 
3	Filling	2	3	113	 

2. The Edit Procedure State dialog box appears.

When the tank is in the state you are editing, only the states which are checked will be allowed as transitions. So in the following example, when the tank is in the filling state, it is allowed to transition to an empty, fermenting, cooling, or aging state. When the tank is in the filling state it is not able to transition to CIP, Clean, Filling, or Transfer.

Within the HMI, operators can manually select only the checked states in the list.

Edit Procedure State ✕

---

Number

Name

Start Step  ▼

Ready Step  ▼

Transitions

- Empty
- CIP
- Clean
- Filling
- Fermenting
- Cooling
- Ageing
- Transfer

---

3. Click Save. To cancel, click Close or the X in the upper right-hand corner of the dialog box.










## Configure the Procedure

- From the Tanks menu, click the magnify icon to configure the procedure.

FactoryTalk<sup>®</sup> Brew<sup>™</sup> Area Unit Config System Config Procedures **Tanks** Recipes Schedule Reports

### Tanks

Unit	Name	Description	Index	
_uC1_TK1	C1_TK1	TK1	200	    
_uC1_TK2	C1_TK2	TK2	200	    
_uC1_TK3	C1_TK3	TK3	200	    
_uC1_TK4	C1_TK4	TK4	200	    
_uC1_TK5	C1_TK5	TK5	200	    

### \_uC1\_TK1 - C1\_TK1 Details

Changelog Assembly Simple

Step	Modes	Name	Time	Action	Interlock	Restart Step		
		Global Interlocks						
1	Empty Empty Ready	Idle step	0			0	 	
2	Filling	Filling requested	10	RCPX0tr_WP_C1_TK1		0	 	
3	Filling Ready	Filling step	0		JN WCComplete	0	 	
4	Fermenting	Initialize RMPS	5	RS C1_TK1_RMPS		0	 	











Here you can configure the procedures within the states that you configured earlier. Note that you can also access this screen from the header of the tank modes screen.

## Prepare the Routing Configuration

To configure routings:

- Create a core unit to be used for analyzing all routings.

### Units

Unit#	Description	Name	Tank Unit	Offset	Length	
9	Cellar 1 Fermentation	_uCellar1	<input type="checkbox"/>	0	100	 
0	Route Core	_uRouteCore	<input type="checkbox"/>	0	0	 
1	Cellar 1 Tank 1	_uC1_TK1	<input checked="" type="checkbox"/>	0	50	 
2	Cellar 1 Tank 2	_uC1_TK2	<input checked="" type="checkbox"/>	0	50	 
3	Cellar 1 Tank 3	_uC1_TK3	<input checked="" type="checkbox"/>	0	50	 

- In addition, you must create devices for each of the units that the routing unit will use. See [Configure Parameters Within Units on page 117](#).

Devices

Unit: uC1\_TK1 Total: 7

Type: P\_ValveSO

Name	Description	Index	Primary?	Source Unit	Source Device	
C1_TK1_CV01	Cellar 1 Tank 1 Inlet	304	<input checked="" type="checkbox"/>			
C1_TK1_CV05	Cellar 1 Tank 1 drain	306	<input checked="" type="checkbox"/>			
C1_TK1_CV67	Cellar 1 Tank 1 Glycol Inlet	307	<input checked="" type="checkbox"/>			
C1_TK1_CV66	Cellar 1 Tank 1 Glycol Inlet	311	<input checked="" type="checkbox"/>			
C1_TK1_CV68	Cellar 1 Tank 1 Glycol Inlet	315	<input checked="" type="checkbox"/>			
C1_TK1_CV14	Tank 1 CIP Supply	316	<input checked="" type="checkbox"/>			
C1_TK1_CV15	Tank 1 Vent	317	<input checked="" type="checkbox"/>			

- Create and map each device to the route core unit so that the routing module can span all the necessary tanks.

Devices

Unit: \_uRouteCore Total: 18

Type: P\_ValveSO

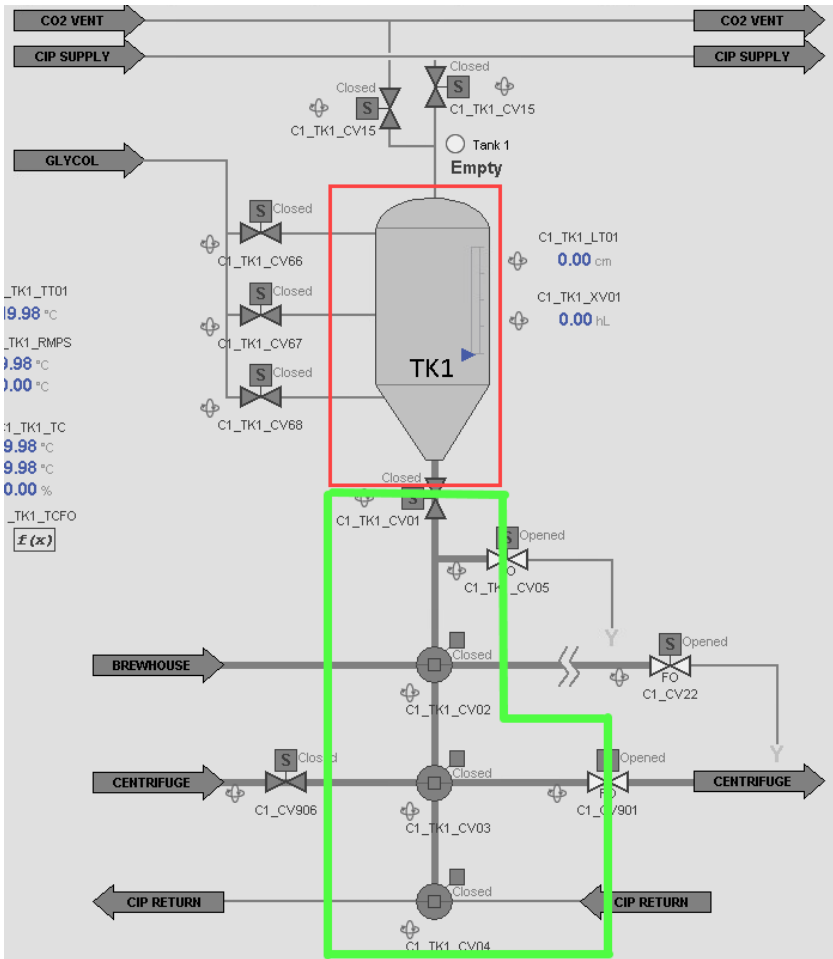
Name	Description	Index	Primary?	Source Unit	Source Device	
C1_CV901	Cellar 1 Tank 1 CF block	316	<input type="checkbox"/>	_uCellar1	C1_CV901	
C1_TK1_CV01	Cellar 1 Tank 1 Inlet	317	<input type="checkbox"/>	_uC1_TK1	C1_TK1_CV01	
C1_TK1_CV05	Cellar 1 Tank 1 drain	318	<input type="checkbox"/>	_uC1_TK1	C1_TK1_CV05	
C1_TK2_CV01	Cellar 1 Tank 2 Inlet	319	<input type="checkbox"/>	_uC1_TK2	C1_TK2_CV01	
C1_CV902	Tank 2 CF block	320	<input type="checkbox"/>	_uCellar1	C1_CV902	
C1_CV903	Tank 3 CF block	321	<input type="checkbox"/>	_uCellar1	C1_CV903	
C1_CV904	Tank 4 CF block	322	<input type="checkbox"/>	_uCellar1	C1_CV904	
C1_TK2_CV05	Cellar 1 Tank 2 drain	323	<input type="checkbox"/>	_uC1_TK2	C1_TK2_CV05	

- Click Save when done. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

## Set Up Pipes

All the valves and pipes to be used must be created before they can be configured in the system. Once you have created all the pipes, you can return to update the configuration.

In FactoryTalk Brew a pipe is defined as a section of pipe that can be isolated with valves around it. A pipe can also be designated as a source and/or a destination.



For example, a tank can be a source and a destination. Usually, it will have an outlet valve associated to it. (Shown in red)

### Pipes

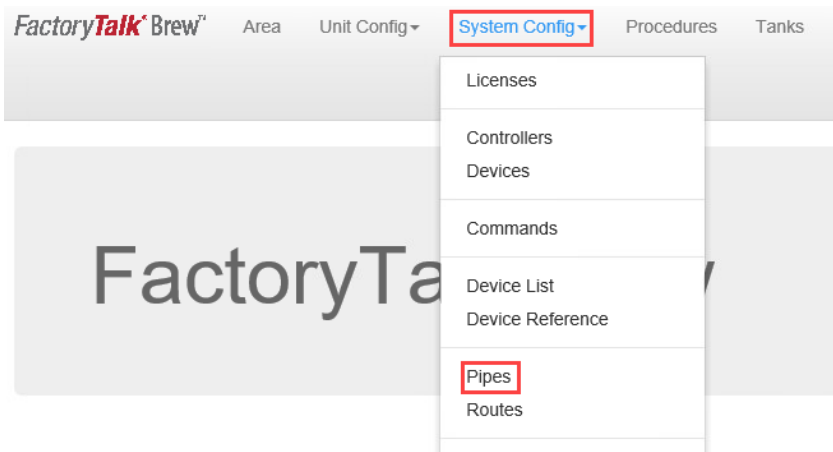
Index	Name	Description	Source?	Destination?	Valves	Pipes	
1	T1D	Tank 1 Drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>			<a href="#">+</a> <a href="#">-</a>

After the drain valve, there would be a header pipe. It is not a source or destination. It has isolation valves all around it. (Shown in green)

9	T1F	Tank 1 Feed	<input type="checkbox"/>	<input type="checkbox"/>	C1_TK1_CV01 -C1_TK1_CV05 C1_TK1_CV02 C1_TK1_CV03 C1_TK1_CV04	T1 T1D BHS CF1 CSR	<a href="#">+</a> <a href="#">-</a>
---	-----	-------------	--------------------------	--------------------------	--	--------------------------------	-------------------------------------








## Create Pipes

1. From the System Config menu, choose Pipes.



2. Click the add icon.

### Pipes

Index	Name	Description	Source?	Destination?	Valves	Pipes	
1	T1D	Tank 1 Drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>			 
2	T2D	Tank 2 Drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>			 
3	T3D	Tank 3 Drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>			 

3. The Add New Pipe dialog box appears.

Add New Pipe ✕

**Name**

**Description**

**Valves**

**Pipes**

**Source?**

**Destination?**

4. Enter the relevant information.

- Click Add to create the new pipe. To cancel, click Close or the X in the upper right-hand corner of the dialog box.




Note that you will need some pipes configured in other pipes. To do this, you must first create all the pipes. After all you have created all the pipes, you must then go back and configure them.

When all the pipes have been defined and configured, download them into the controller.

Note that prior to downloading items to the controller, you must first generate the initial controller code and verify that the applicable devices are available in the controller.

- Click the download icon.





### Pipes

Index	Name	Description	Source?	Destination?	Valves	Pipes	+ ⏏
1	T1D	Tank 1 Drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>			 
2	T2D	Tank 2 Drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>			 
3	T3D	Tank 3 Drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>			 

## Additional Pipe Operations

- To delete an existing pipe, click the delete icon.
- To edit an existing pipe, click the edit icon.

### Pipes

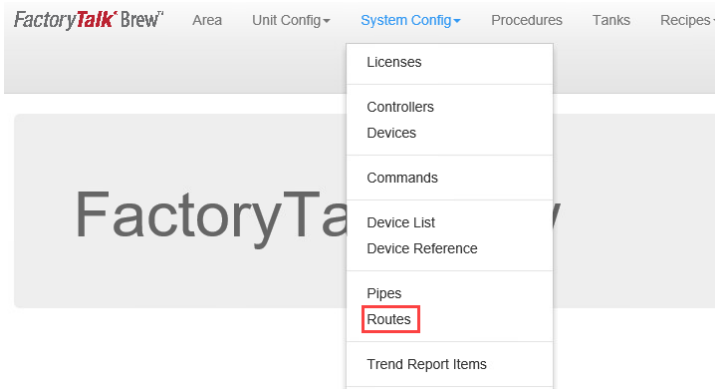
Index	Name	Description	Source?	Destination?	Valves	Pipes	+ ⏏
1	T1D	Tank 1 Drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>			 
2	T2D	Tank 2 Drain	<input type="checkbox"/>	<input checked="" type="checkbox"/>			 

## Create Routes

When creating routes, the system can use stored measurement symbols for the route such as totalized volume, time, weight, and so on. You can create a list of items to use that will automatically populate on the HMI.

### Edit Route

1. From the System Config menu, choose Routes.



2. Click the edit icon at the top of the Distance column to edit the list of measurement items.

### Routes

Source	Destination	Distance	
CFS	T4	7 sec	
	T4D	14 sec	
	CFR	21 sec	

3. The Edit Symbols dialog box appears.

**Edit Symbols** ✕

Modifying text will modify existing usage of the symbol.

---

1

2

3

4

5

6

7

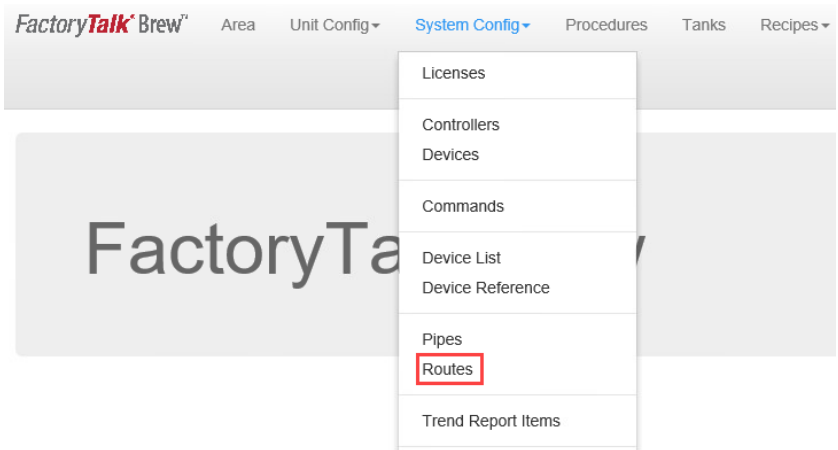
8

9

4. Enter the relevant information.
5. Click Save. To cancel, click Close or the X in the upper right-hand corner of the dialog box.



## Create New Route

1. From the System Config menu, choose Routes.



2. Click the plus icon to create a new route.

### Routes

Source	Destination	Distance	
CFS	T4	7 sec	
	T4D	14 sec	

The Add New Route dialog box appears.

### Add New Route

**Source**

CFS

**Destination**

T2

**Distance**



10 sec

**Transition 1**

T3

**Distance**

20 sec






3. Select a source and destination.
4. Enter a distance
5. Select a distance unit.
6. To define additional transitions, click the add icon in the lower left of the dialog box.
7. To delete the last transition, click the trash can icon in the lower left of the dialog box.

8. Click Add to create the new route. To cancel, click Close or the X in the upper right-hand corner of the dialog box.

When all the Routes have been defined, download them to the controller.

9. Click the download icon.






### Routes

Source	Destination	Distance 	 
CFS	T4	7 sec	 
	T4D	14 sec	
	CFR	21 sec	

### Additional Route Operations

- To delete an existing route, click the delete icon.
- To edit an existing route, click the edit icon.

### Routes

Source	Destination	Distance 	 
CFS	T4	7 sec	 
	T4D	14 sec	
	CFR	21 sec	

### Create Routing Procedures

1. Create routing procedures based upon the approved Functional Design Specification. See [Procedures on page 125](#)

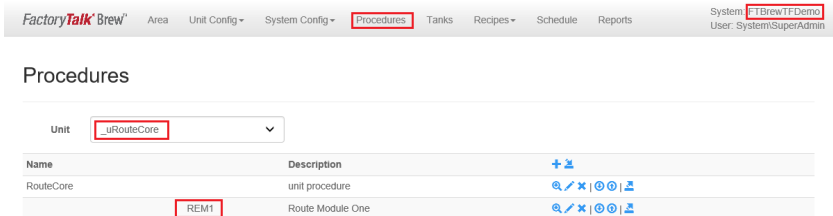


## Configuring and Using the Route Module

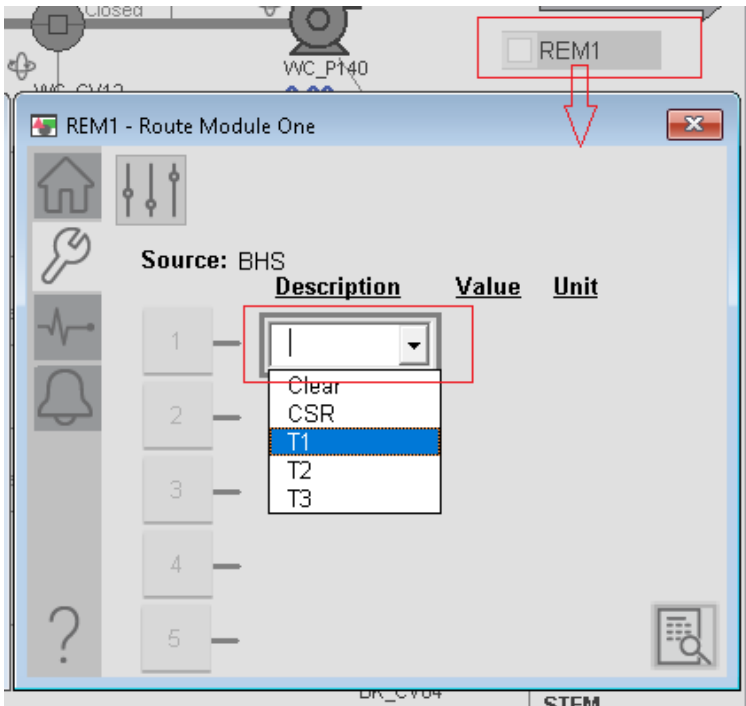
Once the Route Module has been created and the routes are configured, the Route Module can be used on the HMI. A route can execute automatically if a procedure is created for the Unit.

1. From the Procedures menu, select the Unit and click on Add to add a sequence.

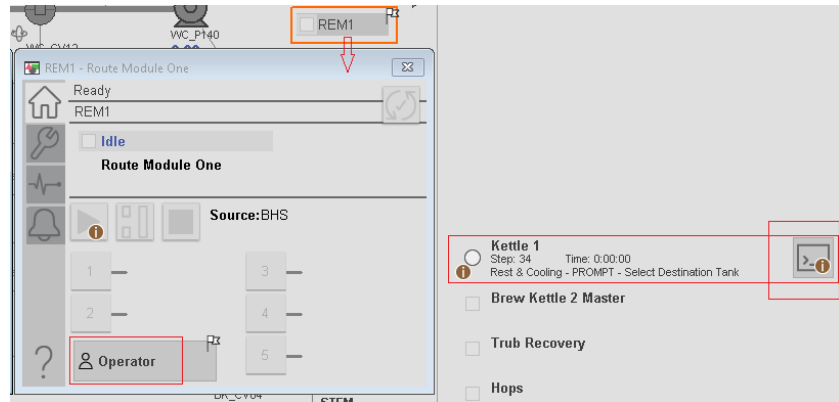
In the tank farm demo (FTBrewTFDemo) a sequence was added to the `_uRouteCore` unit.



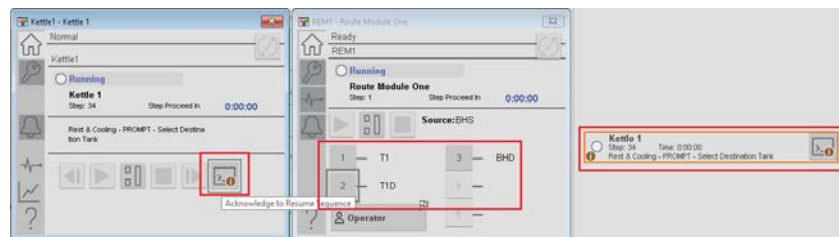
The procedure called REM1 was created to route the wort (sequence automatically when Unit is in Program mode) from the Kettle to the fermentation tanks. On the HMI of the route module faceplate, REM1 is opened by clicking on it from either the Kettle or Cellar Tank screen. When open, select the route or destination on the maintenance page.



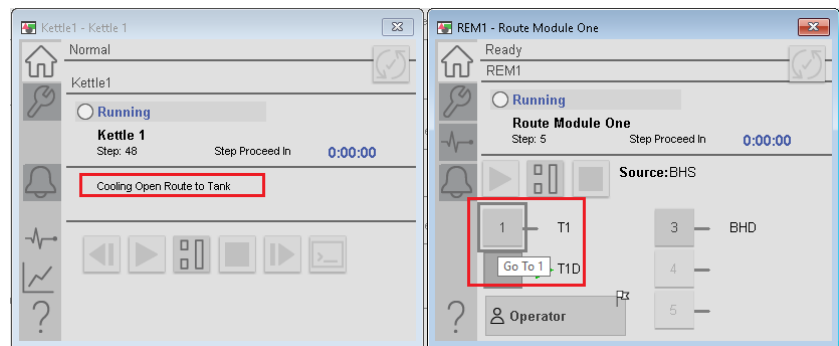
Once the Kettle is ready to transfer the wort, if the Route Module is in program mode and tank ready, the transfer will start automatically. If the Route Module is in operator mode and a route has not been selected, then a prompt will appear on the Kettle screen to select destination.



Once a destination has been selected in the route module faceplate then the Acknowledge to Resume Sequence can be selected to start the transfer.



Since the route module (REM1) is in operator mode, the correct route will need to be manually selected when requested by the Kettle sequence. Click Go To for the route that is being requested. As shown in the following figure, the Go To 1 (route to Tank 1) needs to be selected for transfer.

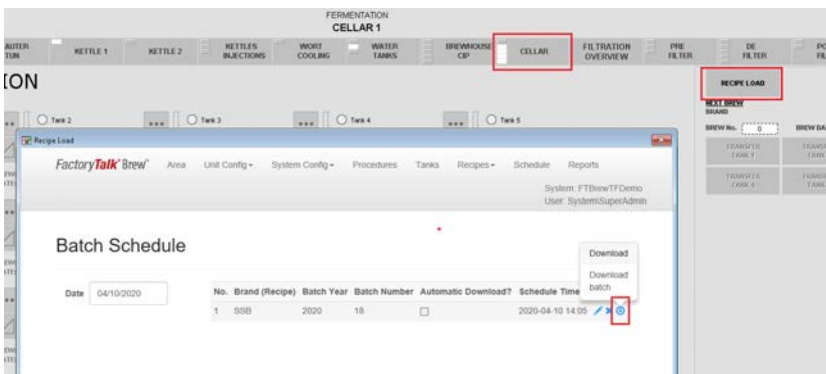


In Operator mode the selection of the routes can be changed or executed manually as configured by clicking on the destination.

## Tank Modules Operation

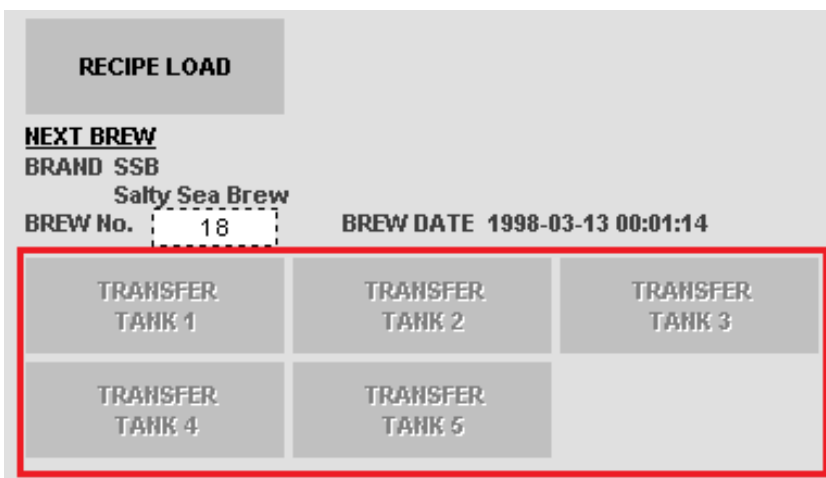
To start the process of transferring to the Cellar a Recipe will need to be loaded from the Fermentation area.

1. Choose the CELLAR location on the HMI.
2. Click on Recipe Load. The Batch Schedule will appear on the screen.
3. Choose a batch to load by clicking on the download icon for the selected batch.



4. Acknowledge the download by selecting Start on the prompt.

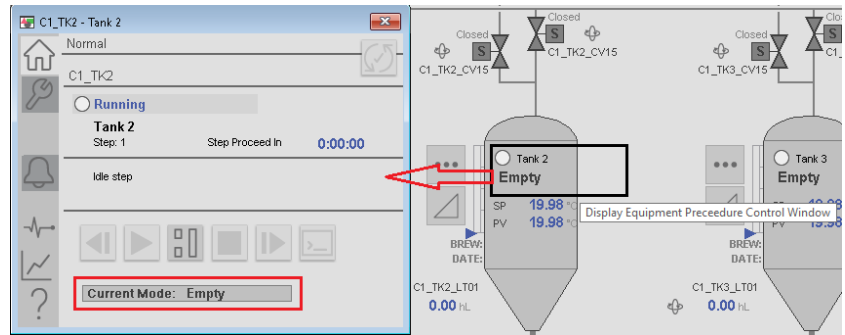
If the tanks are not ready then they will not be available for transfer as shown in the following figure.



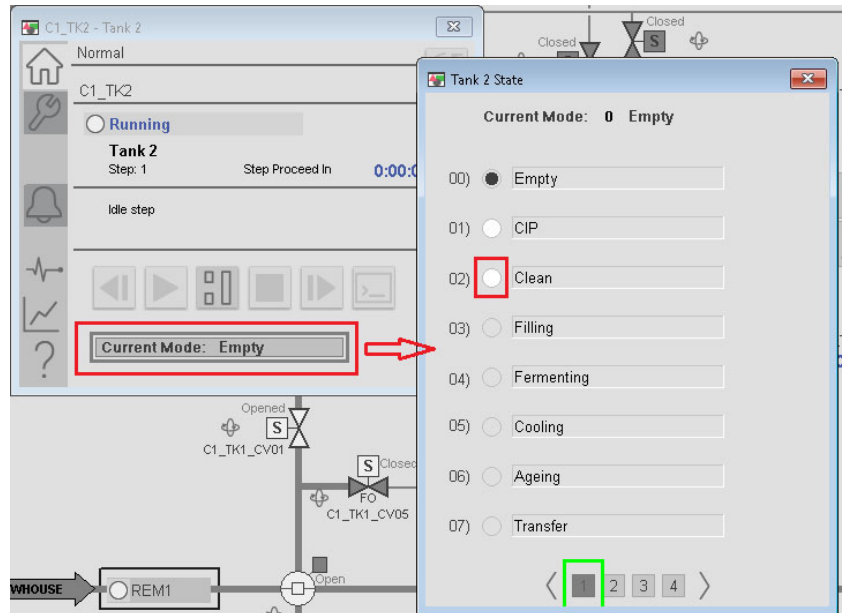
5. From the tanks detail HMI display, open one of the tanks procedure control faceplate.

From the faceplate, the state can be changed to allow the tank to be ready for transfer if it is not already programmed to do so automatically.

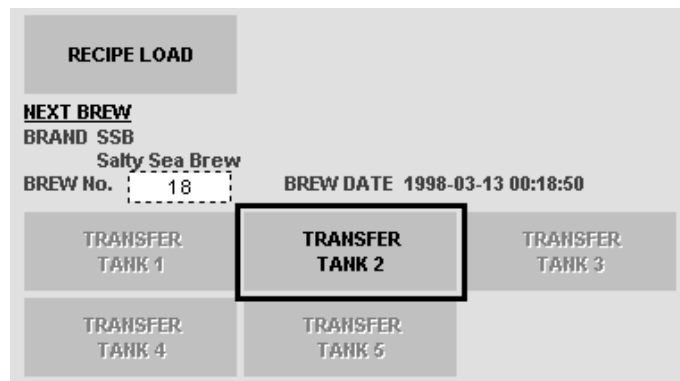
The tank needs to be cleaned before a transfer can occur. See the following figure.



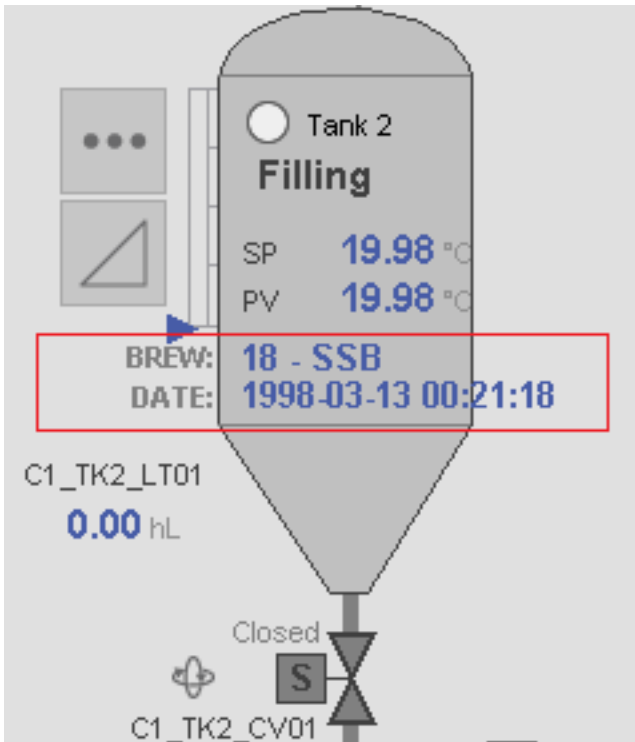
In the following example, Tank 2 was selected and its state is empty. Choose Current Mode and a new window appears. The state can be changed to Clean, allowing the transfer to the tank.



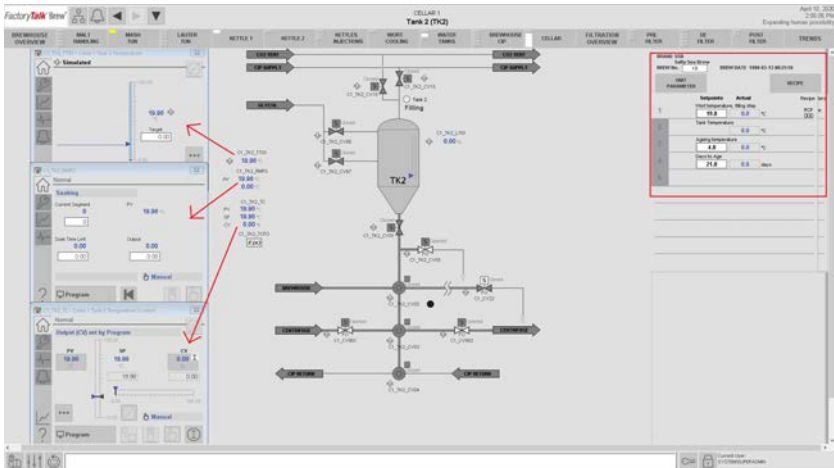
On the Cellar display, Tank 2 is now an available selection for transfer of the recipe.



On the Tank 2 display, it is shown as filling and the recipe is now displayed.



Display More shows the tank detail screen where the Unit Parameters and Recipe values as well as the Ramp and Temperature settings can be adjusted.



**Notes:**



## Rockwell Automation Support

Use the following resources to access support information.

<b>Technical Support Center</b>	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	<a href="https://rockwellautomation.custhelp.com/">https://rockwellautomation.custhelp.com/</a>
<b>Local Technical Support Phone Numbers</b>	Locate the phone number for your country.	<a href="http://www.rockwellautomation.com/global/support/get-support-now.page">http://www.rockwellautomation.com/global/support/get-support-now.page</a>
<b>Direct Dial Codes</b>	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	<a href="http://www.rockwellautomation.com/global/support/direct-dial.page">http://www.rockwellautomation.com/global/support/direct-dial.page</a>
<b>Literature Library</b>	Installation Instructions, Manuals, Brochures, and Technical Data.	<a href="http://www.rockwellautomation.com/global/literature-library/overview.page">http://www.rockwellautomation.com/global/literature-library/overview.page</a>
<b>Product Compatibility and Download Center (PCDC)</b>	Get help determining how products interact, check features and capabilities, and find associated firmware.	<a href="http://www.rockwellautomation.com/global/support/pcdc.page">http://www.rockwellautomation.com/global/support/pcdc.page</a>

## Documentation Feedback

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