GE VERNOVA

PROFICY® SOFTWARE & SERVICES

PROFICY BATCH EXECUTION 5.6

Operations Manual

GE VERNOVA

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About This Guide

The Operations Manual is intended for operators, integrators, and plant managers responsible for batch production. The manual teaches operators the skills they need to run batches in the Batch Execution Client.

The manual assumes you have a working knowledge of iFIX software, and that you understand the industrial process, including your process hardware. You should also be familiar with the S88.01 Procedural model.

Reference Documents

For related information about developing and running batches, refer to the following documents:

- Equipment Configuration Manual
- Recipe Development Manual
- System Configuration Manual
- Custom Applications manual
- ISA-S88.01, Batch Control, Part 1: Models & Terminology

Introduction

The goal of this manual is to provide the necessary information to perform all batch run-time operations. Additionally, there is information about the Proficy Batch Execution Client, the graphical interface that performs most batch operations, as well as the ActiveX controls provided with Batch Execution.

The sections that follow include a brief discussion of batch states. A thorough understanding of batch states is necessary in order for operators to successfully monitor and control batches.

The Client

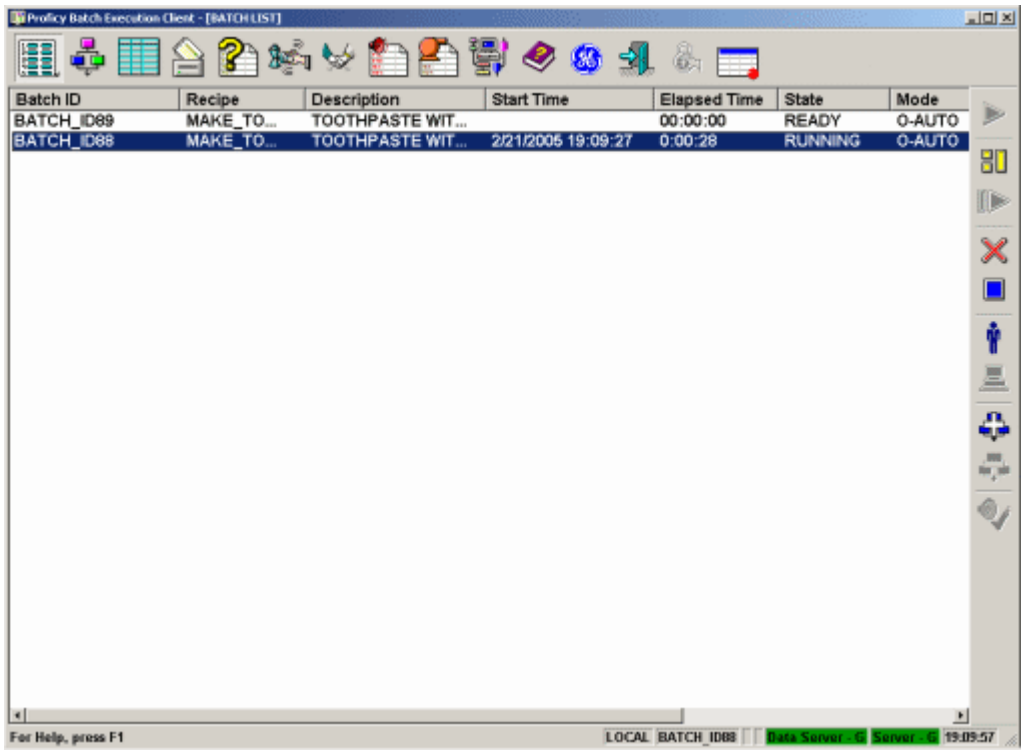
The Batch Execution Client is a graphical environment used by the operator to monitor and control all automated batch operations. It is the application provided by Batch Execution that is immediately available to issue batch commands. The Client provides the operator many different views into the batch production process with the following Client screens:

- Batch List
- SFC View
- Table View
- Event Journal
- Unacknowledged Prompts
- Phase Control

- Arbitration
- Phase Summary
- Alarm Summary
- System Configuration and Defaults

Operators can easily switch between the screens by clicking on the toolbar at the top of the Client screen. Each screen provides a high level of information. It is necessary for operators to have a good understanding of each screen's primary function so that they can choose the best screen for their specific monitoring and control needs.

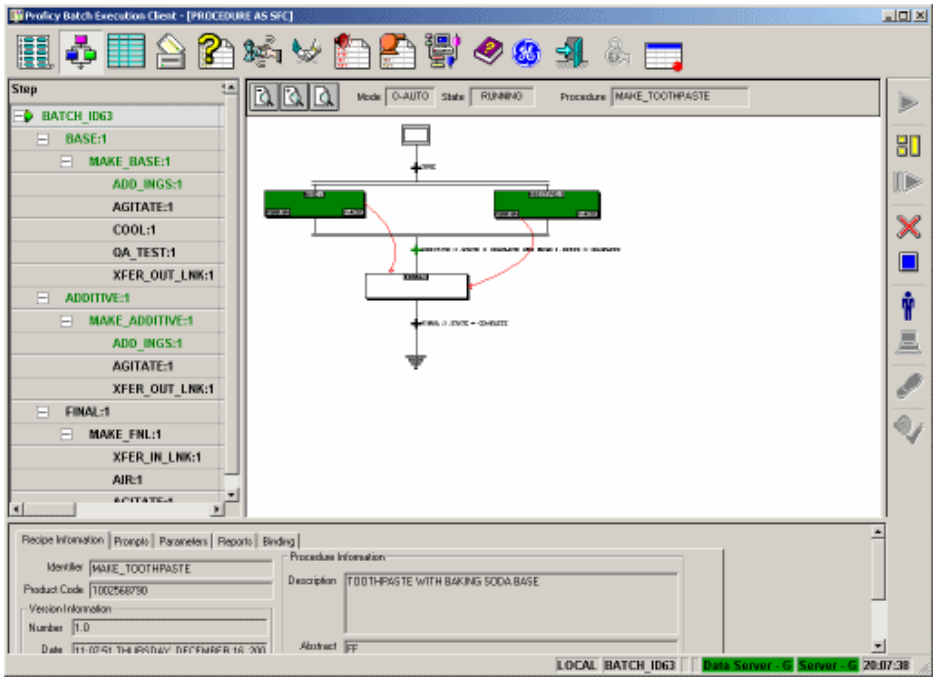
For a detailed explanation of each of the Client's screens, refer to the Understanding the Client Screens section. The following figure shows an example of the Batch Execution Client.



The Batch Execution Client (Batch List View)

Monitoring the Batch Through a Graphical Screen

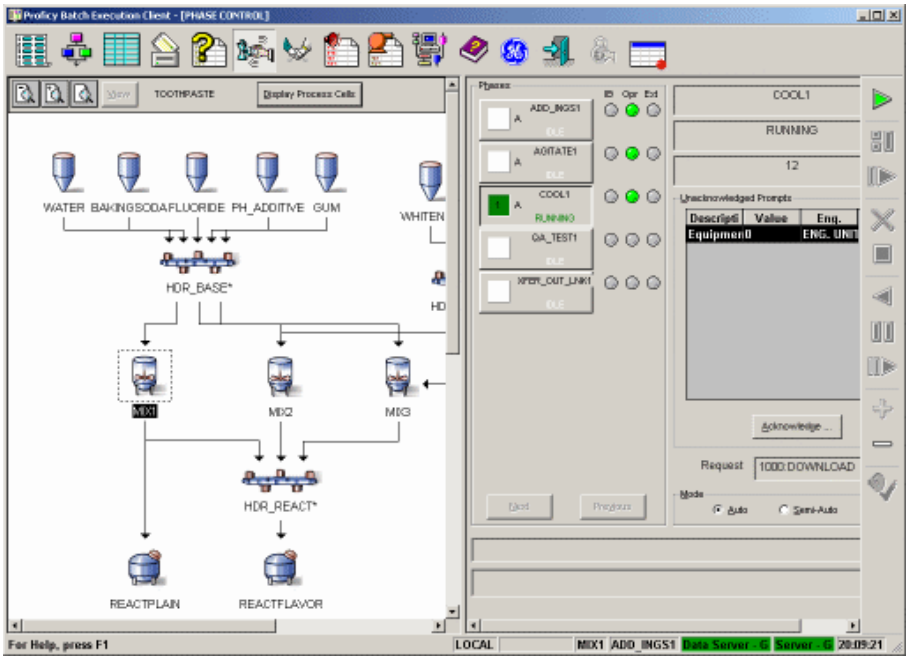
Several different views of the batch process are available in the Client. There are screens that are more graphical in nature and allow operators to see each step of the batch execute as it runs. For example, the following figure shows a recipe's sequential function chart (SFC) in the SFC View screen. You can find additional information on the SFC View screen in the Understanding the Client Screens section.



SFC View Screen

Manually Controlling Phases from the Phase Control Screen

Other screens offer a more equipment-centric view, as well as access to the procedures and equipment available for the current recipe. For example, the following figure shows the Phase Control screen. This screen allows the operator to focus on a particular phase and execute it manually. For additional information on the Phase Control screen, refer to the Understanding the Client Screens section.



Phase Control Screen

Understanding the Client's Capabilities

The Client provides complete control over your batches. It contains all the necessary functionality to:

- Schedule a batch.
- Start a batch.
- Hold a batch.
- Restart a batch.
- Stop a batch.
- Abort a batch.
- Remove a batch.

Advanced Control Tasks

The Client also provides the operator with an environment to perform more advanced batch control tasks. These tasks include:

- Changing the mode of a batch.
- Binding equipment to a recipe.
- Scaling a recipe.
- Running a segment of a recipe.
- Arbitrating equipment.

Using the Demo

You can demonstrate many of the Client's capabilities by running the MAKE_TOOTHPASTE demo provided with Batch Execution. Several of the examples in this manual reference the demo, so it may be helpful to spend a few moments to run the demo and familiarize yourself with its contents.

The following sections highlight some of the capabilities of the Client.

Switching to iFIX

Operators can switch to the Proficy iFIX WorkSpace from the Client at any time by clicking the iFIX button on the toolbar. Once in the iFIX environment, the operator can access any of the iFIX applications, including:

- Security
- Alarm History
- iFIX configuration environment
- Database Manager

Toggling to an iFIX Picture

The operator can also choose to toggle to a specific iFIX run-time picture. During equipment configuration, you can associate process cells and units with a specific picture. While monitoring a batch process from the Phase Control screen, an operator can select these configured process cells and units and then toggle to their associated picture to monitor and control the equipment. This is especially useful if there is a problem with the batch and the operator needs a more detailed look at how a specific piece of equipment is operating.

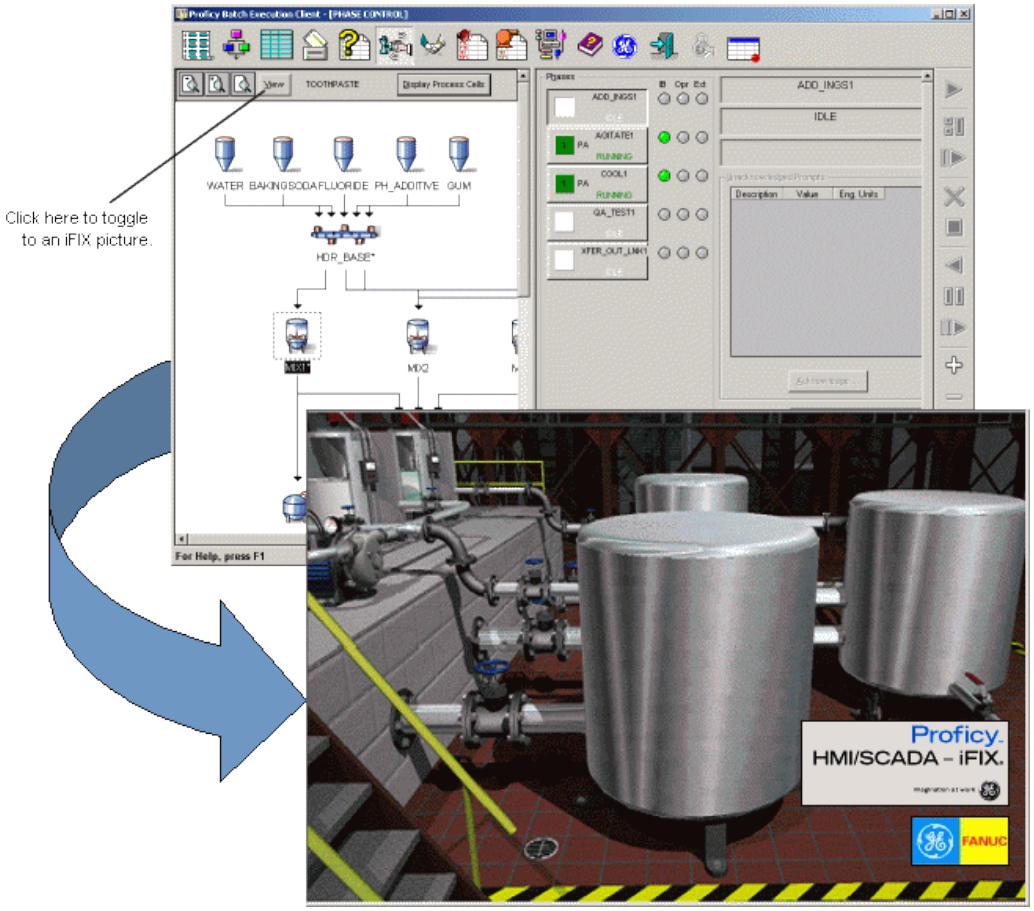
Example: Toggling to an iFIX Picture

The following figure provides an example of how the operator can toggle to an iFIX picture. While running the MAKE_TOOTHPASTE demo, the operator monitors a batch from the Phase Control screen and wants to see how the reactor is functioning. To get a graphical display of the unit, the operator:

1. Selects the REACTFLAVOR unit from the Phase Control screen.
2. Clicks the View button.

This switches to the reactor unit picture in the iFIX picture. Earlier in development, REACTFLAVOR was associated with this specific picture in the Equipment Editor.

For additional information on associating a piece of equipment with an iFIX picture, refer to the Equipment Configuration Manual.



Toggling to an iFIX Picture

Running a Recipe Segment

When controlling a recipe from the Client, the operator has the option of running an entire recipe procedure, a unit procedure, an operation, or even an individual phase.

Example: Running an Operation from the Client

A typical operation that can be run from the Client is a Clean in Place operation. This operation is frequently run between batches to clean a piece of equipment, particularly if the next batch to run is a different product or if ingredients used in the first batch are potentially corrosive or dangerous.

Example: Running a Phase from the Client

A facility can define a phase as ADD_WATER. During the course of producing a batch of cookies, the operator determines additional water is needed. The operator can then run the ADD_WATER phase manually from the Phase Control screen to add water to the batch. After the batch completes, the operator determines the mixer used to produce the cookies needs a thorough soaking before a Clean in Place operation is initiated. Again, the operator can run the ADD_WATER phase to add water to the mixer and soak the unit.

Arbitrating Equipment

While controlling batches from the Client, you can arbitrate equipment. This allows operators to make decisions and prioritize batches based on the current availability of equipment and ingredients. This information is presented visually in the Arbitration screen, through which operators can manually arbitrate resources. For additional information on arbitration, refer to the Arbitrating Equipment section.

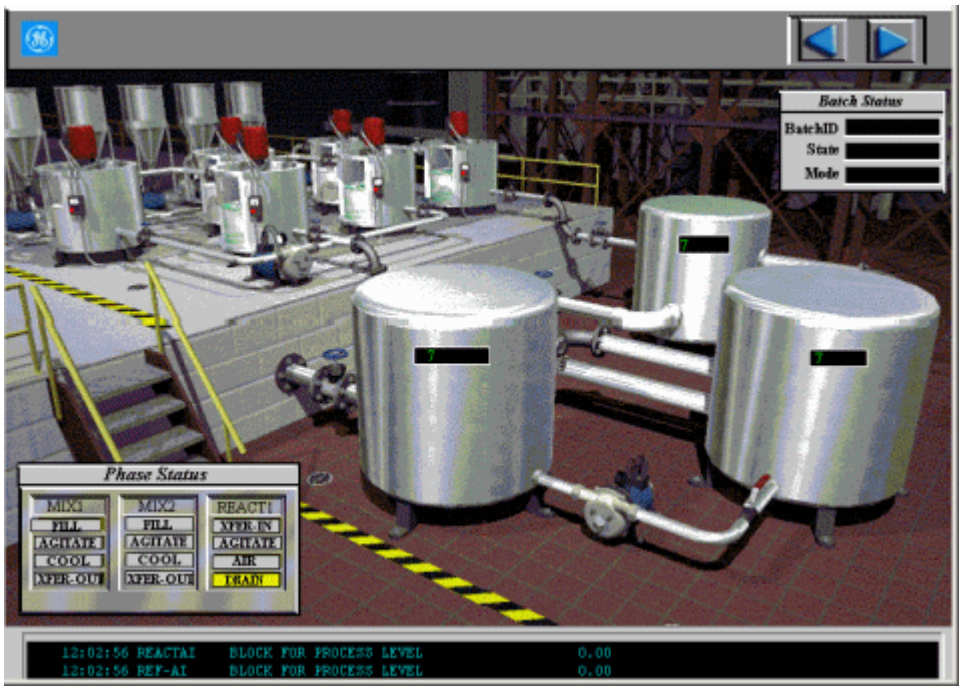
Working with iFIX

In Proficy iFIX, operators can view and interact with pictures from the Proficy iFIX WorkSpace's run-time environment.

Incorporating iFIX pictures into the batch control environment requires an initial investment in time to design and then create each required picture. However, the results of those efforts are screens that can provide a range of views into the batch processing environment, from an overview of a plant's operations to a detailed representation of a specific piece of equipment.

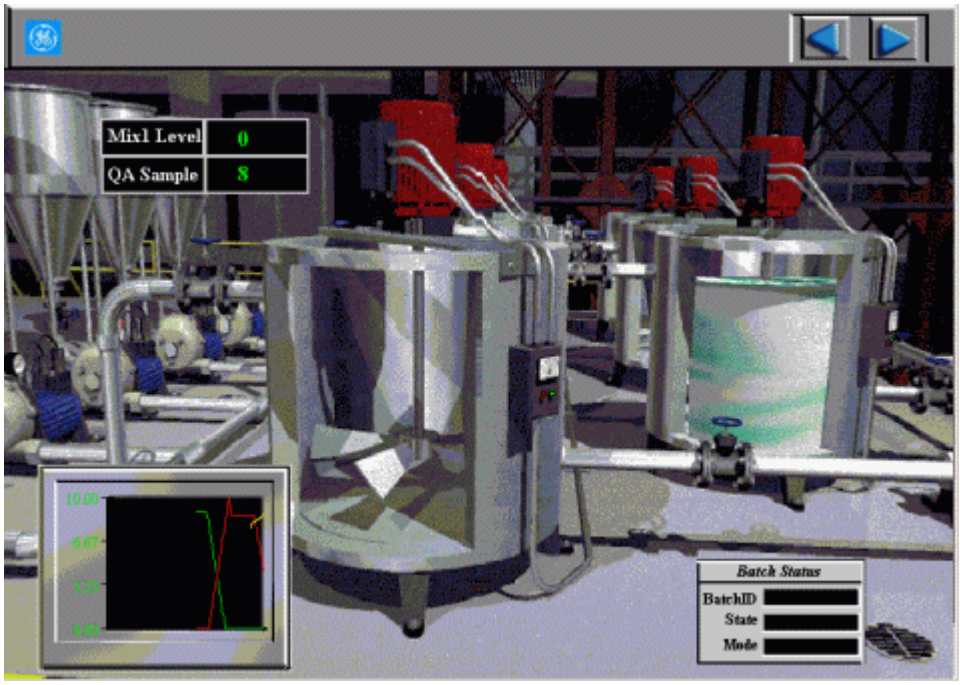
Using the iFIX configuration environment, developers can design screens that help operators view and react to events and alarms. For additional information on designing and using iFIX pictures, refer to the iFIX *Creating Pictures* manual.

The following two figures are examples of iFIX pictures you could develop for the MAKE_TOOTHPASTE demo provided with Batch Execution. The first figure depicts a process cell: an overview of the area of the plant where the toothpaste is produced.



Overview Picture

The next figure illustrates a unit used in the process, in this case, a reactor. The operator can toggle to this picture from the Phase Control screen or can switch to it from within the iFIX picture to receive real-time data from this specific piece of equipment.



Unit Picture

Interoperability

The other components of the Batch Execution system – as well as additional iFIX applications – coexist with the Client to provide operators with maximum control over the batch environment. The interoperability between the Client and other applications are described in the following sections.

Recipe Editor

The Client uses sequential function charts (SFCs) built in the Recipe Editor. Both the SFCs and additional components developed in the Recipe Editor interact with the Client in the following manner:

- A batch executes based on how the SFC was designed in the Recipe Editor.
- The Client displays the SFC, allowing the operator to view each step of the batch process.
- Only recipes released to production by the Recipe Editor can be executed in Batch Execution.
- Recipes configured with Active Binding™ in the Recipe Editor can prompt operators to make binding decisions in the Client at run-time.

For additional recipe information, refer to the Recipe Development Manual.

Equipment Editor

Many tasks performed in the Client are a direct result of equipment configuration decisions made earlier in the Equipment Editor. For example:

- The arbitration and allocation processes in the Client are based on how equipment was defined in the Equipment Editor.

- You can run phases configured in the Equipment Editor in the Phase Control screen.
- In the Equipment Editor, equipment is associated with an iFIX picture. Operators toggle from the Client to the picture for a closer look at that particular piece of equipment.

For additional information on the area model, refer to the Equipment Configuration Manual.

Archiver

In Batch Execution, information is generated about each batch added to the Batch List. The Batch Execution Server creates an event (.EVT) file at run time, and you can view these event files in the Client's Event Journal screen.

The same data sent to the event files is sent to the Archiver for storage in a relational database. The Client provides the operator with a configurable view of this data.

- Operators can view Journal information from the Client.
- Operators can customize what information is displayed in the Journal by configuring the System Configuration window in the Client.

For additional information on configuring the Archiver, refer to the System Configuration Manual.

iFIX

Batch Execution is ideally used in tandem with iFIX, as many of the their applications can enhance a facility's batch processing capabilities. For example:

iFIX run-time environment – provide graphical pictures of the plant and equipment.

iFIX Alarming – alarms generated in the Client are sent to the Alarm History window as text messages.

iFIX SCU – security for the entire Batch Execution application is configured within the SCU.

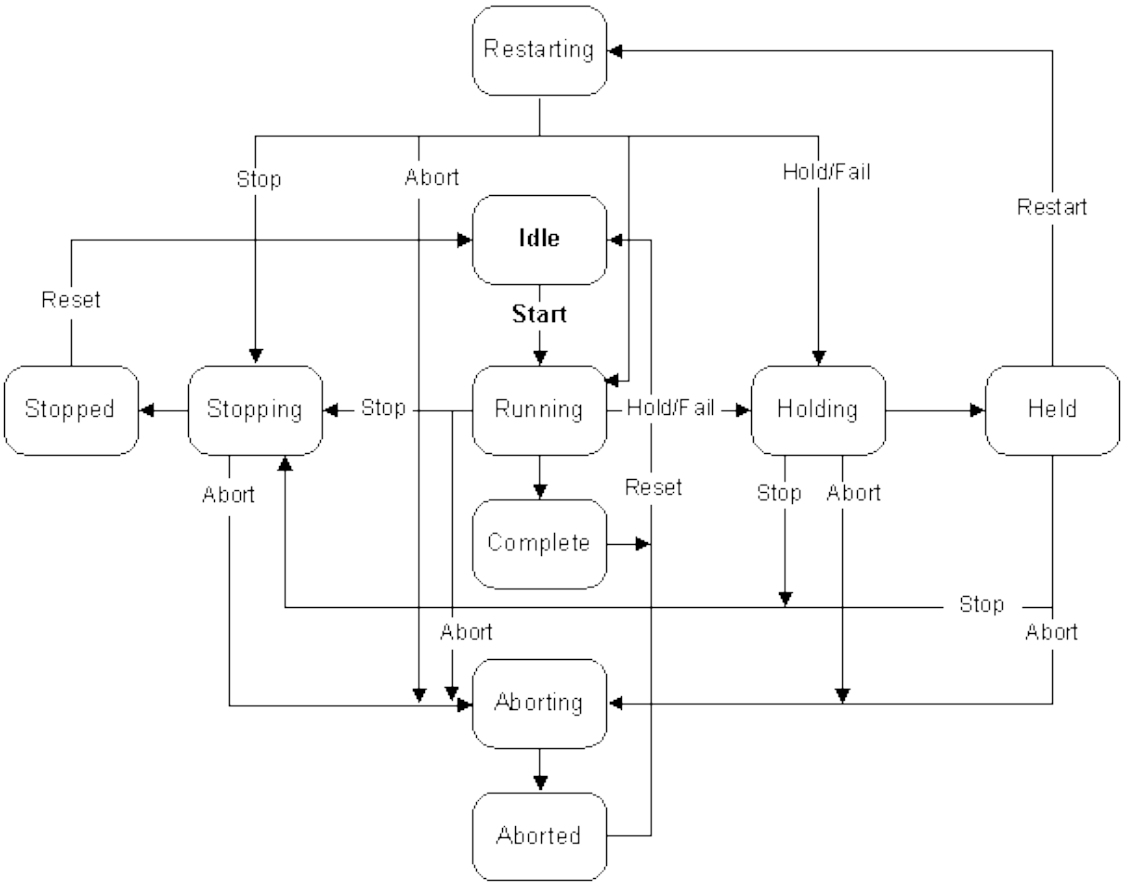
iFIX Database Manager – configure blocks to provide real-time process information.

For additional information on any of these applications, refer to the iFIX documentation sets.

Understanding Batch States

As a batch executes, it transitions through various states. There is a specific sequence of valid batch states, as shown in the following figure, that the batch production process must follow. An understanding of the various states of batch production and the transitions between these states is necessary in order to plan and control your batch production process.

The batch state is displayed in several locations in the Client; every window has either a field or a column where the state information is visible. It is important to always know the current state of the batch, because the commands available for you to issue to the batch are dependent on the batch's current state.



Valid State Transitions

For more information on batch states, refer to the Starting and Controlling Batches section.

Getting Started

Prior to starting a batch, operators must establish the complete processing environment. This is also an excellent time for supervisory personnel to consult with operators and confirm that they understand and can anticipate all of the tasks that are involved during the lifecycle of the batch process.

The sections that follow describe the tasks that must be completed prior to batch production, as well as some possible implementation strategies for use by developers.

Prerequisites

The following prerequisites must be fulfilled before initiating a batch process:

- All hardware and software must be configured and functional before the batch is initiated.
- Start iFIX. iFIX must be running to use security with Batch Execution, as well as to monitor batches from the Proficy iFIX WorkSpace. All screens that will be used during the batch production process must be complete at this time.
- Start the Batch Execution Server. The Batch Execution Server must be running, and the communication between the Batch Execution Server and the Batch Execution Client must be fully functional. The server status indicator in the Batch Execution Client must display a "G" for a good connection. Refer to the Viewing Server Information section for information on the server status indicators. For information on configuring the Batch Execution Server, refer to the System Configuration Manual.
- Recipes must be complete and released to production before they can be added as batches to the Client. For additional information on building and releasing recipes, refer to the Recipe Development Manual.

Establishing a Naming Convention

When adding a batch, you are prompted to supply a Batch ID for the batch. It is important that you consider the long-term results of your naming selection. Batch Execution allows you to use the same Batch ID multiple times, which could result in confusion at batch production time or when viewing completed batches in the Event Journal screen.

If your facility does not already have a method for generating an ID for each batch process, you should establish a protocol before you begin the batch production process.

System Setup Task Overview

To ensure that the batch production environment is fully operational, supervisory personnel should evaluate the following system setup tasks:

- Customize Client screens.
- Create iFIX pictures.
- Configure communication between Batch Execution and iFIX.
- Configure security rights.

Once these tasks and the tasks in the Prerequisites section are complete, you can begin the batch production process.

Customizing Client Screens

Batch Execution lets developers customize the information presented to operators in the Client. By configuring the Client screens individually, developers can determine what types of information operators receive.

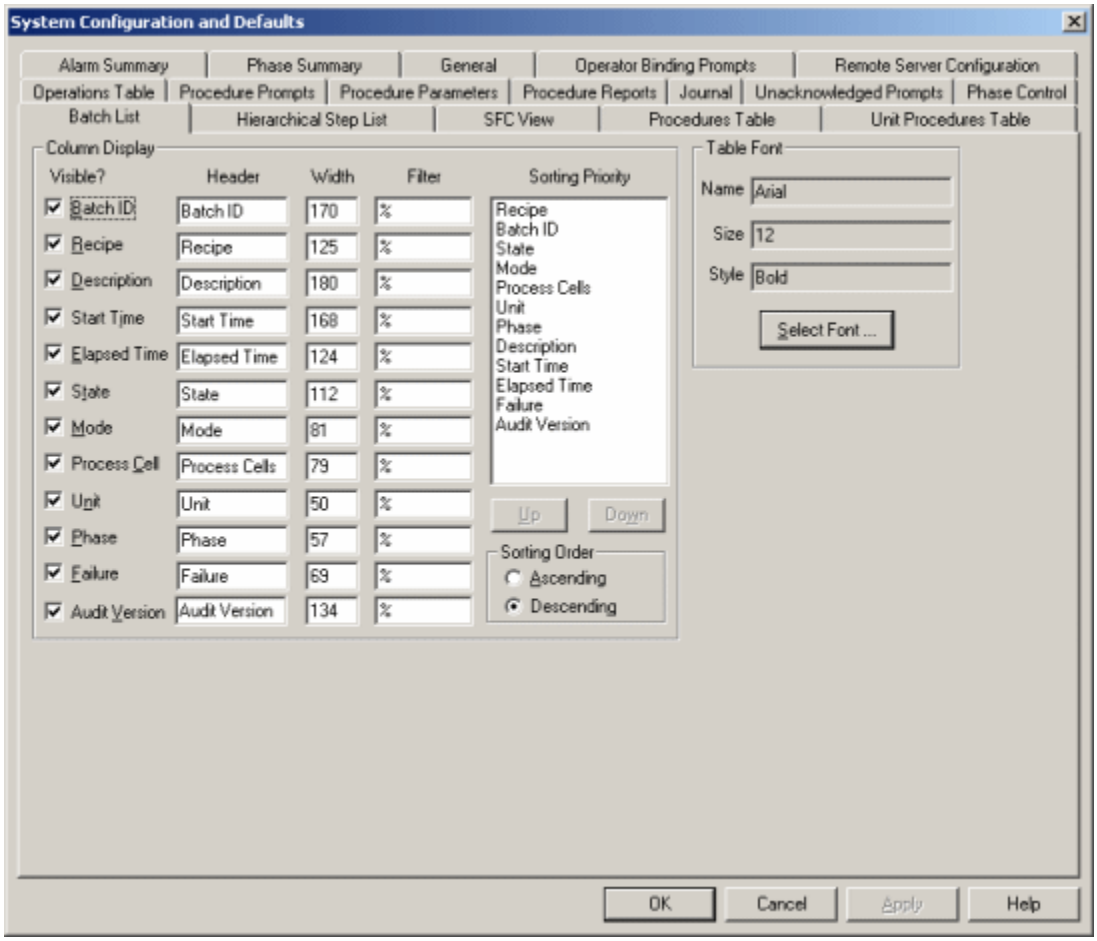
The screens are configured by accessing the System Configuration and Defaults window in the Client. From the System Configuration window, you can choose from a series of 16 labeled tabs. Each of

these tabs opens a window that allows you to configure the corresponding Client screen or section of a Client Screen.

You can perform the following tasks from the System Configuration and Defaults window:

- Display or hide columns
- Change column headings
- Change column sizes
- Order and prioritize sorts
- Change fonts
- Change filters

For additional information on filtering information in the Client screens, refer to the section, Filtering Information in Client Screens. The following figure shows an example of the System Configuration and Defaults screen.



System Configuration and Defaults Screen

Filtering Information in Client Screens

It is possible to configure most of the Client screens to filter specific information from the operator. The following screens have filtering capabilities:

- Batch List
- Unacknowledged Prompts
- Event Journal
- Phase Summary
- Alarm Summary

You can filter using a wild card figure, which in the Batch Execution Client is the percentage sign (%). When you initially select any of the filterable tabbed windows in the System Configuration and Defaults window, all the filter fields contain the percentage sign. This indicates that filtering is not enabled and, therefore, all entries are visible in the Client screen.

You can use the wild card character (%) to configure filtering for any filterable fields. For example, B% entered in the Batch ID field displays only batches with a Batch ID starting with the letter B.

Using the Sort Priority in the Client

In Batch Execution, the Sort Priority defines the order of information in the following Client screens:

- Batch List
- Unacknowledged Prompts
- Alarm Summary
- Phase Summary
- Event Journal

You can also set the sort priority for the following auxiliary tabbed windows in the SFC View and Table View screens:

- Prompts
- Parameters
- Reports

The Sort Priority for all screens is configured from the System Configuration and Defaults screen. The only exception is the Event Journal. A sort priority can be configured locally, in the Event Journal screen, for the current Event Journal file.

Setting the Sort Priority

The method of setting the Sort Priority is described in the following steps:

1. The Sort Priority list contains all of the visible columns for the screen. By using the Up and Down buttons, the operator determines which column's data is used to sort the information in the screen. For example, if Batch ID is moved to the top of the Sort Priority list, the Batch ID column's data has the highest sort priority. The Client sorts the screen's data based on the data in the Batch ID column.

   If batches have identical information in the first column of information sorted, the sort then proceeds to the second column of information in the list.

2. The operator selects whether the sort is processed in ascending or descending order. For example, if the operator selects ascending, the sort returns 1-5 or A-Z. If the operator selects descending, the sort returns 5-1 or Z-A.

   NOTE: *Numbers have the highest sort priority and are evaluated first, and then information is sorted alphabetically.*

Setting Confirmations in the Client

As a precaution, you may want to configure your Batch Execution system to prompt operators for confirmation when issuing a command. While this adds an additional step for the operator, the extra time spent confirming a command may help to prevent an operator from inadvertently issuing an incorrect command.

You can set prompts for each command individually. The default when you install your system is to prompt for all commands. For example, you may want to prompt operators before they Start or Stop a batch, because they are essentially irreversible actions, but you may not feel the need to prompt operators before Holding a batch – a temporary action.

Configuring the Client to Interface with the Proficy iFIX WorkSpace

Before you can switch between the Client and the Proficy iFIX WorkSpace, you must establish a communication link between the two programs. This is configured in the Client, from the System Configuration and Defaults window.

Once this link is established, the iFIX button on the Client toolbar becomes active.

Configuring Security

Security is an important element of Batch Execution. All security features and rights are configured in the iFIX Security applications. Prior to batch production, you must determine the security necessary for each application, as well as the rights you want to allow individuals and specific nodes, and assign them accordingly.

For additional information on configuring security, see the System Configuration Manual, and the iFIX Implementing Security Manual.

Implementation Strategies

Before you begin the actual production of a batch, there are several steps you can take to customize and optimize your operating environment. One of the most important aspects of planning your batch production process is determining how to best use iFIX applications to enhance the Batch Execution monitoring environment. This section discusses the following tasks:

- Developing a strategy for integrating iFIX applications with Batch Execution.
- Creating specific iFIX pictures.

Integrating iFIX with Batch Execution

The operator's primary view into the batch process is from the Client. From the Client, the operator can:

- Perform advanced batch control.
- Perform manual phase control.
- Arbitrate equipment.

Each of these tasks is discussed in the following sections. It is important to note that these tasks can be performed only from the Client environment.

However, there are features available in iFIX that greatly expand the functionality of Batch Execution, including:

Security – all security for Batch Execution is configured within the iFIX System Configuration Utility (SCU). Before the production process begins, integrators and developers must develop a security strategy and assign security rights appropriately.

Real-time data – by using the capabilities of the following applications, operators receive real-time data during the batch process:

- iFIX Database Manager
- iFIX pictures

By developing a strategy that incorporates the best features of both the Batch Execution and iFIX systems, operators are provided with the optimum batch processing environment.

Creating iFIX Pictures

Prior to batch production, developers create their iFIX pictures. The goal in designing these pictures is to provide the operator with the maximum amount of information in the simplest manner possible. Therefore, developers might want to create:

- An overview picture. This picture provides an expansive view of the plant and its equipment.
- A main or control picture. This display can take advantage of iFIX scripting, which lets you use push buttons to link to other screens. For example, from this picture operators can click buttons to switch directly to iFIX Historical or Alarming screens, or to any pictures connected to this particular batch process.
- Pictures to represent specific equipment modules or units. The operator can toggle to these pictures to troubleshoot or to obtain real-time data about the batch.

This is only a suggested strategy. Integrators and developers must develop pictures that best suit the customer's individual production needs.

Viewing Server Information

The Client monitors the communication status of each available server. At the bottom right-hand corner of each Client window, a display indicates the status of all available data servers. The letter on the left reflects the communication status with the Batch Execution Server; the letter on the right indicates the status of communications between the Batch Execution Server and all external data sources. The Client requires a Good Server status in order to successfully run a batch.

Batch Execution Server Status

The following table lists the possible Batch Execution Server Status indications, which are displayed in the lower right of the Batch List of the Batch Client. For additional information on configuring the Batch Execution Server and all other data servers, refer to the System Configuration Manual.

Batch Execution Server Status Indicators	
Server Status	**Description**
Good	A solid conversation status exists between the Batch Execution Client and the Batch Execution Server.
Bad	A serious problem exists between the Batch Execution Client and the Batch Execution Server. The Batch Execution Client won't attempt to read or write values to the Server.
Lost	The connection between the Batch Execution Client and the Batch Execution Server does not exist.
Suspect	One or more of the data servers cannot communicate with the Batch Execution Server.

Data Server Status

You can select the Statistics tab from the Batch Execution Server Manager to receive additional information on the data server state. For example, a Suspect server state generates a warning message. A data server with a Bad or Lost state generates a Severe message.

You can also check the VBEXEC.LOG file for additional server state information.

The following table lists the possible data server status indications, which appear both on the lower right side of the Batch List screen on the Batch Client and on the Data Servers tab of the Batch Execution Server Manager. For additional information on configuring data servers, refer to the System Configuration Manual.

Data Servers Status Indicators	
Server Status	**Description**
Good	All configured data servers have established conversation status with the Batch Execution Server.
Bad	A serious problem exists between all data servers and the Batch Execution Server. All batches go to the Hold state.
Lost	The connection between one or more of the data servers and the Batch Execution Server does not exist.
Suspect	One or more of the data servers cannot communicate with the Batch Execution Server.

Understanding the Client Screens

There are screens in the Batch Execution Client that allow you to control and monitor batch production, as well as a tenth screen that configures the Client and its communication to other applications. By understanding each of the screen's features and functions, you are able to select the best screen for each batch task you undertake.

The following sections describe the physical characteristics and major functionality for each screen.

Using the Client

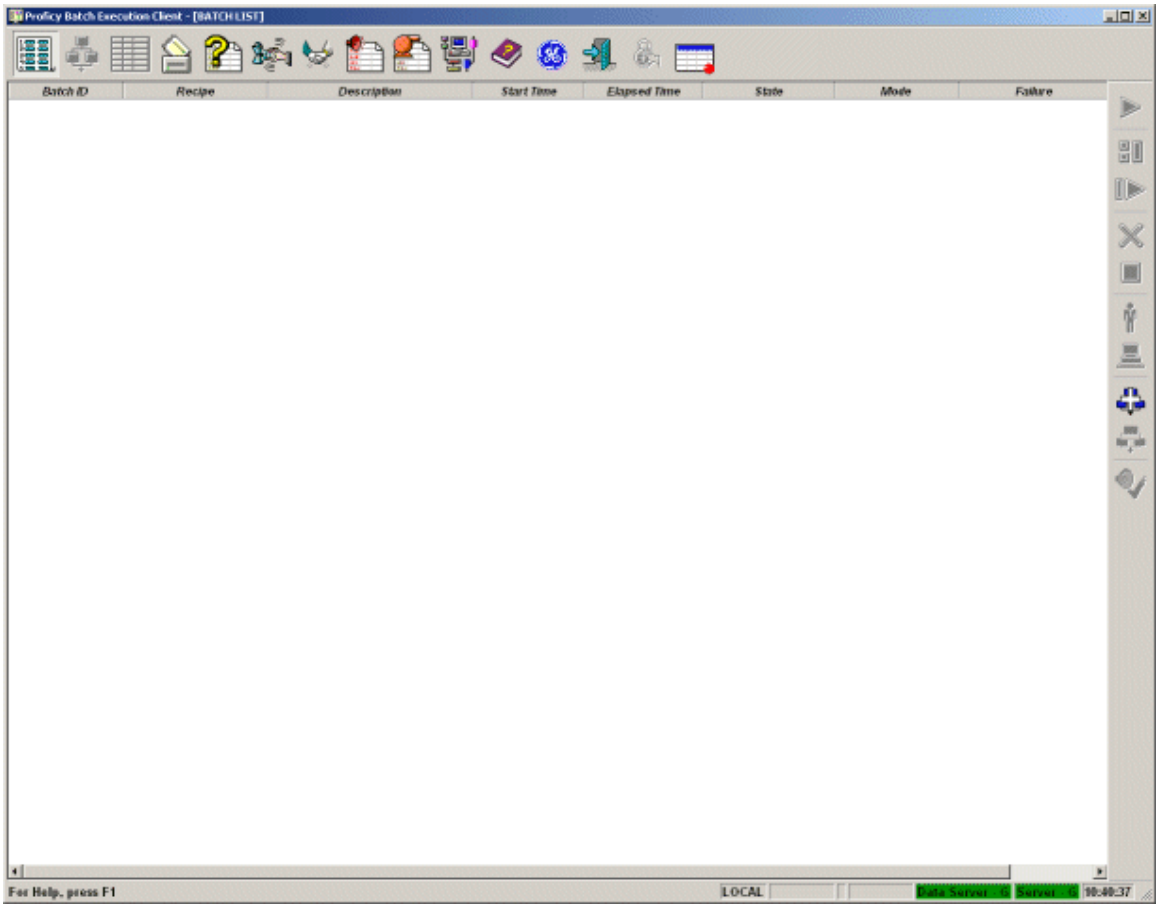
Both basic and complex batch commands are issued from the Client, and it is within the various screens of the Client that the most detailed batch information can be found.

The screens of the Client are:

- Batch List
- SFC View
- Table View
- Event Journal
- Unacknowledged Prompts
- Phase Control
- Arbitration
- Alarm Summary
- Phase Summary

- System Configuration
- Transition Breakpoints

To start the Client, double-click the Client icon in the Batch Execution program group. The Batch List screen appears, as shown in the following figure.



Batch Execution Client's Batch List Screen

Common Client Controls

There are several elements that are common to each of the nine Client screens that are used to control and monitor batches. These include:

Toolbar – lets operators navigate between the various Client screens. Refer to the section, Using the Client Toolbar, for additional information.

Server Status Indicator – indicates the condition of the link between the Batch Execution Client and the Batch Execution Server. Refer to the Getting Started section for additional information.

Data Server Status Indicator – indicates the condition between the Batch Execution Server and its data sources, such as the iFIX OPC Server.

Current Batch Indicator – displays the name of the currently selected batch.

Feedback/Status Line – indicates the function of each button as the cursor is passed over it.

Command Buttons bar – controls batch production. Refer to the Command Buttons section for additional information.

Using the Client Toolbar

The Client toolbar is a group of buttons used to navigate among the various Client screens. To move from one window to another, simply click a button on the toolbar. Tool tips are enabled on all buttons, so you can easily identify the screen each button opens. This information is also duplicated in the feedback/status line on the lower left-hand corner of all screens.

The following table describes the buttons of the toolbar and their associated screens.

Client Toolbar Buttons	
Click this button...	**To...**
	Switch to the Batch List screen. This screen opens by default each time you launch the Client.
	Open the SFC View screen if there is a batch selected from the Batch List. If there is no batch selected in the Batch List, this button is inactive.
	Open the Table View screen if there is a batch selected from the Batch List. If there is no batch selected in the Batch List, this button is inactive.
	Open the Event Journal screen.
	Open the Unacknowledged Prompts screen.
	Open the Phase Control screen.
	Open the Arbitration screen.

Client Toolbar Buttons	
Click this button...	**To...**
	Open the Alarm Summary screen.
	Open the Phase Summary screen.
	Open the System Configuration and Defaults screen.
	Open Batch Execution Client Help.
	Toggle to iFIX, if you have configured the link to iFIX in the System Configuration and Defaults screen.
	Exit the Client.
	Log in to iFIX. This button is enabled only if iFIX Security is configured and iFIX is running.
	Open the Transition Breakpoints screen.
	Reconnect to the Batch Execution Server.
	Connect to another server.

Command Buttons

Many of the Client screens have a set of command buttons that are used to issue commands to the current batch. This set of buttons is located on the right side of the screen.

The buttons are not always active or available. The buttons and their availability change dynamically, depending on the function of a particular screen and the current state of the selected batch. The following table lists the Command buttons.

Example: Command Button Availability

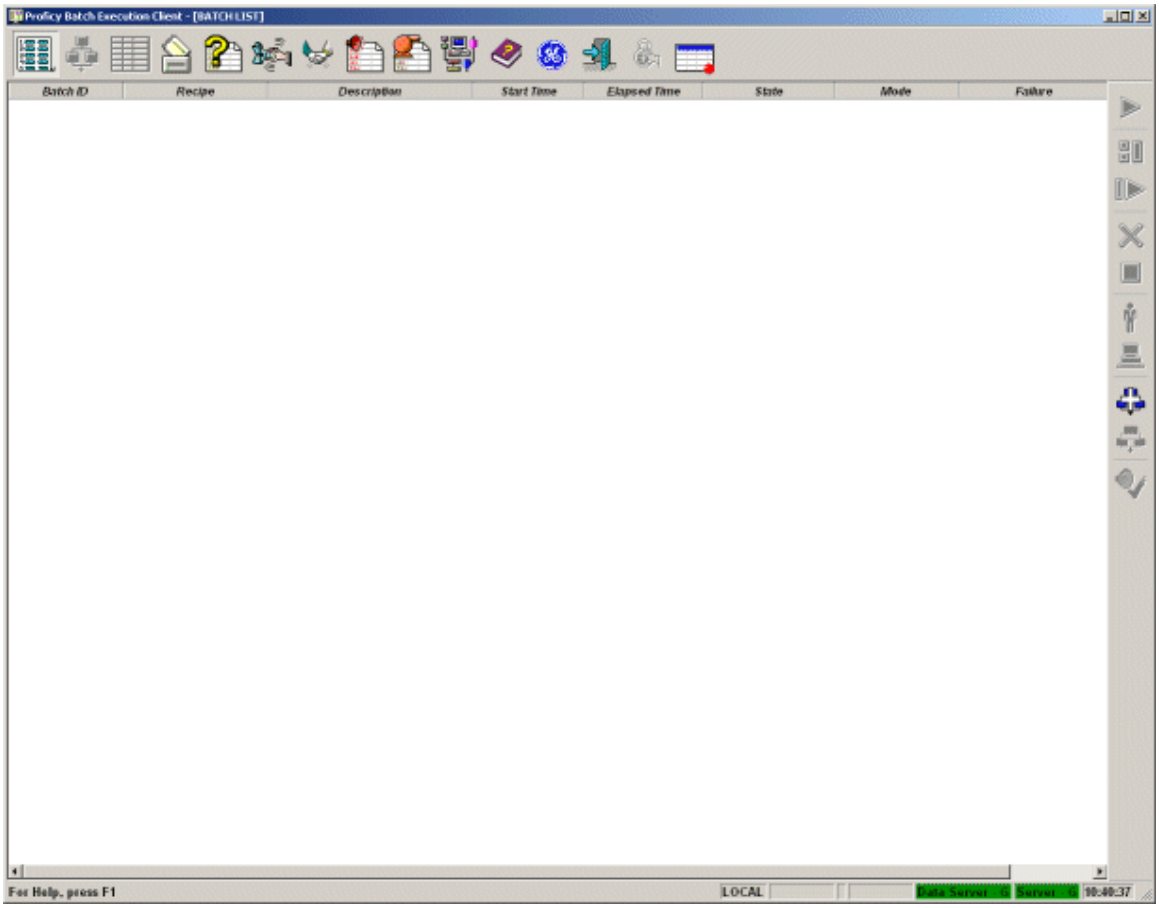
For example, in order to avoid the inadvertent removal of an active batch, the Remove Batch button is available only if the selected batch is in the Stopped, Aborted, Complete, or Ready state.

Command Buttons	
Click this button...	**To...**
	Start a batch.
	Hold a batch.
	Restart a batch.
	Abort a batch.
	Stop a batch.
	Switch to Manual mode.
	Switch to Automatic mode.
	Add a batch.
	Remove a Batch.

Command Buttons	
Click this button...	**To...**
	Perform active step change.
	Acquire a phase.
	Release a phase.
	Reset a phase.
	Pause the execution of a phase.
	Resume the execution of a phase.
	Clear all failed phases.

Batch List Screen

The Batch List screen, shown in the following figure, is the primary administrative screen in the Client. This is the screen that opens by default when the Client is launched.



Batch List Screen

The following tasks are performed only through the Batch List screen:

- Adding a batch
- Removing a batch

In addition, all other batch-related commands can be issued from the Batch List screen.

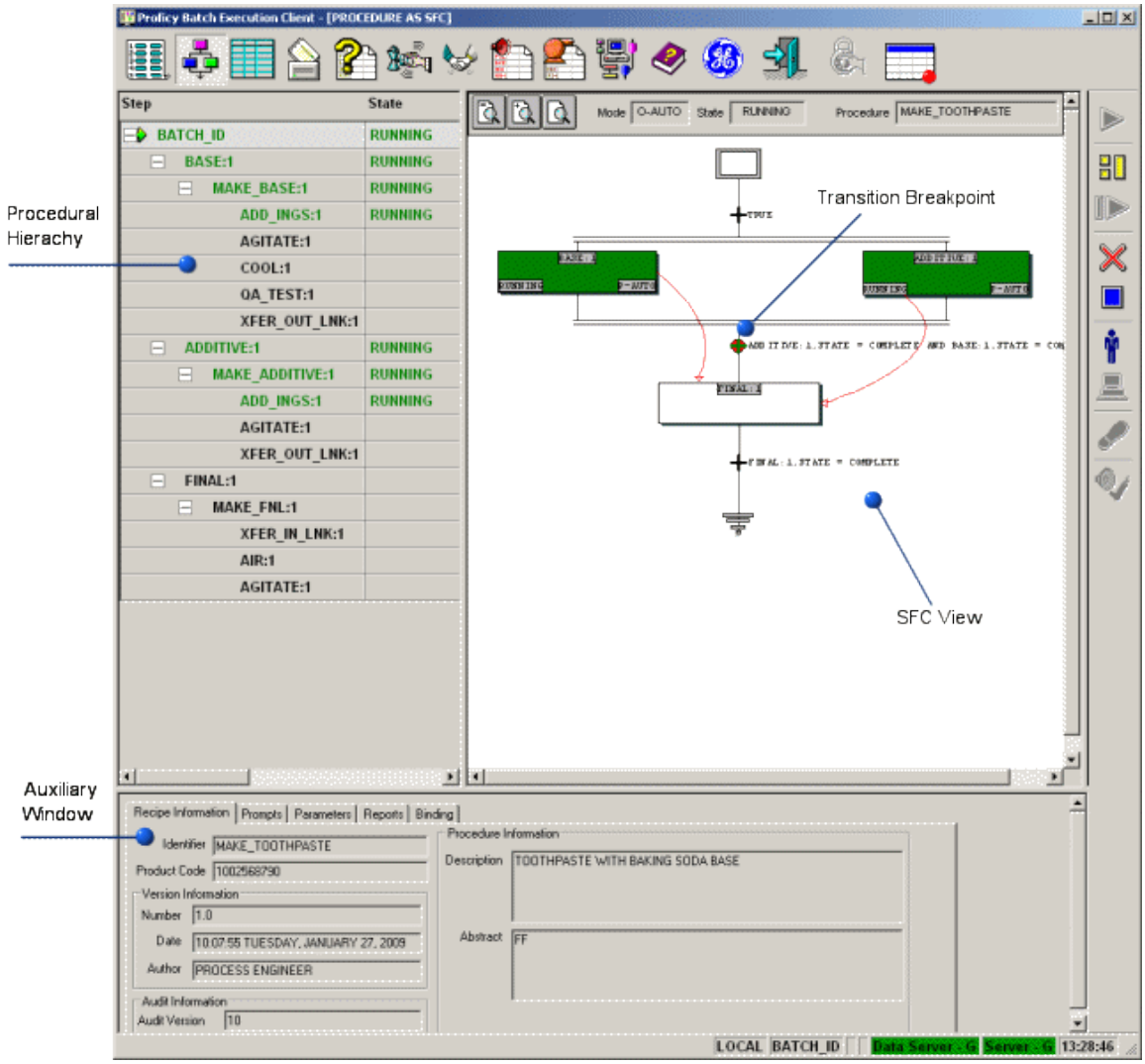
SFC View and Table View Screens

The SFC View and Table View screens are the screens most commonly used for monitoring and controlling batches. From each of these screens, operators can issue the following commands:

- Start a batch.
- Hold a batch
- Restart a batch.
- Stop a batch.
- Abort a batch.
- Switch to manual mode.
- Return to Automatic mode.
- Add a transition breakpoint (SFC View only).

Both the SFC and the Table View screens contain the same batch information, but they display it in different ways.

The SFC View screen displays the recipe's sequential function chart and allows operators to visually monitor a batch in a step-by-step fashion, as shown in the following figure.



SFC View Screen

The Table View, shown in the following figure, displays the batch information in a spreadsheet format and lists the recipe's procedural elements, including:

- Procedures
- Unit Procedures
- Operations
- Phases

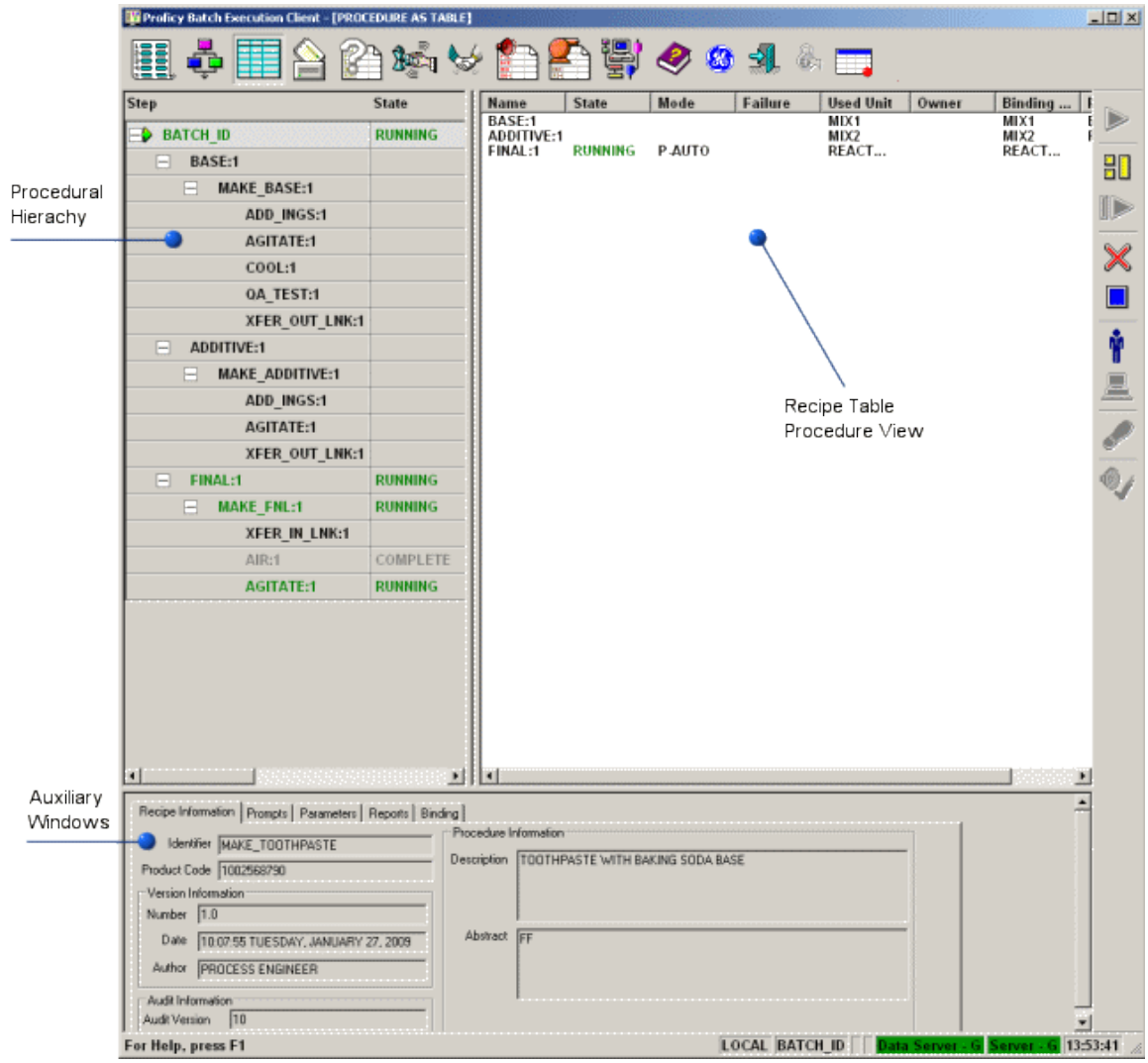


Table View Screen

The SFC and Table View screens are actually identical. By moving the slide bars, operators can reveal an SFC section in the Table View screen and a Recipe Table View section in the SFC screen.

When the operator opens this screen...	**These sections are visible...**
SFC View	Procedural Hierarchy, SFC, Auxiliary Windows
Table View	Procedural Hierarchy, Recipe Table Procedure View, Auxiliary Windows

Operators can select a screen based on the type of batch information they want to be visible. For example, perhaps an operator wants to know which segments of a multi-part transition have not been completed. To view this information, the operator can access the SFC View screen and double-click on a transition to open the Transition Expressions dialog box. If the operator wants to quickly see if there

are any failures in a batch, the Table View screen provides this information in a column in the Recipe Table Procedure View.

There are two components that are identical in both the SFC and the Table View screens. They are:

- Procedural Hierarchy
- Auxiliary Windows

Procedural Hierarchy – shown in previous two figures, provides detailed information about the current batch, including the current:

State – the current state for each step.

Unit – the unit to which the step belongs.

Mode – the current mode of the step, either manual or automatic.

Parameters – the key parameters of the current phase.

Operators can use the slide bar to enlarge this area of the screen to view all the available columns of information.

Auxiliary Windows – are opened by index tabs. The windows display the following information, shown in the following table, for the currently selected step in the Procedural Hierarchy or in the SFC section of the screen.

Auxiliary Windows	
Use the...	**To Display...**
Recipe Information window	The recipe's name, product code, version and procedure information.
Prompts window	Prompts for the step highlighted in the Procedural Hierarchy, the SFC, or the Recipe Table Procedure View.
Parameters window	Parameters for the element highlighted in the Procedural Hierarchy, the SFC, or the Recipe Table Procedure View.
Reports window	The recipe's name, value, and engineering unit.

Auxiliary Windows	
Use the...	**To Display...**
Binding window	Information about the unit procedure that needs binding, including the: • Recipe name • Bind type • Unit class • Current binding • Actual unit used

Displaying Transition Status

The status of a step's transition is visible in the SFC screen, as shown the SFC View and Table View Screens section. If there is a transition breakpoint, it also appears. By displaying a transition in the SFC, operators can troubleshoot a batch to determine where an error has occurred or if a batch has successfully completed a specific transition.

If a transition is active, its status is visible in the Transition Expression dialog box, which is accessed by double-clicking the transition. If the transition is not currently active, the following message is displayed in the dialog box:

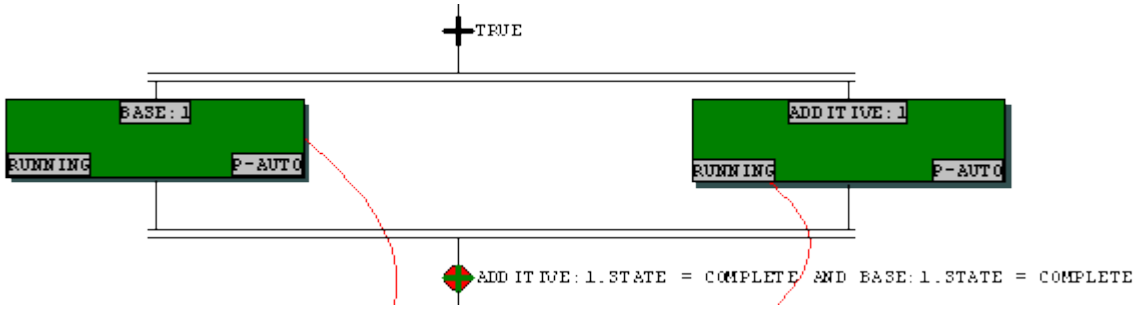
```
Expression is not being evaluated now.
```

Transition Status Color Indicators

A transitions' color indicates its status, as detailed in the following table.

Transition Status Color Indicators	
This color...	**Indicates this status...**
Green	Currently being evaluated
Olive	Held
Black	Not currently being evaluated
Purple	Aborted
Indigo	Stopped

A red circle at a transition indicates there is a transition breakpoint. In the following illustration, the top transition does not have a breakpoint; the second transition does.



For additional information on transitions, refer to the Recipe Development Manual.

Configuring the Appearance of the SFC

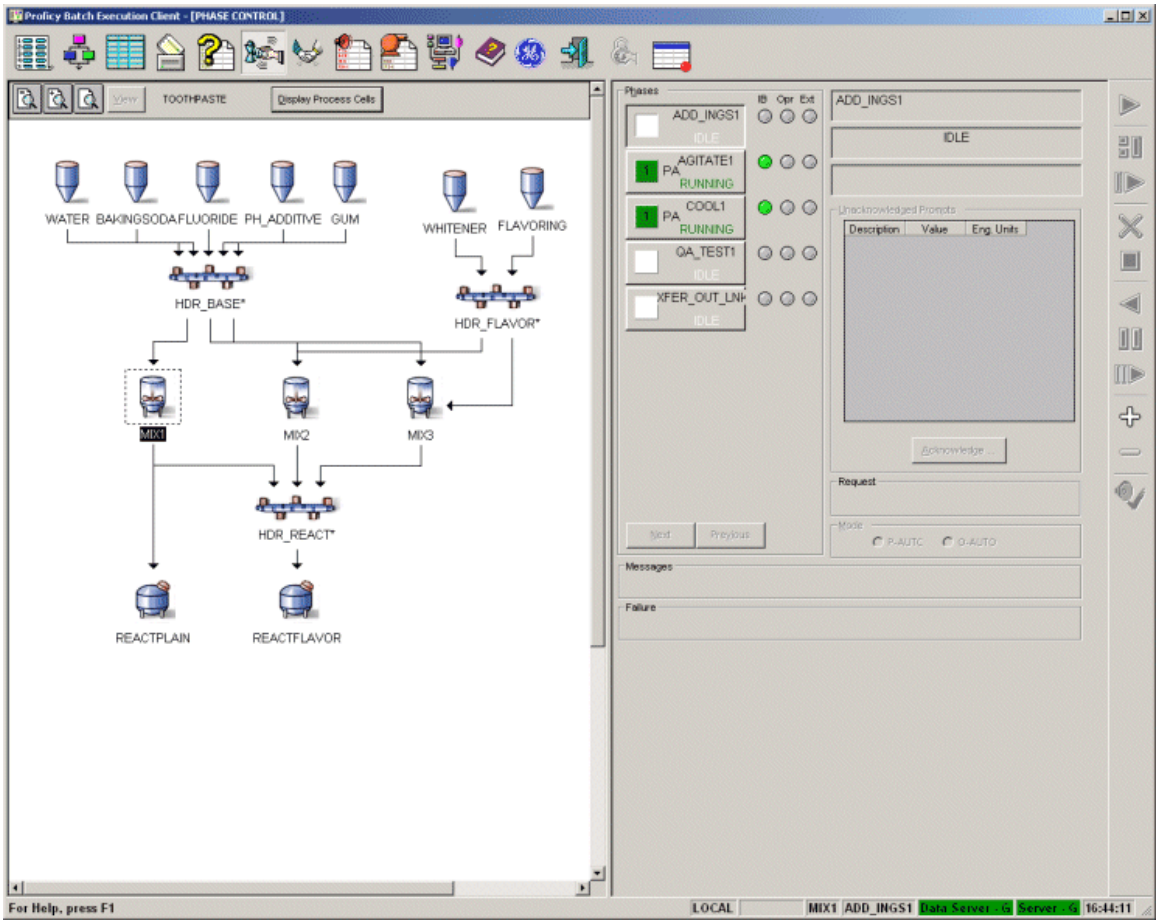
You can configure both the color and the fill pattern of the steps in the SFC portion of the SFC screen. This configuration is done from the System Configuration and Defaults screen. You may choose to implement a strategy that defines every state in a unique color, so that the states of each step in the SFC are easily evident to the operator.

The text in the State column in the Recipe Table Procedure View and in the Procedural Hierarchy is color coded to match the color configured for the SFC steps. If, for example, you select blue to represent the Held state, the steps of the SFC currently in the Held state appear in blue. In the Procedural Hierarchy and the Recipe Table Procedure View, the word Held in the State column also appears in blue.

You cannot configure the color and fill pattern of transitions. For more information on the color of transitions, see Displaying Transition Status.

Phase Control Screen

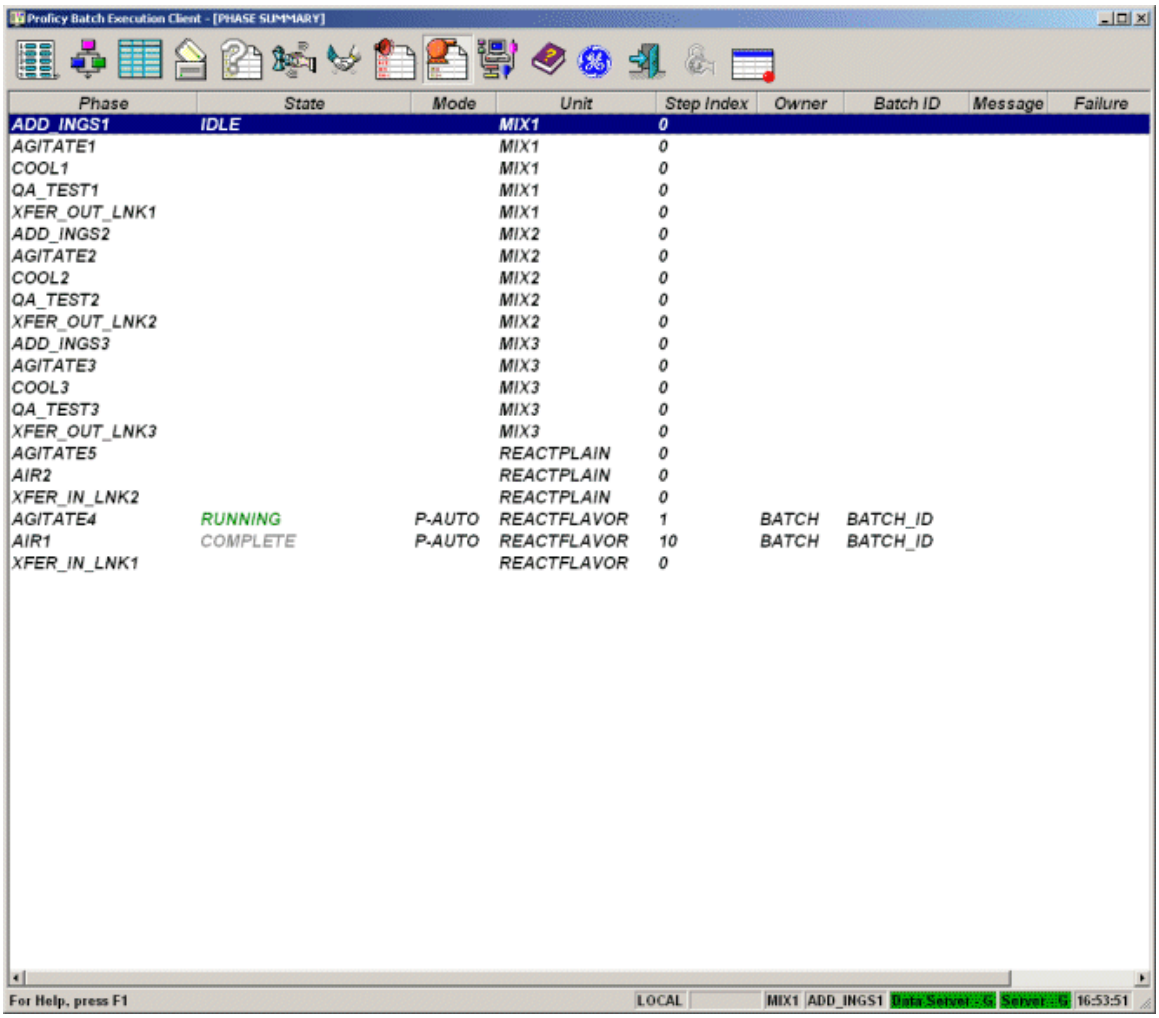
The following figure shows the Phase Control screen. From this screen, the operator can focus on a particular phase in a batch and execute it manually. For additional information on the Phase Control screen, refer to the Controlling Phases section.



Phase Control Screen

Phase Summary Screen

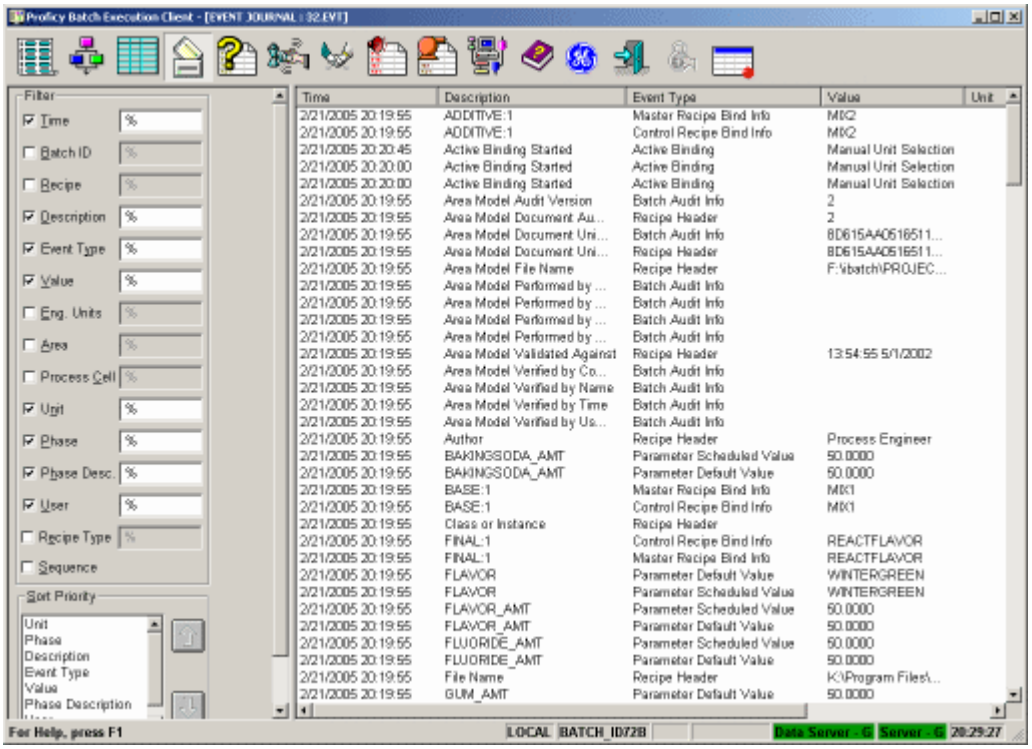
The following figure shows the Phase Summary screen. From this screen, the operator can immediately see an overview of all phases configured in the area model. This overview allows operators to quickly identify units and their related phases. For additional information on the Phase Summary screen, refer to the Controlling Phases section.



Phase Summary Screen

Event Journal Screen

The Event Journal screen, shown in the following figure, displays all data for the currently selected batch in a table format.



Event Journal Screen

You can view the event files from this screen to determine:

- The start and completion time of a batch.
- When and why a batch was placed in a Hold state.
- Prompt information, such as:
    - When users were prompted.
    - What the prompts were and when the responses to the prompts occurred.

From the Event Journal screen, the operator can access a dialog from which comments can be added to the Event Journal file. For additional information, refer to the Adding User Event Information to Event Journal Files section.

Components of the Event Journal Screen

The Event Journal screen is comprised of three distinct sections:

Filter Function – defines what columns of information are visible.

Sort Function – defines the order in which the selected columns appear.

View Journal Table – displays the information selected in the Filter Function area in the order defined in the Sort Function area.

There are two buttons located at the bottom of the Event Journal screen:

Refresh – updates the current Journal file.

Journal – opens the Batch Data File Selection dialog. From this dialog, operators can select a batch and view its corresponding Journal file in the View Journal screen. Operators can also launch the Add Event dialog and add comments to either a single batch or to all batches.

Journal Events

The following table describes the types of Journal events visible in the Event Journal screens.

Journal Events	
This Event...	**Displays...**
Active Binding	A record of the Active Binding information.
Active Step Change Commencing	The time when a recipe became active or inactive.
Batch Audit Info	A record of the audit event when the batch starts running.
Batch Description	The operator description of the batch.
Batch Parameter Default	The value of the parameter before you modify it during batch scheduling.
Batch Parameter Scheduled	The value of the parameter after you schedule the batch.
Batch Default Unit	The name of the default unit before you schedule the batch.
Batch Scheduled Unit	The name of the unit that a batch was scheduled to run with.
Control Recipe Bind Info	The equipment binding specified in the recipe when the recipe was scheduled.

Journal Events	
This Event...	**Displays...**
Comment	The operator comments.
Electronic Work Instructions	A copy of the electronic work instruction that has been executed.
Event File Name	The Event (EVT) file name.
Master Recipe Bind Info	The equipment binding specified in the master recipe.
Message	A simple message to the operator that requires no entry or confirmation.
Mode Change	A procedure element changed its mode.
Mode Command	A request to a procedure element to change the mode.
Owner Change	A message that the ownership of the batch changed.
Parameter Default Value	The default value for the parameter.
Parameter Scheduled Value	The names of phase parameters used when scheduling a recipe, if the operator is allowed to change the parameters when scheduling it.
Param Download Verified	The names of phase parameters that successfully downloaded to the process hardware to the relational database.
Param Download Verify Fail	The names of phase parameters that failed to download to the process hardware.
Phase Link Permissive Canceled	A record of the phase logic requests to cancel a phase message.
Phase Link Permissive Received	A record of the phase logic requests to receive a phase message.
Phase Link Permissive Sent	A record of the phase logic requests to send a phase message.

Journal Events	
This Event...	**Displays...**
Phase Logic Arbitration	A record of the phase logic requests to acquire and release equipment.
Prompt	A request from a phase to the operator to provide information for the completion of the phase logic.
Prompt Response	A log indicating that the operator responded to an unacknowledged prompt.
Recipe Description	The description of the recipe as defined in the recipe header.
Recipe Header	A record of the recipe name, version number, description, and author as defined in the recipe header.
Recipe Value	The control recipe initial value.
Recipe Value Change	The value that the operator entered when changing the recipe data.
Report	A single data value collected by the phase logic (for example, an actual amount charged to a unit).
Response	The operator responses to prompts.
Scale Factor	The batch scale factor entered by the operator when the batch is scheduled.
State Change	A procedure element changed its state.
State Command	A request to a procedure element to change the state.
Step Activity	A record of the active step.
System Message	A system message from the Batch Execution Server that does not have a specific event type defined.
User	A user note was added as a comment.

Mapping of Events and Subevents

The following table describes the event and subevent mappings for the Event Journal.

Event and Subevent Mapping	
Event	**Subevent**
System Message	• Operation Finished • User Message • Operation Started • Acquiring Resource • Releasing Resource • Procedure Started • Recipe Step Failure • Unit Procedure Started • Manual Phase Control • Phase Logic Failure • Unit Procedure Finished • Unit Procedure Started • Procedure Finished • A transition breakpoint prompt has been initiated • A transition breakpoint prompt has been acknowledged
Active Binding	• Active Binding Started • Active Binding Completed • Active Binding Prompt Sent • Active Binding Prompt Response Received • Active Binding Completed
Step Activity	• Step Activated • Step Deactivated
State Command	State Commanded
State Change	State Changed
Active Step Change Commencing	Active Step Change command attempted

Event and Subevent Mapping	
Event	**Subevent**
Batch Description	–
Comment	–
Event File Name	–
Message	–
Mode Change	Mode Changed
Mode Command	Mode Commanded
Owner Change	–
Param Download Verified	–
Param Download Verify Fail	–
Param Download Verify Fail	–
Phase Link Permissive Canceled	–
Phase Link Permissive Received	–
Phase Link Permissive Sent	–
Phase Logic Arbitration	–
Prompt	–
Prompt Response	–
Recipe Description	–
Recipe Header	–

Event and Subevent Mapping	
Event	**Subevent**
Recipe Value	–
Recipe Value Changed	–
Report	–
Scale Factor	–
User	–

Customizing the Event Journal File

The operator can customize each Event Journal file by configuring specific sort and filter criteria for each file. This configuration is done from the System Configuration and Defaults screen. In addition to this standard method of filtering and sorting, these tasks can also be configured in the Event Journal screen for the file that is currently open.

For additional information on customizing a Client screen, refer to the Getting Started section.

Adding User Event Information to Event Journal Files

Most of the information visible in the Event Journal file is a report of events that occurred during the creation, scheduling, and running of the batch. However, you can also add messages to either the current batch Event Journal file or to all batch Event Journal files. These messages can be any comments the operator wants to add to the Event file.

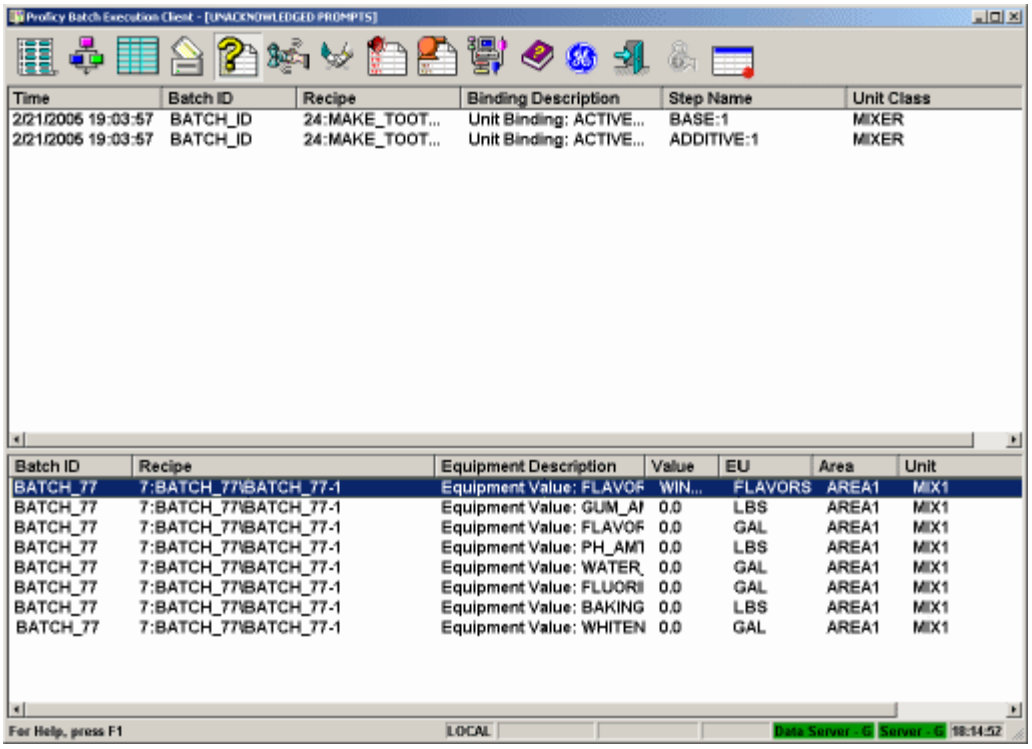
For example, while a batch is running, the operator may notice a slight irregularity in the way one of the units is performing. By entering a message describing the irregularity in the Description field column of the Event Journal file, this information can be logged and passed along to maintenance at the end of the batch process.

From the Event Journal screen, you can configure messages to appear in any of the following columns in the Event Journal file:

- Value
- Engineering Unit
- Phase
- Unit Name
- Process Cell
- Description

Unacknowledged Prompts Screen

Unacknowledged Prompts are viewed and acknowledged from the Unacknowledged Prompts screen, shown in the following figure. This is the screen from which the prompts are most readily accessible to the operator, who can then respond to the prompt in the timeliest manner possible.



Unacknowledged Prompts Screen

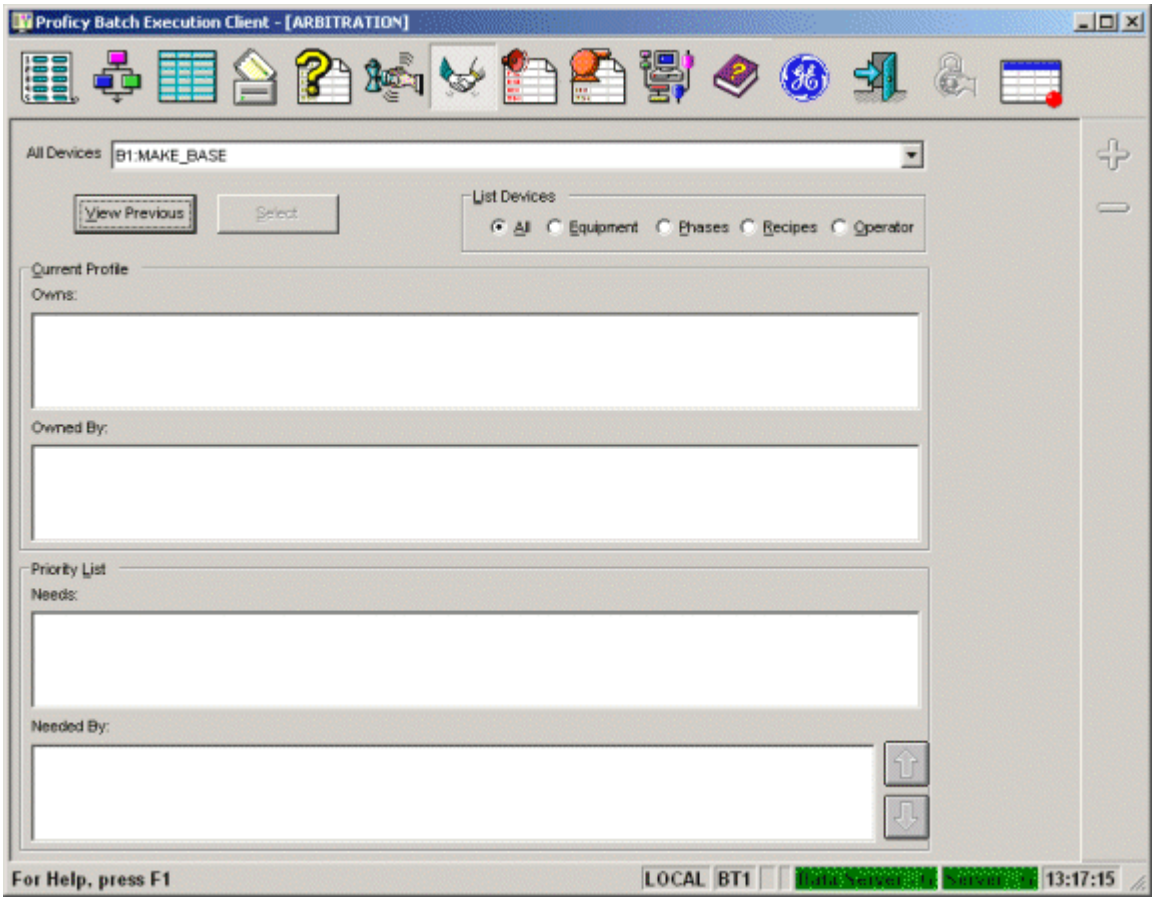
For additional information, refer to the Acknowledging Prompts section.

Arbitration Screen

The arbitration of equipment is performed primarily from the Arbitration screen, shown in the following figure. From the Arbitration screen, the operator can:

- Select the device focus.
- View all resources.
- Allocate resources.

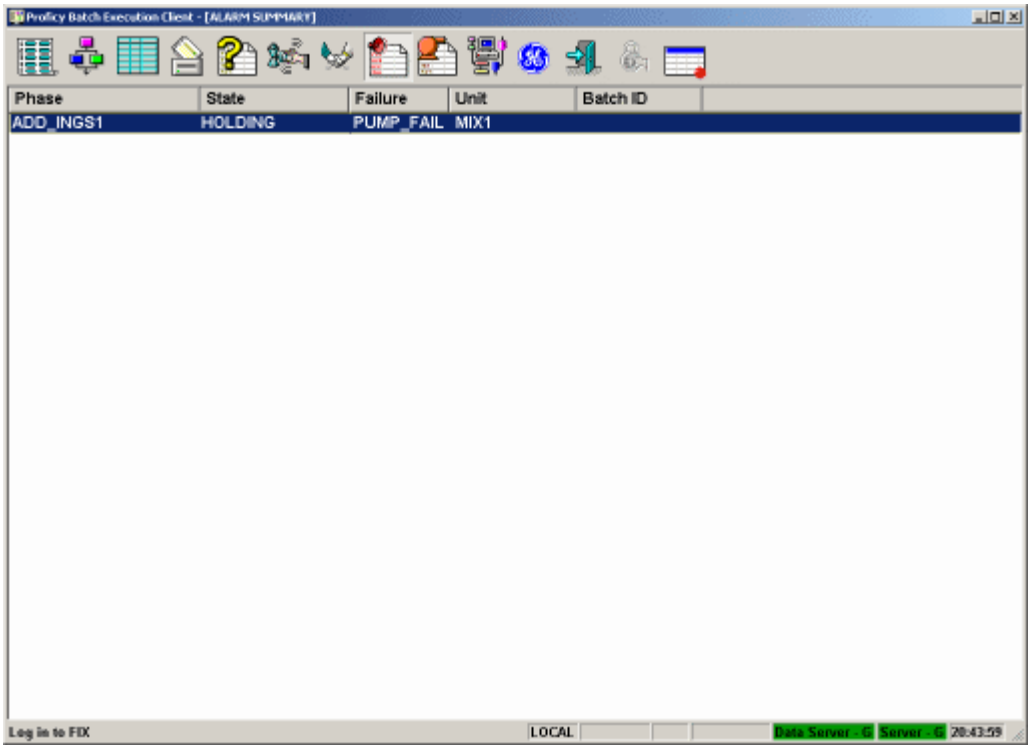
For additional information on the arbitration process, refer to the Arbitrating Equipment section.



Arbitration Screen

Alarm Summary Screen

The Alarm Summary screen, shown in the following figure, displays all phase-level failures.



Alarm Summary Screen

The failure messages include specific information such as:

- Which batch generated the error.
- Type of failure or error.
- Location of failure or error, including:
    - Phase
    - Unit
    - Process Cell
    - Area

Alarm Messages

When a failure occurs, the Alarm Summary screen icon in the toolbar blinks, notifying the operator of the failure. The operator can then open the Alarm Summary screen and view the alarm messages.

Failure messages are visible to the operator in the following screens:

Batch List – displays failures if the screen is configured to show the Failure column.

SFC View – displays failures if the screen is configured to show the Failure column in the Procedural Hierarchy. The failed phase in the SFC blinks between its configured color and the color red.

Table View – displays failures if the screen is configured to show the Failure column in the Procedural Hierarchical or the Recipe Table Procedure View.

Phase Control – displays failures next to the corresponding Phase button if the unit containing the failed phase is highlighted.

Clearing Failures

When the running batch reaches the phase that is generating the error, the batch is immediately put into the Hold state. The phase failures must be cleared before the batch can be restarted. You can clear phase failures from the following screens:

- Batch List
- SFC View
- Table View
- Phase Control

The Alarm Summary screen is used solely to view the alarms; they cannot be cleared from this screen.

Viewing Alarms in the Alarm History Window

Batch Execution classifies error messages into three categories:

- Informational
- Warning
- Severe

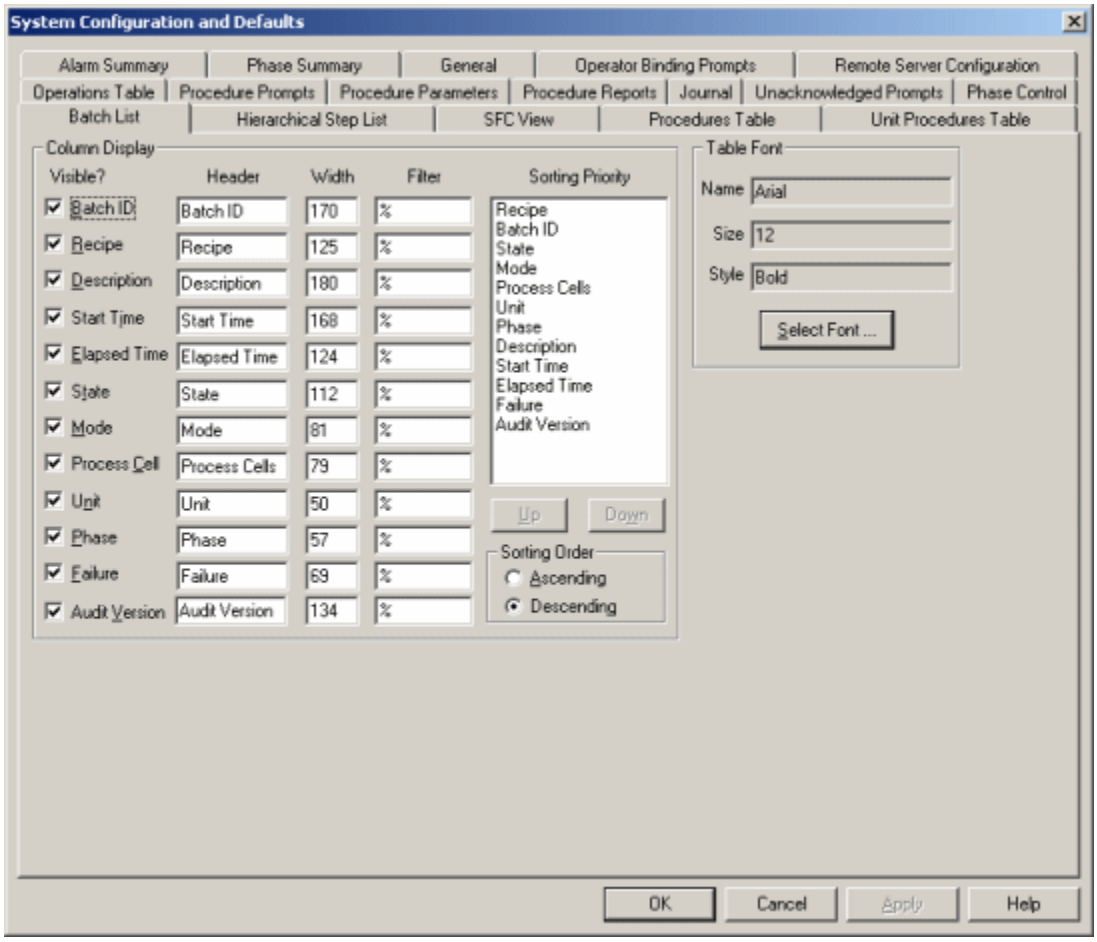
Warning and Severe messages generated in Batch Execution are sent to the iFIX Alarm History window and displayed as text messages. These are the same messages found in the Messages tab dialog in the Batch Execution Server.

The iFIX Alarm History will also display any alarms generated by their respective products. For additional information on the iFIX Alarm History window, refer to the Implementing Alarms and Messages Manual.

System Configuration and Defaults Screen

The System Configuration and Defaults screen is the mechanism for customizing the Client's screens. The screen contains a dialog with 16 labeled tabs. Each of these tabs opens a dialog that allows you to configure the corresponding Client screen or section of a Client screen.

The following figure illustrates the System Configuration and Defaults screen. For additional information on the System Configuration and Defaults screen, refer to the Getting Started section.



System Configuration and Defaults Screen

Understanding the Client Monitor

When you open the Batch Execution Client application, the Client Monitor automatically launches. The Client Monitor is a utility that monitors the response of the Batch Execution Client. You can see the Client Monitor in the Windows taskbar when the Batch Execution Client is running. If the Batch Execution Client unexpectedly terminates or stops responding, the Client Monitor will alarm you of the event and display a message box.

There are three settings that you can configure in the Client Monitor:

Polling time in seconds – determines how frequently you want the Client Monitor to ping the Batch Execution Client. The default is 5 seconds. You can configure it to be as frequent as 1 second.

Timeout value in seconds – determines the default time that the Client Monitor waits for a response from the Batch Execution Client, until it assumes that the Batch Execution Client stopped responding. The default value is 5 seconds. You can configure it to be as frequent as 1 second. If the Batch Execution Client does not respond within the time-out period, then the Client Monitor sounds a beep for seven seconds and then shuts down the Batch Execution Client. If the Client Monitor shuts down the Batch Execution Client successfully, it displays a message box allowing the user to either restart the Batch Execution Client or shut down the Client Monitor.

Client restart timeout (in sec) – determines the default setting for how long Client Monitor waits for the Batch Execution Client to restart after the Client Monitor successfully shuts down the Batch Execution Client. The default value is 300 seconds (five minutes).

If you change the default settings, the next time you restart the Batch Execution Client your changes are lost unless you register the Client Monitor before you make your changes. To register the Client Monitor you need to run the following command:

```
C:\Program Files\Proficy\Proficy Batch Execution\bin\ClientKill.exe
/regserver
```

where C:\Program Files\Proficy\Proficy Batch Execution is the directory where you installed the Batch Execution software. You only need to run this command once.

To change the default settings for the time-out values, select Settings from the View menu in the Client Monitor.

Typical Batch Scenario

The sections that follow describe the typical lifecycle of a batch and the tasks that are performed during batch production. The MAKE_TOOTHPASTE demo provided with Batch Execution is examined to demonstrate the sequence of events and the various tasks performed in a batch process.

Operations Task Overview

During the lifecycle of a batch, an operator can perform many tasks. Some of the tasks are optional. However, a typical batch process will proceed like this:

1. Create batches from the list of recipes that are released to production. Operators can add batches from the Client. Refer to the Starting and Controlling Batches section for additional information.
2. Start batches. Refer to the Starting and Controlling Batches section for additional information.
3. Control and monitor batches. Refer to the Starting and Controlling Batches section for additional information.

4. Arbitrate and allocate batch resources using the Client's Arbitration screen. Refer to the Arbitrating Equipment section for additional information.
5. Control and monitor individual phases using the Phase Control screen. Refer to the Controlling Phases section for additional information.
6. Acknowledge batch prompts. There are several places to acknowledge prompts, should they occur, but they will generally be addressed from the Unacknowledged Prompts screen. Refer to the Acknowledging Prompts section for additional information.
7. View batch events using the Client's SFC View screen. Refer to the Understanding the Client Screens section for additional information.
8. Generate batch reports. Reports are generated from the Event Journal files created by the Batch Execution Server for each batch added to the Batch List. This same data is then sent by the Archiver to a relational database. Refer to the Advanced Topics section for additional information.

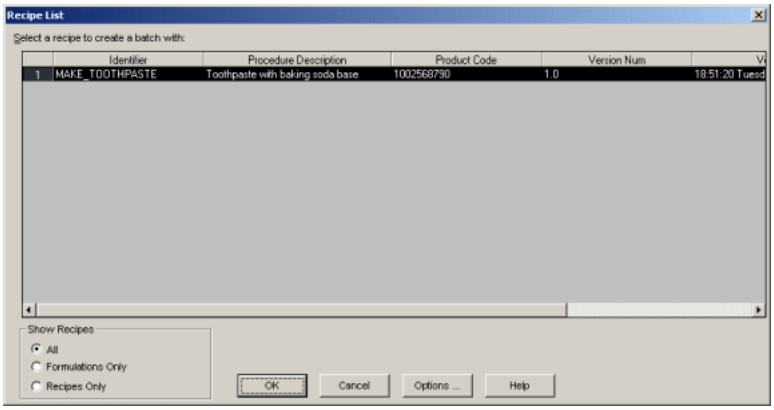
Using the Toothpaste Demo to Illustrate a Typical Batch Scenario

There are a series of tasks performed in a prescribed order that are common to most batch processes. Using the Toothpaste demo provided with Batch Execution, the following sections describe and illustrate a typical batch scenario:

- Step 1: Selecting a Recipe
- Step 2: Creating a Batch
- Step 3: Starting a Batch
- Step 4: Acknowledging Prompts
- Step 5: Viewing Equipment
- Step 6: Removing a Batch

Step 1: Selecting a Recipe

To create a batch of toothpaste, the operator: (1) Clicks the Add Batch button. (2) Selects the Make_Toothpaste recipe from the Recipe List to add it to the Batch List. The following figure illustrates the Recipe List.



Recipe List

Step 2: Creating a Batch

Once a recipe is selected, the Batch Creation dialog appears, as shown in the Recipe Parameters section. The operator enters a unique name for the batch in the Batch ID field. The toothpaste recipe allows the operator to:

- Supply recipe parameters
- Bind equipment

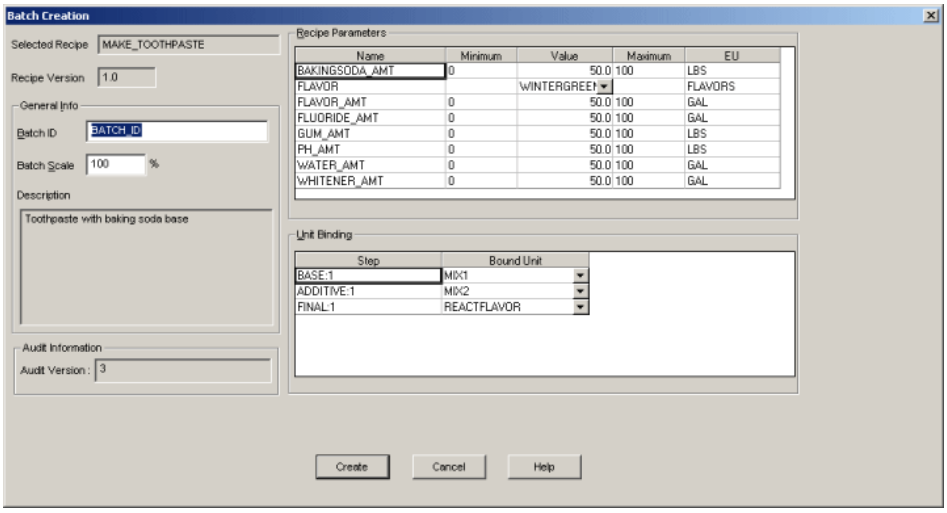
Recipe Parameters

In the toothpaste recipe, the operator can either define the recipe parameters for all of the ingredients or allow the recipe to run with its defaults. In this particular demo, the operator can alter the recipe parameters up until the time the ingredients are added to the batch. This is done by double-clicking the recipe parameter in the Parameters auxiliary window at the bottom of either the SFC View or Table View screen in the Batch Execution Client.

Recipe parameters allows the operator greater flexibility to make run-time alterations to the batch. For additional information on creating recipes that use recipe parameters, refer to the Recipe Development Manual.

Example: Using Recipe Parameters

Perhaps, in the case of the Make_Toothpaste demo, the plant making the toothpaste has recently switched vendors and is receiving the gum and the baking soda used to make the base from a new company. After running the first batch with the new company's ingredients, the operator notices that the consistency of the base is not as smooth as it has typically been. Rather than creating an entirely new recipe, the operator can alter the recipe by changing the recipe parameter of Water_Amt. Rather than using the default value of 50 gallons, the operator changes the recipe parameter of Water_Amt to 65 gallons. This restores the smoothness to the base. By making this run-time adjustment, the same recipe is used, but the base now complies with its historically smooth consistency.



Batch Creation

Binding Equipment

This recipe implements *Active Binding*. Active Binding allows you to bind and re-bind a unit procedure to a physical piece of equipment at different times in the production cycle. In this recipe, illustrated in the Step 2: Creating a Batch section, you must select one of the following items from the Bound Unit list for both the BASE:1 and ADDITIVE:1 steps:

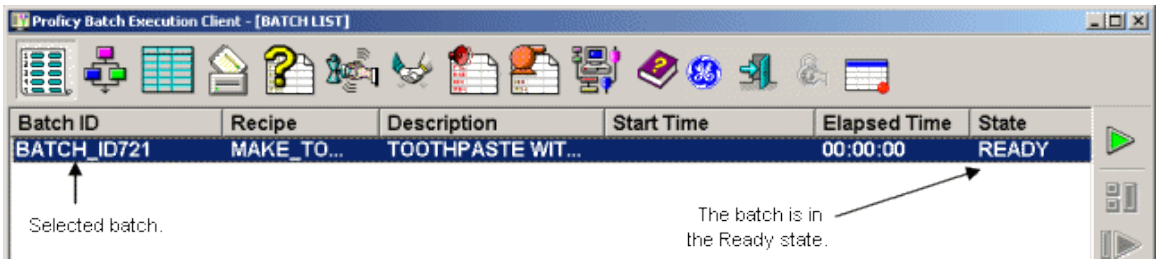
- A unit from the Mixers class (MIX1, MIX2, or MIX3)
- Operator
- Automatic

By selecting one of the mixers, you bind that particular step to that mixer. When the unit procedure runs, Batch Execution uses the mixer you selected. If you select Operator, Batch Execution prompts the operator to select a unit just before that unit procedure runs. If you select Automatic, then the Batch Execution Server will make the selection for you.

There are other elements of Active Binding that are configured as the recipe is developed. For additional information on configuring recipes for Active Binding, refer to the Recipe Development Manual.

Step 3: Starting a Batch

The batch is now in the Batch List screen and in the Ready state, as shown in the following figure. The Start button is active on the Command Button bar. The operator highlights the Toothpaste batch in the Batch List and clicks the Start button.



Batch in Ready State

After starting the batch, the batch transitions from the Ready state through the Starting state to the Running state, as shown in the following figure.

Batch in Running State

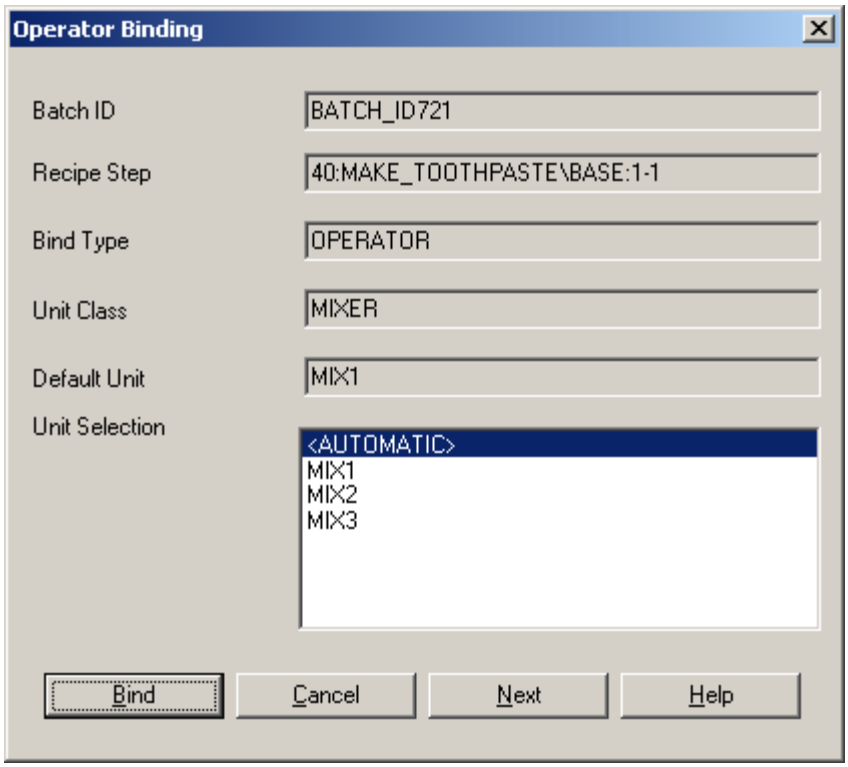
Step 4: Acknowledging Prompts

Operators can receive prompts during batch execution. The operator is notified of a prompt by the blinking question mark (?) on the Unacknowledged Prompts button on the toolbar.

In this particular demo, the operator is prompted to make a binding selection for the ADDITIVE:1 step, as shown in the following figure. The default unit is MIX1 from the MIXER unit class.

Rather than selecting a specific unit for the step to run on, the operator selects Automatic, which allows the Batch Execution Server to make the unit binding selection. Since this is an acceptable entry in this demo, the batch process continues and the prompt is removed from the prompt list.

For additional information on acknowledging prompts, refer to the Acknowledging Prompts section.



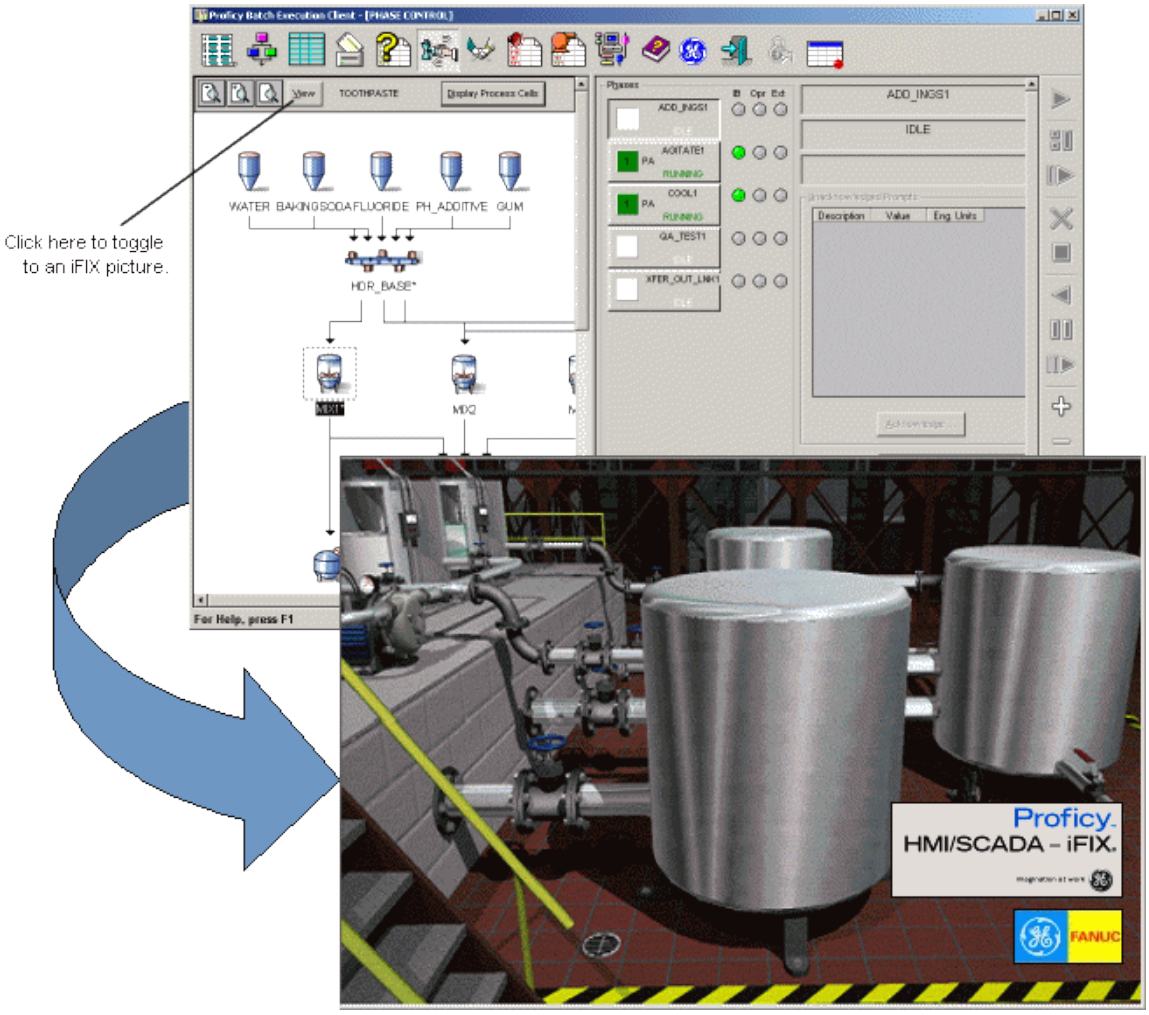
Acknowledging Binding Prompts

Step 5: Viewing Equipment

The operator needs to view the reactor display in iFIX to:

- Get a closer look at the equipment to see if it is functioning properly.
- View real-time data.

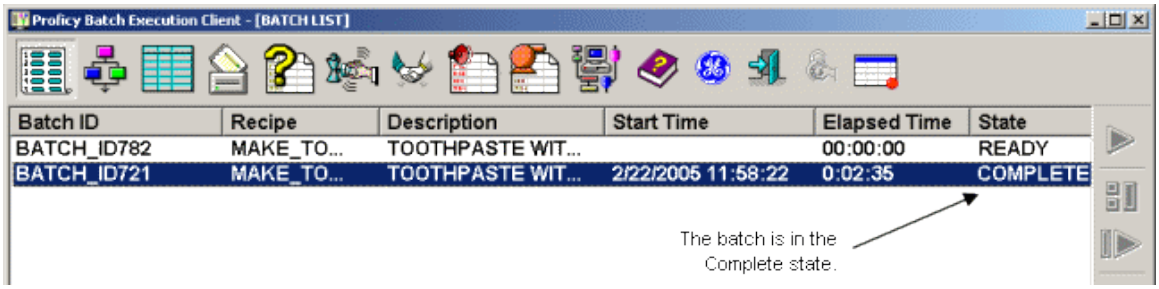
As an example, the operator could select the REACTFLAVOR unit in the Phase Control screen to toggle to an iFIX picture, as shown in the following figure.



Toggling from Phase Control Screen to iFIX Picture

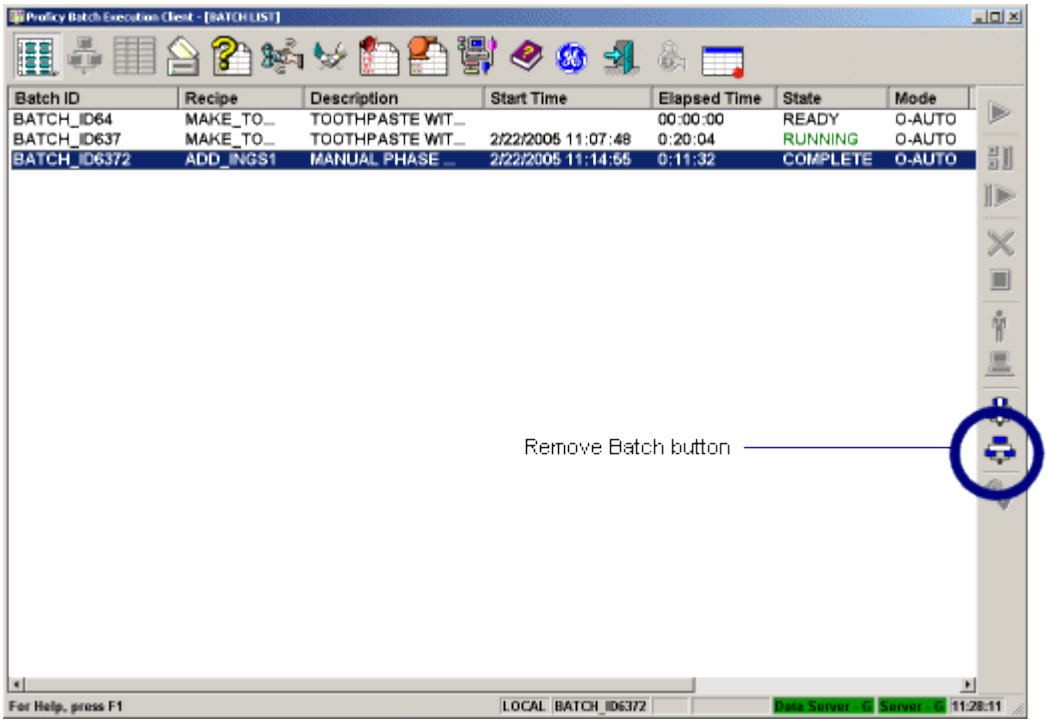
Step 6: Removing a Batch

When the Toothpaste demo completes, the batch appears in the Batch List with the batch state displayed as Complete, as shown in the following figure.



Batch in Complete State

The Remove Batch button is active in the Command Buttons bar. The operator selects this button to remove the selected batch from the Batch List screen, as shown in the following figure.



Remove Batch

Starting and Controlling Batches

The sections that follow discuss two aspects of batch control:

- The commands used to control batches in the Batch Execution environment.
- How the various states the batch transitions through during production dictate which batch commands may be issued.

You can perform some aspects of batch control using the Batch Execution ActiveX controls and the VBIS Automation Interface. There is some discussion on using the ActiveX controls to run a batch in the Controlling Batches with the Batch Execution ActiveX Controls section. For a more comprehensive understanding of both the ActiveX controls and VBIS, refer to the Custom Applications manual.

Controlling a Batch

To control a batch, operators issue batch commands from the Client screens. These commands include:

- Adding a batch.
- Starting a batch.
- Holding a batch.

- Restarting a batch.
- Aborting a batch.
- Stopping a batch.
- Removing a batch.

You can schedule batches from the Client or from the Add Batch ActiveX control. For more information on the ActiveX controls, refer to the Controlling Batches with the Batch Execution ActiveX Controls section.

In addition to issuing commands, operators may be prompted for information during batch production. Since prompts must be acknowledged from the Unacknowledged Prompts screen in the Client, operators have to toggle to the Client if they are monitoring the batch from the iFIX Client.

Issuing Batch Commands

To control a batch, operators issue batch commands for the currently selected batch. Operators must assume the responsibility for confirming which batch they are issuing commands to by examining the current batch display in the bottom right-hand corner of the Client.

The batch only responds to the batch commands that are valid for the batch's current state. For example, an aborted batch will not accept a command to restart. For additional information on batch states, refer to the Introduction section.

You can issue batch commands from the Batch List screen, the SFC View screen, or the Table View screen.

Adding a Batch

Recipes are added to the Batch List from the Client. Select the recipes from the list of recipes that were defined in the Recipe Editor and released to production.

More complex recipes may require the operator to perform additional tasks or supply additional batch information while adding a batch, including:

Scaling factor – a value that indicates what percentage of a batch to produce. Refer to the Advanced Topics section for additional information on scaling a batch.

Binding equipment – recipes built against a class of equipment must have binding selections made, either by the operator or by the Batch Execution Server. Refer to the Advanced Topics section for additional information on binding equipment.

Recipe parameters – values are set during production, allowing you to override default step parameter values. For additional information on recipe parameters, refer to the Recipe Development Manual.

Example: Adding the Demo Recipe to the Batch List

Click the Add Batch command button and select the Make_Toothpaste demo recipe from the list of recipes released to production. This opens the Batch Creation dialog box, shown in the Run Commands section. The presence of the Recipe Parameters and Unit Binding sections of the dialog box indicate that this recipe requires the operator to add a parameter values and to bind equipment to the recipe.

To add this demo recipe, the operator:

1. Enters a value in the Recipe Parameters section of the screen. Since the minimum and maximum values are defined, the operator enters a value that falls in that range. In this demo recipe, the default is zero (0). The operator can add a value to overwrite the default or can leave the default in the value column.
2. Makes selections from the Bound Unit list for each step listed in the Unit Binding section.
3. Enters a scaling factor in the Batch Scale field. In this example, the operator has left the value at 100%, the default value.

Transition Breakpoints

Once you add a batch to the Client, you can add transition breakpoints to the recipe. Adding breakpoints to the transitions allows operators to hold a phase before it is executed. This is particularly useful in situations that require less than fully automated control, such as if equipment is not yet available, if a batch has not reached its proper set point, or if an operator is preparing manually added material.

Transition breakpoints require no prior configuration and they can be added in either Auto or Manual mode. However, only operators with Hold permission can add a breakpoint to a transition. Privileges for setting breakpoints for the Client are configured within the iFIX System Configuration Utility (SCU). No special privileges are required to clear a transition breakpoint or acknowledge a transition breakpoint prompt.

Once a breakpoint is reached, operators must acknowledge the breakpoint transition to allow the batch to continue execution. However, the breakpoint is not reached until the transition expression immediately preceding it evaluates to TRUE. It is only after this happens, if it happens, that the operator is prompted to acknowledge the breakpoint.

Breakpoints are removed either when the breakpoint has been reached and acknowledged by the operator or when the batch itself is removed from the Client.

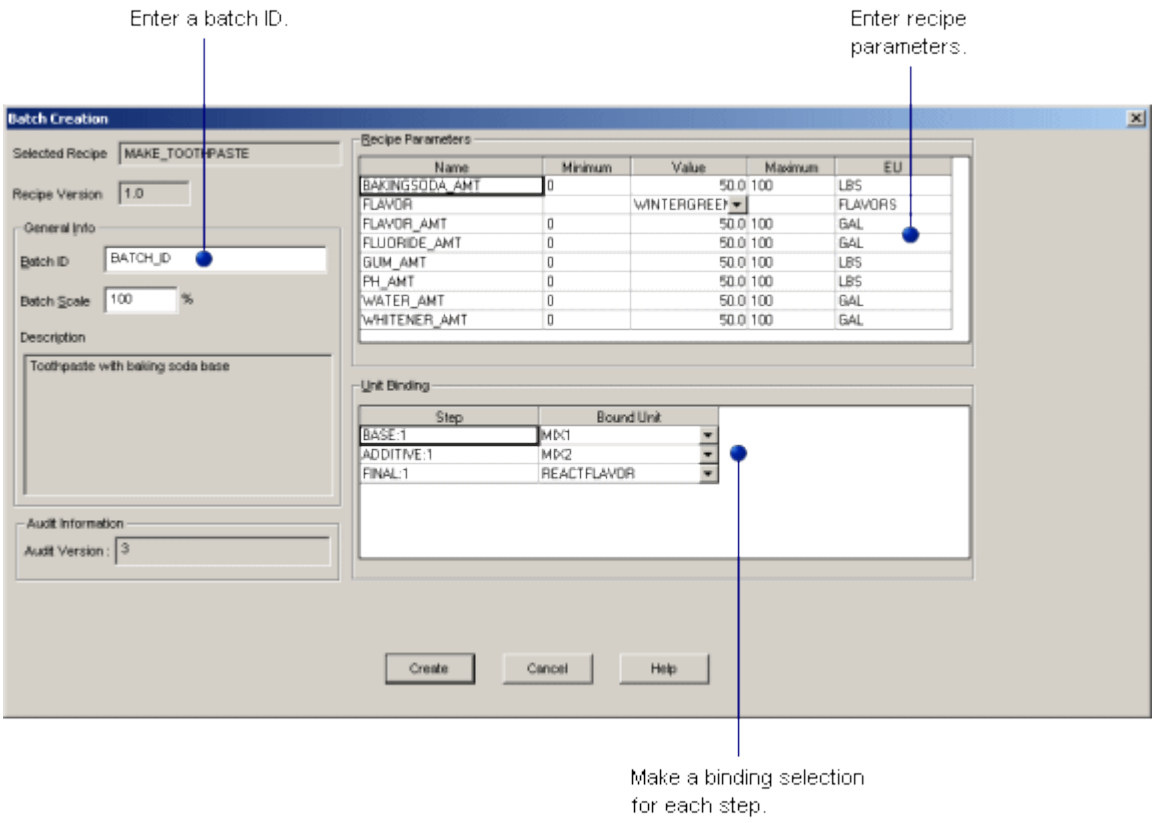
If you have to restart your server, and you choose a warm restart, the transition breakpoints that have not been reached and acknowledged are restored.

Run Commands

There are two types of commands in batch processing: Run commands, which begin or resume a batch process, and interrupt commands, which terminate or hold a batch process.

The Run commands are:

- Start
- Restart



Starting a Batch

Starting a Batch

Once a batch is created from a recipe, you can start the batch. Operators issue the Start command in the Client from the Batch List, the SFC, or the Table View screens. Typically, operators start batches from the Batch List screen.

Operators can start a batch only when the batch is in the Ready State, as shown in the following figure. Once the start command issues, it transitions to the Starting state and then to the Running state. Unless there is an interrupt command issued or a device failure detected by Batch Execution, the batch will ultimately transition to the Complete state.

Starting a Batch

Restarting a Batch

Restarting a batch starts a batch that is in the Held state. Once the batch is restarted, it transitions to the Restarting state and then to the Running state, as shown in the following figure.

You can only restart a batch when the batch is both:

- In the Held state.
- No phases associated with the batch have failed or are being controlled externally.

Restarting a Batch

Interrupt Commands

Interrupt commands either terminate or hold a batch process. Some of these commands are issued in the normal production cycle of a batch, while others are the direct result of an abnormal occurrence in the batch process.

The interrupt commands are:

- Hold
- Abort
- Stop

Holding a Batch

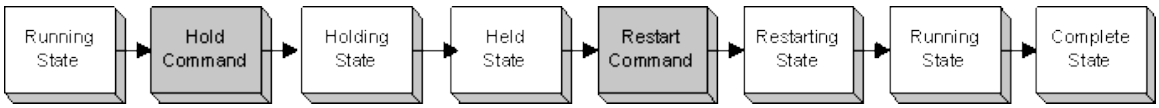
Holding a batch temporarily stops operation of the batch and transitions the batch to the Held state. Generally, the Held state is a safe state that is determined by the plant engineering and operations group.

A batch may also automatically go into the Held state if a device failure is detected by Batch Execution.

You can hold batches when they are in the:

- Running state
- Restarting state

The following figure shows a batch that received a Hold command while in the Running State.



Holding a Batch

Example: Holding a Batch

For example, in the Toothpaste demo there is a scheduled prompt sent to the operator. This prompt requests a value that the operator obtains by taking a test during the QA_TEST phase and evaluating the pH level of the batch. Typically, the operator enters that value and batch production continues.

A supervisor can then place the batch into the Hold state to re-check the results of the operator's test. Once the supervisor has re-checked the results, the batch is placed in the Restarting state.

Aborting a Batch

Aborting a batch permanently halts the operation of a batch and transitions the batch to the Aborted state. The aborting command uses the abnormal or Aborting logic defined for the phase. You cannot restart an aborted batch.

Aborting a batch typically occurs in an emergency situation. The operator terminates the batch and secures the equipment in a safe condition.

You can only abort a batch that is in one of the following states:

- Running
- Stopping
- Holding
- Held
- Restarting

The following figure shows the Abort command issued to a batch in the Running state.

Aborting a Batch

Example: Aborting a Batch

In the Toothpaste demo there are several units used, including MIX1 and MIX2. If, for example, there is an electrical fire in MIX1, the operator or supervisor can immediately put the batch into the Abort state. This terminates the batch production and this batch cannot be restarted.

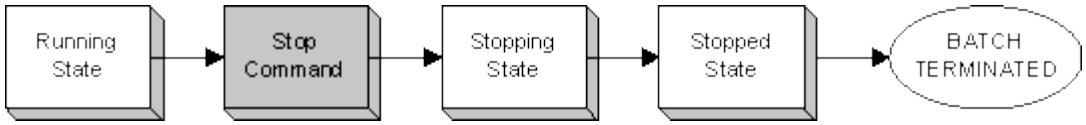
Stopping a Batch

Stopping a batch permanently stops the operation of a batch using the normal Stopping logic, and transitions the batch to the Stopped state. You cannot restart a stopped batch.

You can only stop a batch that is in one of the following states:

- Running
- Holding
- Held
- Restarting

The following figure shows the Stop command issued to a batch in the Running state.



Stopping a Batch

Example: Stopping a Batch

For example, in the Toothpaste demo the unit procedures BASE:1 and ADDITIVE:1 both must run on separate units but ultimately transfer into the same unit so that the unit procedure FINAL:1 can run. If one of the valves required to transfer the mixture from BASE:1 into the unit where FINAL:1 is to run fails to open, an operator or supervisor can issue a command to stop the batch. In this instance, there is no emergency requiring an abort command; however, successful completion of the batch is impossible until the valve is repaired.

The stop command terminates the batch production and the batch cannot be restarted.

Removing a Batch

If necessary, operators can remove a batch from the Batch List. To remove a batch, it must be in an inactive state and in Auto mode. The inactive states are:

- Ready
- Stopped
- Complete
- Aborted

There will always be a record of every batch added to the Batch List in the batch journal, even if you remove a batch before starting it.

Controlling Batch Modes

A batch mode is a state associated with each step of a batch. Batch Execution lets operators control batches in two modes:

Manual mode – transitions are prevented from executing until the operator sends a command to a procedure. Switching to manual mode allows the batch to complete its current step.

Automatic mode – transitions are allowed to execute through the entire batch.

Manually Controlling a Batch

Placing a batch in manual mode allows an operator to manually control a batch. When the batch is in manual mode, the operator can proceed through the currently running batch one step at a time.

Example: Manually Controlling a Batch

Placing a batch process in manual mode is an excellent way to troubleshoot production problems. If, for example, the operator notices a pressure value during the batch process that is out of the normal range, the operator can switch the batch process over to manual and go step-by-step through the process to try to isolate the problem.

Once the problem is located, the operator can continue to step through the process in the manual mode. When the problem has been solved, the operator can switch back to automatic mode.

Automatically Controlling a Batch

Placing a batch in auto mode returns control to Batch Execution from the operator controlled manual mode. Auto mode is the default mode for all batches.

Active Step Change

Operators can perform active step change to alter the sequence of the steps in a batch. Typically, active step change is performed to return a batch to a specific step due to a problem in the execution of that particular step. The problem could be an equipment malfunction or perhaps the problem is with an ingredient in the batch. In either case, once the equipment is fixed or the ingredient altered, the operator can then re-run the batch at the point of the problematic step by using active step change.

You must put a batch in manual mode before active step change is performed. The step or steps you want to perform active step change from must be in a terminated state (Stopped, Aborted, or Complete). Once the active step change is complete, the batch can be returned to automatic mode, as long as the batch is in a state where that is possible according to the rules of the SFC. If, for example, the batch was in the middle of executing an AND convergence, the batch cannot be placed into automatic mode until that step is complete.

Controlling Phases

The Batch Execution Client's Phase Control screen provides the most information about the control phases defined in the area model. A significant amount of phase-level detail is available, including a phase's:

State – the phase's current state. For additional state information, refer to the Understanding Batch States section.

Owner – the current controller of the phase. In the Phase Control screen, there are three Phase Owner buttons:

- IB (Batch Execution)
- Opr (operator)
- Ext (external source)

These buttons become green to indicate the owner of the selected phase.

Mode – the current mode of the step, either manual or automatic.

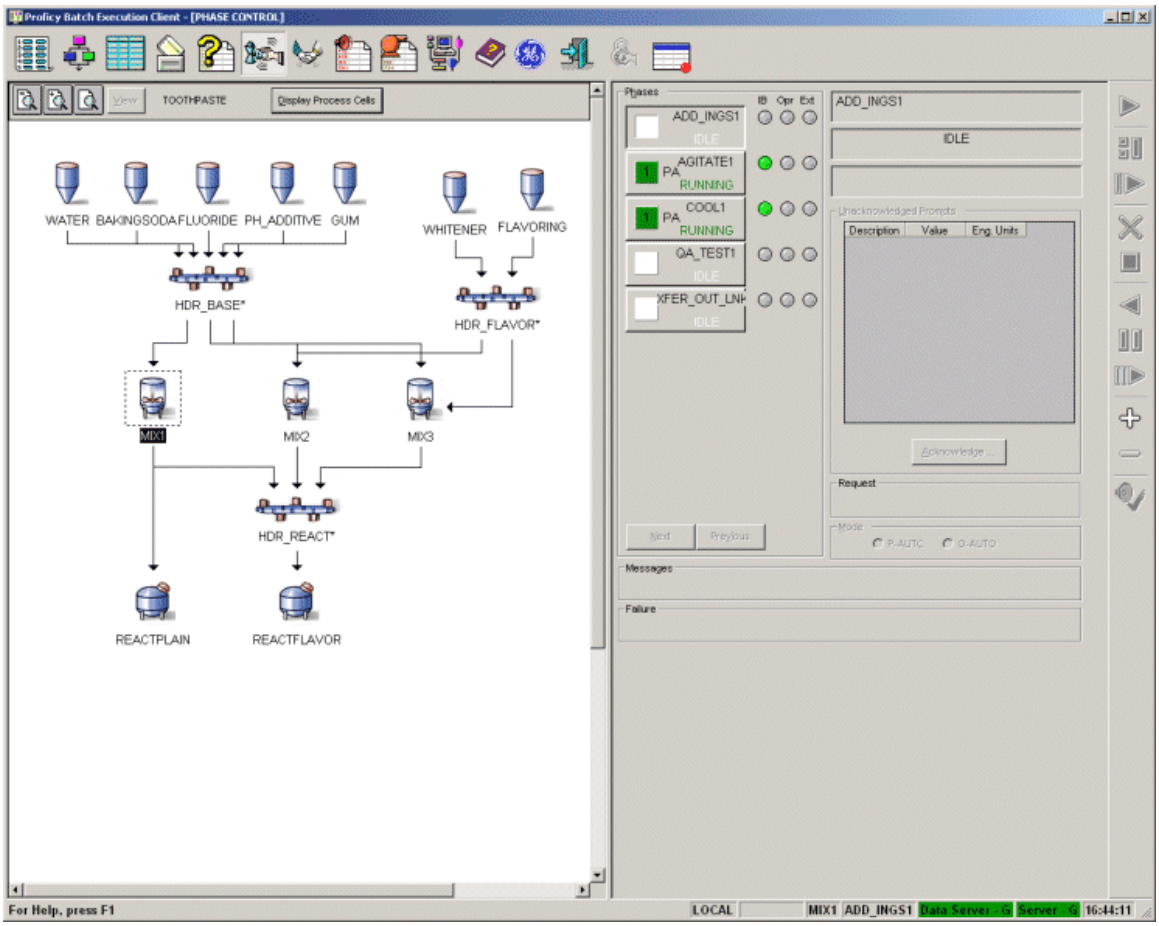
Step index – the current step of the active phase, displayed as a number on the Select Phase button.

Failures – any instances where the phase did not function properly.

Using the Phase Control Screen

The Phase Control screen lets operators view phases from an equipment-centric view. As shown in the following figure, the Phase Control screen graphically displays the recipe's units. By clicking on any of the units, the right side of the screen displays information about the corresponding phase, including its owner and its current state.

From the Phase Control screen, operators can manually control the execution of phases. By manually controlling the phase, operators can diagnose any problems or failures that occur during batch production by isolating the single phase that is the cause of the problem.



Phase Control Screen

Phase Ownership

A phase may be manipulated only by its owner. To control a phase, an operator must first acquire the phase. A phase may be acquired only if it has not exceeded the maximum number of owners configured for that phase. The number of its potential owners is configured in the Equipment Editor.

In the Phase Control screen, if a phase failed (it is in the HELD state) and the Clear All Failures command button is not enabled, this indicates that a failure has occurred that needs to be cleared at the batch level. To clear the failure, access the Batch List screen, select the batch containing the phase that failed, and click the Clear All Failures button.

For additional information on defining resource ownership, refer to the Equipment Configuration Manual.

Manually Controlling Phases

Operators can manually control any phases defined for the current area model from the Phase Control screen. This can be a useful mechanism for cleaning equipment or for completing a batch that was interrupted.

Example: Manually Controlling Phases

For example, during the production of a batch of pudding, the operator realizes that the milk used in the recipe is spoiled. The operator then:

1. Stops the batch and removes the mixture from its tank.
2. Acquires the phase ADD_WATER.
3. Manually executes the phase. This fills the tank with water.
4. Acquires a second phase, AGITATE_1.
5. Executes the AGITATE_1 phase, which agitates the water in the tank for five minutes.
6. Acquires the phase DRAIN_2.
7. Manually executes this phase and the tank is emptied.

The tank is now clean and is ready to run a new batch.

Single-Step Mode

Developers can place phases in single-step mode. By stepping through a phase one step at a time, a developer can troubleshoot a phase that is not executing properly. In the phase logic, phases can be defined with a pause transition between each of its individual steps. Only phases defined this way in the phase logic can be placed in single step mode.Refer to the Phase Programming Manual for more information on phase logic.

Using the Phase Summary Screen

The Phase Summary screen displays an overview of all phases configured in the area model. From this screen, operators can quickly identify units and their related phases. Operators can selectively filter which columns of information are visible by configuring the Phase Summary screen from the System Configuration and Defaults screen. The data displayed in the columns of the screen can include the following:

Phase – a listing of all phases in the area model.

State – the current state of the phase. For additional information on batch states, refer to the Introduction section.

Mode – the current mode of the phase, either manual or automatic.

Unit – the unit to which the phase belongs.

Step index – the current step of the active phase, displayed as a number on the Select Phase button.

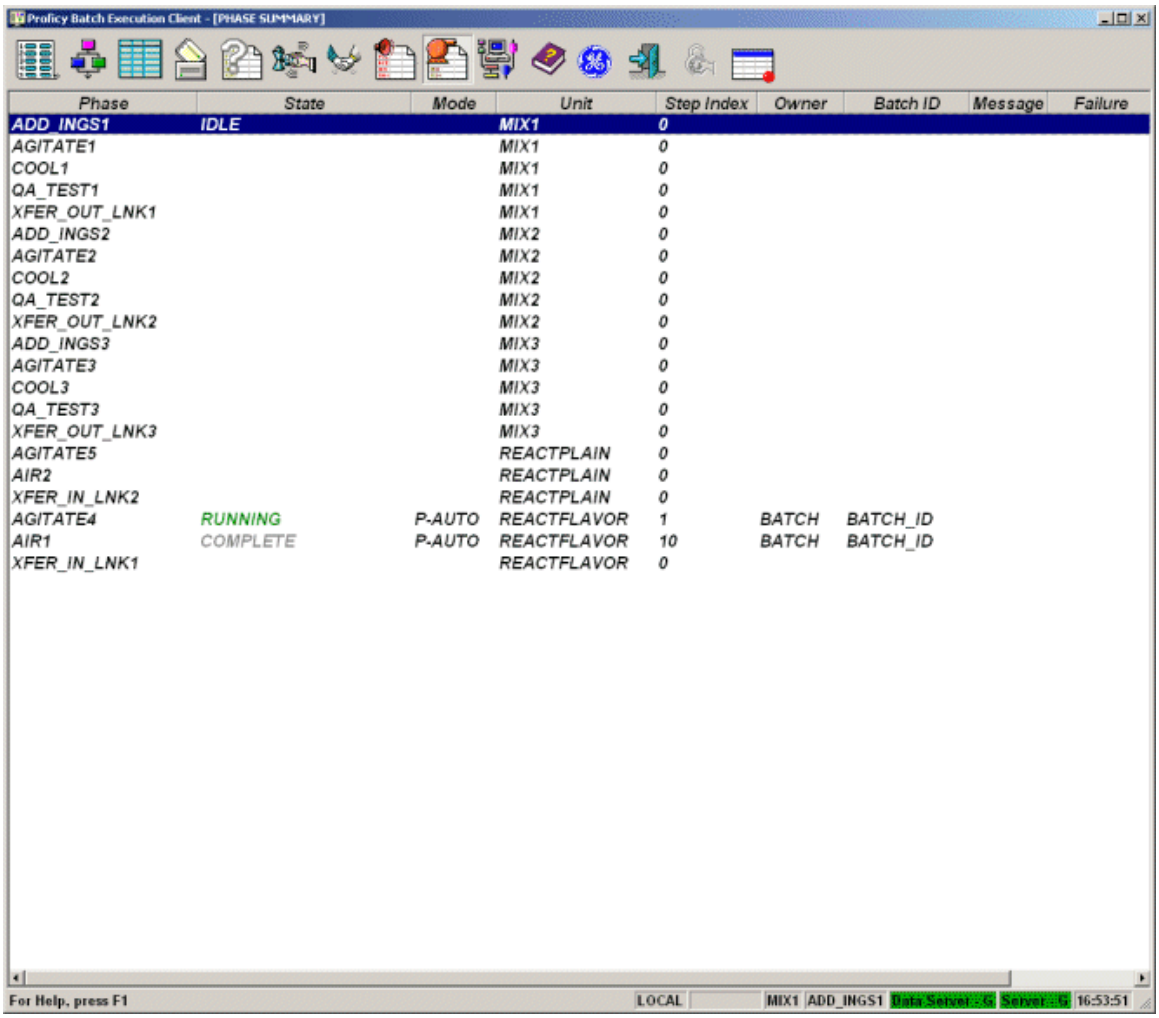
Owner – the current controller of the phase.

Batch ID – the name of the batch to which the phase belongs.

Message – informational message sent to the operator.

Failures – any instances where the phase did not function properly.

The Phase Summary screen functions as a display screen only. Interaction with the batch at the phase level must be done from the Phase Control screen. An example of the Phase Summary window is shown in the following figure.



Phase Summary Screen

Arbitrating Equipment

In Batch Execution, arbitration negotiates the distribution of equipment that is requested by more than one batch or operator. Arbitration is used to allocate shared resources within an area by evaluating both the current use and the demand for the resource.

The sections that follow discuss the concept of arbitration, as it applies to Batch Execution, as well as how arbitration is performed in the Client.

Common Resources

As defined in the ISA S88.01 Batch Control Standard, a common resource is a resource that can provide services to more than one user. In Batch Execution, common resources are further divided into two categories:

Exclusive-use resources – resources that can have only one owner at a time.

Shared-use resources – resources that can have multiple owners simultaneously.

Owning Resources

A resource may be manipulated only by its owner. If an operator does not own a resource but wants to control it, the operator must first acquire ownership of the resource.

However, an operator can only acquire a resource if the resource has been acquired by less than the maximum number of owners defined for it. The number of owners a resource is allowed to have is configured in the Equipment Editor. For additional information on defining resource ownership refer to the Equipment Configuration Manual.

Example: Resource Ownership

An operator is running Batch-A and wants to manually close a particular valve during the batch process. However, Batch-B is running simultaneously and the valve in question is being used by Batch-B, too. The valve is defined as being owned by Batch-B in the Equipment Editor, so the operator running Batch-A is unable to control the valve. In order to control the valve, the operator must establish ownership of the valve.

By accessing the Arbitration Screen, the operator can request ownership of the valve, which would then allow the operator to operate the valve manually. Several factors are involved in determining whether to grant ownership rights to the operator. These include the:

Number of owners – If the number of owners already exceeds the maximum number configured in the Equipment Editor, then ownership cannot be given to the operator.

Request priority – If there is more than one requester for this valve and the other requesters are listed higher in the Needed By list, ownership is given first to the requesters higher on the list. However, by accessing the Arbitration screen, operators can reposition their request in the priority list.

The operator can be granted ownership of the valve when the:

- Number of owners is less than the maximum configured in the Equipment Editor.
- Operator is at the top of the priority list.

At that point, the operator is free to manipulate the valve manually.

Using the Arbitration Screen

Optimally, arbitration procedures are performed from the Arbitration screen, shown in the Allocating Resources section. From the Arbitration screen, the operator can:

- Select the device focus.
- View all resources.
- Allocate resources.

Refer to the following sections for additional information.

Selecting the Device Focus

The device focus sets the current focus of the Arbitration screen. The device focus can be any or all of the following:

- Phases
- Units
- Recipes
- Devices
- Operators

Viewing Resources

Once the device focus is established, the ownership information for that resource is visible in the Arbitration screen. This information is visible in two sections of the screen, each of which contain two windows:

Current Profile

Owns – lists what, if any, resources the current device focus entity owns.

Owned By – lists the current owner of the resource.

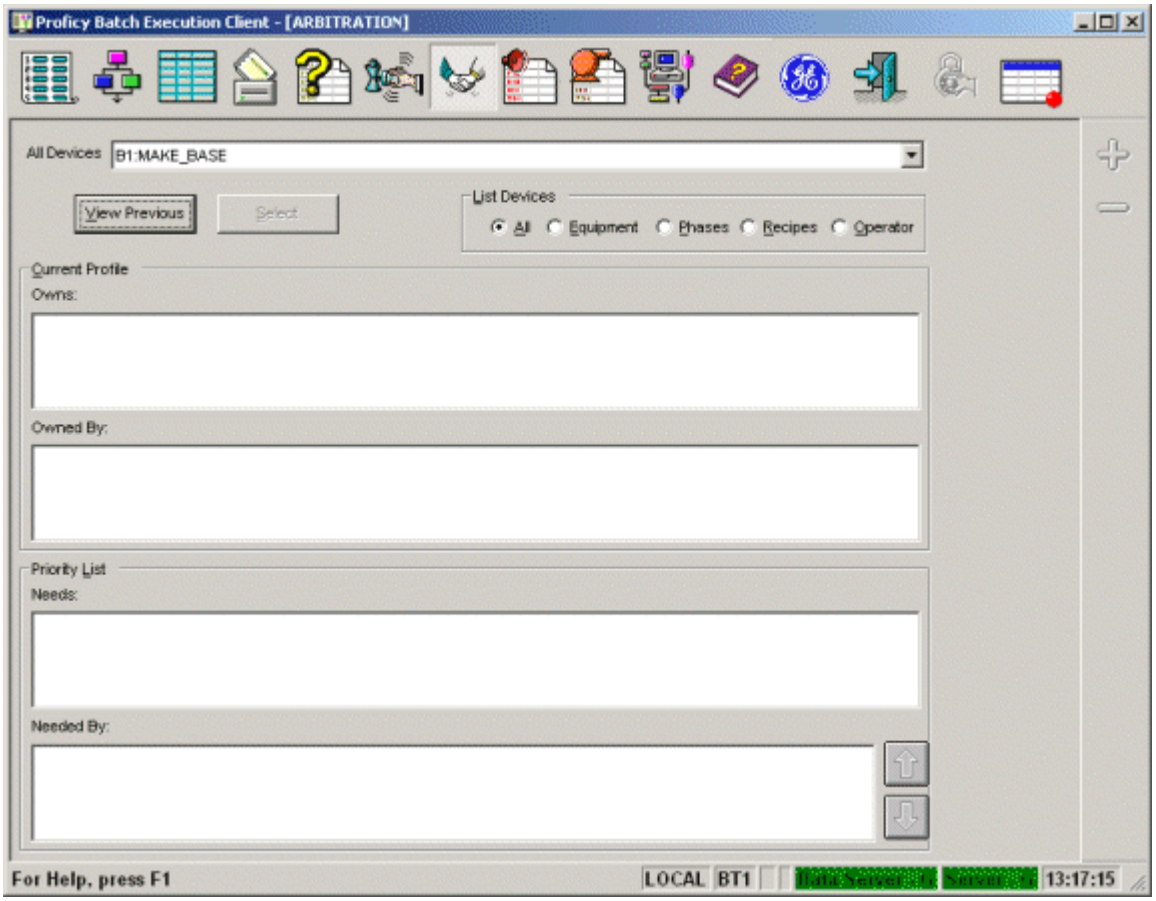
Priority List

Needs – lists the resource that is required by the device focus entity.

Needed By – lists the name of the process or operator requesting the resource.

Allocating Resources

Resource allocation occurs when operators acquire and release resources in the Arbitration screen. For additional information, see the Acquiring Resources and Releasing Resources sections.



Arbitration Screen

Acquiring Resources

In order to control a resource, an operator must first acquire that resource. Operators can acquire a resource when the number of current owners is less than the maximum number of owners configured in the Equipment Editor.

When an operator is finished using a resource, the operator must release the resource to make it available for acquisition by other resources or running batches.

Example: Acquiring a Resource

Suppose an operator wants to request the resource VALVE1. VALVE1 is necessary to run the batch MAKE_COOKIES. However, VALVE1 is currently in use by the batch MAKE_BROWNIES.

The following steps occur when the operator attempts to acquire VALVE1:

1. The operator makes the MAKE_COOKIES recipe the Device Focus.
2. VALVE1 appears in the Priority List's Needs box.
3. The name Operator appears in the Priority List's Needed By box.
4. The Arbitration screen is static while the MAKE_BROWNIES batch runs. Once MAKE_BROWNIES finishes with VALVE1, the valve is released.
5. MAKE_COOKIES is now given ownership of VALVE1. The name Operator appears in the Owned By box and VALVE1 appears in the Owns box. Simultaneously, Operator is removed from the Needed By box and VALVE1 is removed from the Needs box.

This completes the resource acquisition process.

Releasing Resources

When operators are finished with resources, they should make them available to other resource users who may need to use them. This is called releasing a resource.

An operator can force a resource to be released from its owner from the Arbitration screen. When this occurs, the next operator or process in the Needed By queue gains ownership of the resource.

CAUTION: *Forcing the release of a resource may affect running recipes. You should fully understand the operation of a resource prior to releasing it.*

Acknowledging Prompts

There are three types of prompts that occur in Batch Execution: *operator prompts, binding prompts* and *transition breakpoint prompts*. Operator prompts are built into phases in the Recipe Editor. You can define a phase's recipe parameters in the Recipe Editor to be deferred to *Operator*. The operator then receives the prompt when that phase executes. Since the prompt is generated by a specific phase in the running batch, it requires a specific response.

Binding prompts occur as a result of Active Binding. Class-based recipes can use Active Binding and defer the allocation of units to unit procedures until run time. Binding prompts occur when *Operator* is the Unit Bound selection made for a specific step when the recipe is added to the Batch List. When the transition directly before that step fires, the operator is prompted to select the unit on which the unit procedure will run.

When prompted, operators can choose either:

- A specific unit from the defined unit class on which the unit procedure will run.
- Automatic from the selection list. Selecting Automatic allows the Batch Execution Server to select the unit that the unit procedure will use.

Unlike Operator and Binding prompts, Transition Breakpoint prompts require no prior configuration. They are added to transitions in the SFC view of the Batch Client either before or while a batch is executing. When a transition with a breakpoint is reached, the operator is prompted to acknowledge the transition. Once acknowledged, the batch continues executing. Typically, a transition breakpoint is added when you want to create a pause in a fully automated process.

For additional information on configuring prompts in the Recipe Editor or on Active Binding, refer to the Recipe Development Manual. For more information on transition breakpoints, refer to Transition Breakpoints.

Acknowledging Prompts

The question mark on the Unacknowledged Prompts button flashes when a prompt is waiting for an operator response. The prompt can either be a standard operator prompt, a binding prompt or a transition breakpoint prompt.

A valid acknowledgment is required in response to a prompt. For example, if the prompt is expecting a number, a number must be entered as the acknowledgment. If the prompt is expecting a "yes" or "no" response, then one of those two responses must be entered.

In addition to the flashing Unacknowledged Prompts button, you can configure the Unacknowledged Prompts alert dialog box or the Binding Prompts alert dialog box to appear. You can set this dialog box to launch either:

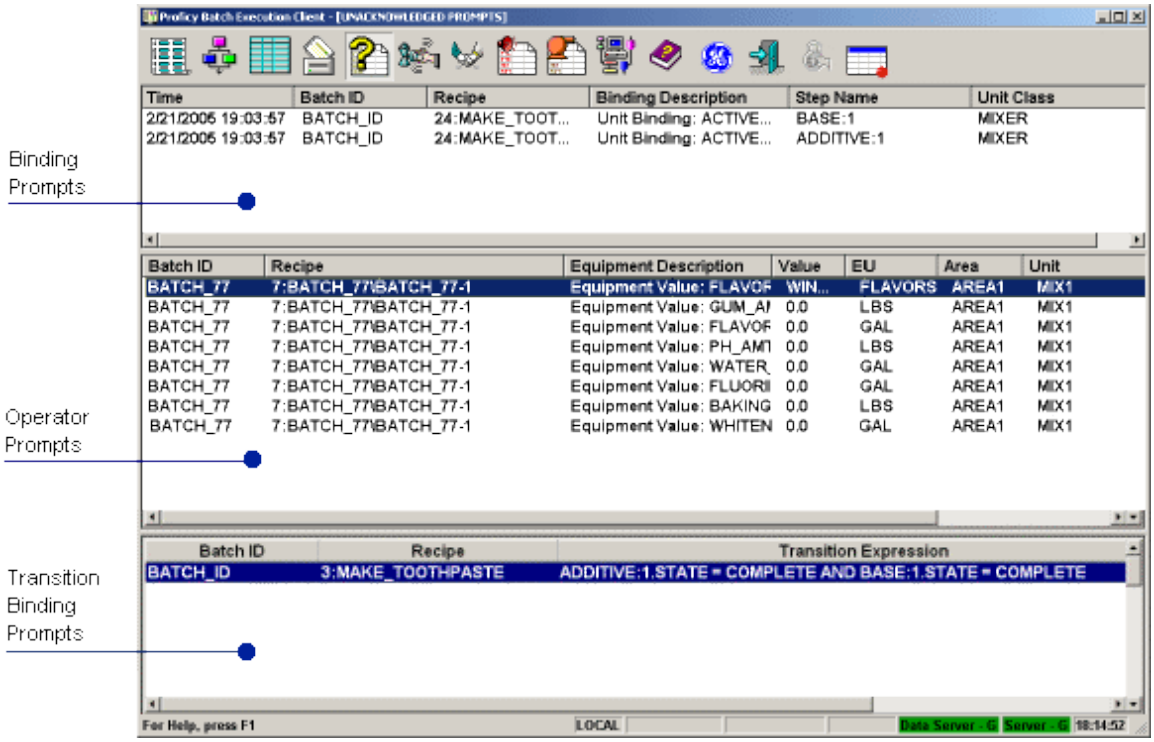
- After each prompt is triggered.
- After a configurable number of prompts occur.

Clicking the Acknowledge button on either the Unacknowledged Prompts or Binding Prompts alert dialog box lets you acknowledge the prompt.

NOTE: *You can not configure a dialog box to appear for transition breakpoints.*

Using the Unacknowledged Prompts Screen

Unacknowledged Prompts are usually viewed and acknowledged from the Unacknowledged Prompts screen, shown in the following figure. This is the preferred method of responding to prompts, because the list of unacknowledged prompts is visible as soon as the operator opens the window. The operator does not need to know the particular phase that generated the prompt to view and respond to the unacknowledged prompt.



Unacknowledged Prompts Screen

Acknowledging Prompts from Alternate Screens

The operator can also respond to prompts from the Phase Control, the Table View, or SFC View screens.

NOTE: *Transition breakpoint prompts can only be acknowledged from the Unacknowledged Prompts screen.*

- If the prompts alert dialog box is configured to open after each prompt, the operator can respond to these prompts from the alert prompts dialog box or from the Unacknowledged Prompts screen.
- If the alerts prompts dialog box is not configured to open after each prompt, then the operator must meet specific conditions for each of the three alternate screens in order to acknowledge prompts from that screen.

The conditions for acknowledging prompts from alternate screens are discussed in the following sections.

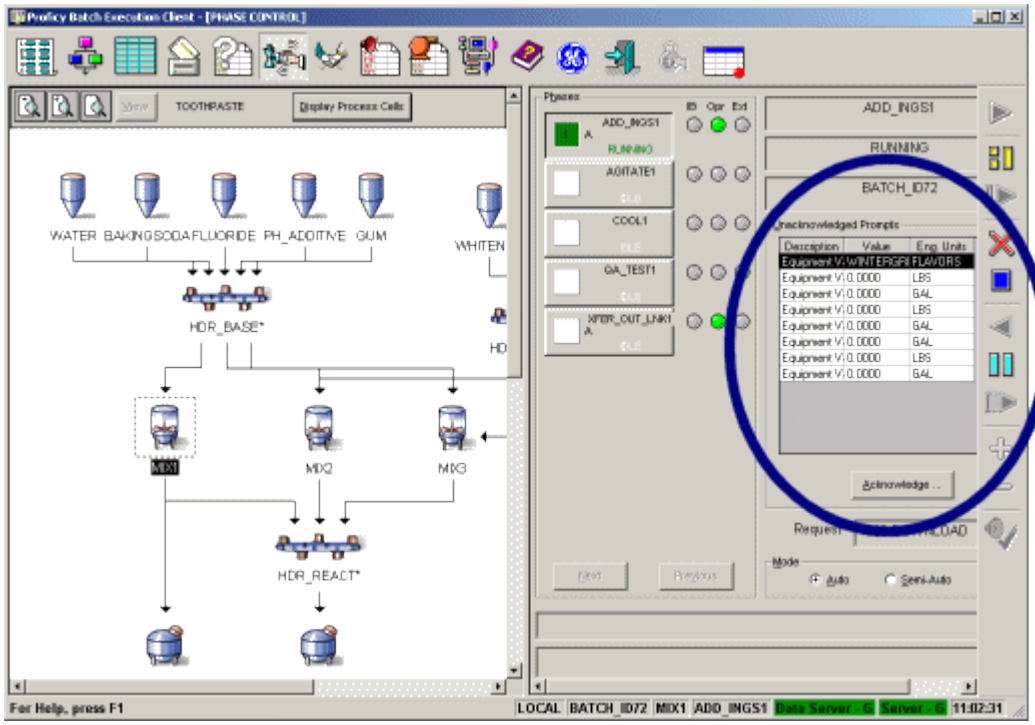
Phase Control Screen

NOTE: *Transition breakpoint prompts can only be acknowledged from the Unacknowledged Prompts screen.*

To acknowledge prompts from the Phase Control screen, the following conditions must exist:

1. Adjust the slide bar so that the Unacknowledged Prompts area of the screen is visible.
2. Expand the Process Cell view to display the batch's units.
3. Select the Unit containing the phase that is being prompted from the graphical display in the Phase Control screen.

If these conditions are met, prompts are visible and can be acknowledged from the screen, as shown in the following figure.



Acknowledging Prompts from the Phase Control Screen

Table View and SFC View Screens

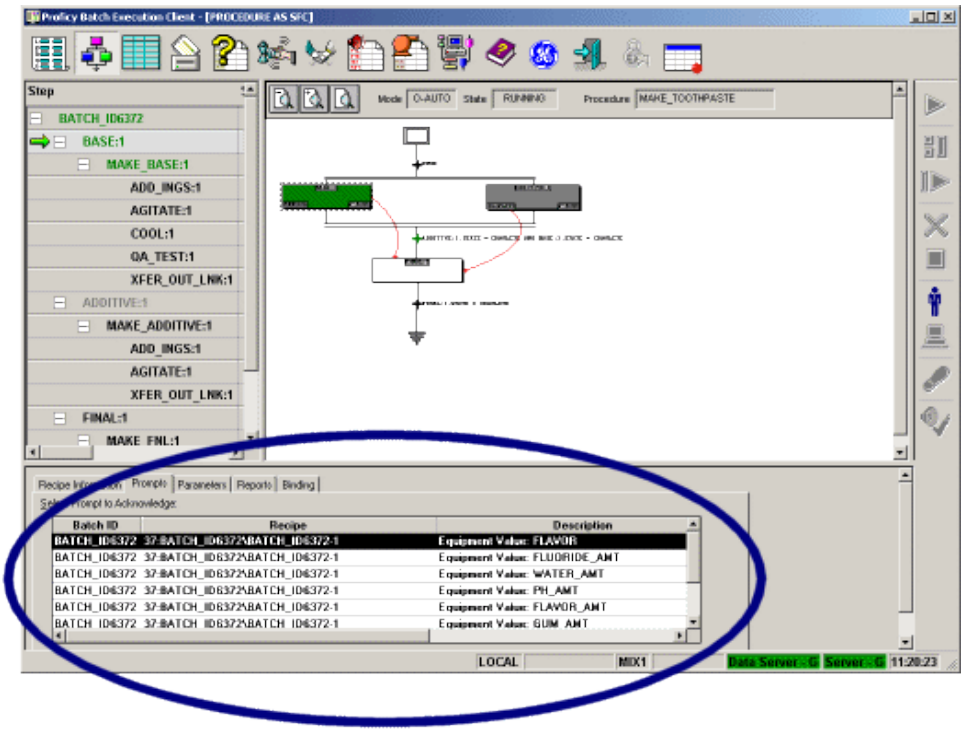
NOTE: *Transition breakpoint prompts can only be acknowledged from the Unacknowledged Prompts screen.*

To acknowledge prompts from the Table View and SFC View screens, the following conditions must exist:

1. Select the Unacknowledged Prompts tab in the Auxiliary Windows area to make the Unacknowledged Prompts area of the screen visible.
2. Highlight the procedure (first row) of the Procedural Hierarchy area of the screen. The prompt

will not be visible in the Unacknowledged Prompts area if the highlighted row is below the row containing the phase that is being prompted. Optionally, you can highlight the step of the SFC or the exact line in the Table View containing the phase that is being prompted.

If these conditions are met, prompts are visible and can be acknowledged from the screen, as shown in the following figure.



Acknowledging Prompts from the SFC Screen

Advanced Topics

The sections that follow describe some advanced functionality provided in the Client including:

- Scaling
- Binding Equipment
- Reporting
- Using the VBIS Automation Interface

These sections also include information on Troubleshooting some run-time errors you may encounter.

Scaling Batches

There may be occasions when an operator wants to produce either a portion of a recipe or more than the standard recipe amount. Whether this is possible depends on how the recipe is configured, as well as the size of the physical equipment in a particular facility.

Scaling a batch is the method used to produce a quantity other than the default size of the recipe. Instead of running a normal batch, the operator specifies a percentage of a given recipe to be produced. This task is performed from the Batch Creation dialog box, when a batch is added to the Batch List.

Binding Equipment

The ability to dynamically select a unit on which to run a particular unit procedure allows Batch Execution to bind and re-bind units when a batch is created, as well as during batch production. This process is called Active Binding.

There are three methods of binding a unit to a unit procedure:

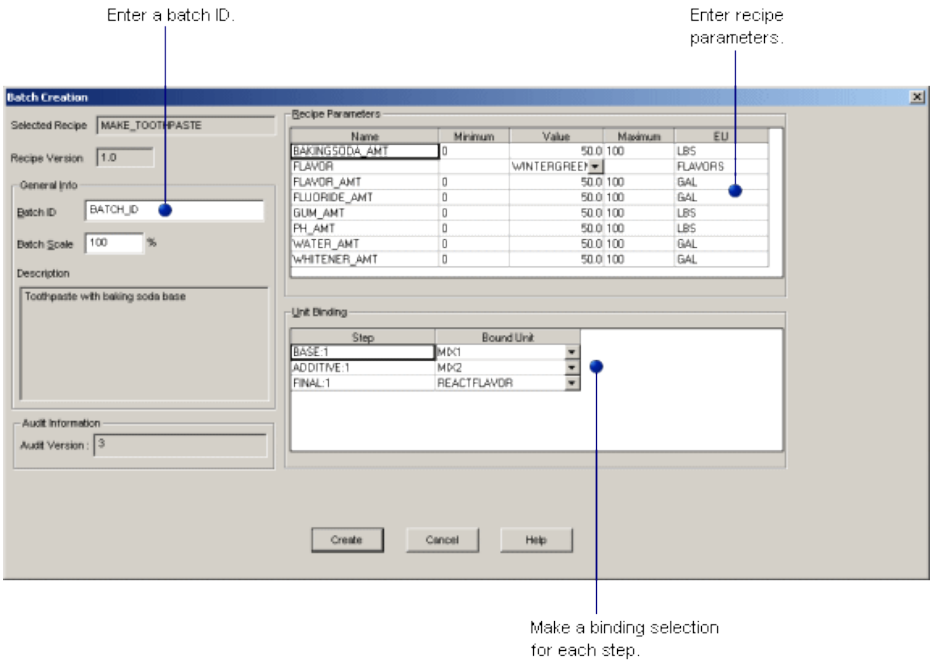
- Manually, when the recipe is created.
- During run time, using an operator prompt.
- Automatically, allowing the Batch Execution Server to make the selection dynamically.

The type of binding that will occur is determined when the batch is first created. This task is performed from the Batch Creation dialog box, shown in the following figure. The selections made in the Bound Unit section for each step determines how the binding occurs. These selections are:

A specific unit – If a unit is selected, then the unit procedure will run on that specific unit.

Automatic – If you select Automatic, the Batch Execution Server will select the unit on which the unit procedure will run.

Operator – If you select Operator, then the operator will receive a prompt as the transition before the step in question fires. The operator then must select a unit on which to run the unit procedure in question.



Binding Equipment

During recipe development, many elements of Active Binding are defined that give the Batch Execution Server sufficient information to make an appropriate selection of a unit to bind to a unit procedure. Some of these elements include:

Unit Procedure's capacity – indicates the amount of material the unit procedure can transfer, process, or contain. By comparing the unit procedure's capacity requirements with the defined equipment capacity of the units in the area model, the Batch Execution Server can dynamically select an appropriate unit on which to run a particular unit.

Forced bindings – allows you to indicate two unit procedures that must use either the same unit or must use different units.

Jacobson Links – define a recipe's physical connection requirements.

Additionally, operator rights are defined in the Recipe Editor. The two types of operator rights are:

Modify Binding at Batch Creation – allows one of the following to occur at the time the batch is added to the Batch List:

- The Batch Execution Server selects the unit to bind to the unit procedure.
- The operator is prompted to select the unit to bind to the unit procedure.

Modify Binding During Batch Execution – you can re-bind a unit to the unit procedure during batch execution, any time up to the point when the transition before the step in question fires.

Reporting

The final step in the batch process is reporting. Whether used for in-house tracking or for regulatory compliance, generating reports is the critical final phase of the batch production cycle.

In Batch Execution, information is generated about each batch added to the Batch List. The Batch Execution Server creates an event (.EVT) file at run time, and these event files are viewed in the Event Journal screen.

The same data sent to the event files is sent to the Archiver for storage in a relational database. This is done in real-time using a feature called Active Journaling™. For additional information on both Active Journaling and configuring your relational database, refer to the System Configuration Manual.

The types of information you can query from the relational database include:

- Status information about each batch
- Batch description
- Recipe header information
- Changes in:
    - The batch mode
    - Ownership of the batch
    - The batch state
    - Recipe values
    - Steps

- Prompts
- Informational messages about:
    - Phase logic requests and responses
    - Phase logic arbitration of resources

Using VBIS

VBIS is a collection of OLE Automation interfaces that allow external programs to monitor and control Batch Execution. Within VBIS, interfaces are provided in a number of functional areas including recipes, the area model, scheduling, and execution.

VBIS provides a set of interfaces accessible through Visual C++ and Visual Basic that have the ability to perform the following tasks:

- Schedule batches
- Run batches
- Bind batches
- Set parameter values
- Remove batches

Batches scheduled using VBIS appear in the Client's Batch List screen. The normally green-colored Start Batch button appears as the yellow Bind Batch button if not all information is passed to the Client at schedule time. Operators can click this button to open the Bind Batch dialog box. From this dialog box, operators can perform the following tasks:

- Bind equipment.
- Enter parameter values.

After performing these tasks, the batch can be started in the standard fashion.

Using VBIS and ActiveX Controls

Batch Execution provides a set of ActiveX controls that can perform many batch control tasks. These controls work as clients to VBIS, either on the same workstation or remotely. You can use a combination of the ActiveX controls and VBIS to build a custom client application. For additional information of using VBIS and the ActiveX controls, refer to the Controlling Batches with the Batch Execution ActiveX Controls section.

For additional information on VBIS, refer to the Custom Applications manual.

Troubleshooting

This section contains a description of some possible operational issues, as well as some suggested strategies to resolve these issues:

- Communications Problems
- Phase Failures
- Arbitration Deadlocks

Communications Problems

Communications errors can occur when components of the Batch Execution system are not properly connected or configured. Communication failures can affect the Batch Execution environment in the following manner:

Network – a failure in network communications can occur when the Batch Execution Server and the Client lose communication. In each of the Client's screens, this failure is represented by a red letter L in the lower right-hand corner of the screen.

Network communications can fail for numerous reasons, including distance between the Client and Batch Execution Server, the number of routers a communication must traverse, and faulty connections. Operators experiencing a failure in the network communications should check the connections and power source for all equipment. More complex problems should be referred to a network administrator.

OPC – an OPC communication failure disrupts the link between the Batch Execution Server and iFIX. As with all communications, check your connections and verify that iFIX started.

iFIX - Process Controller – communication errors can occur between iFIX and the process controller. As with all communication failures, check all connections. For specific configuration issues, refer to your iFIX documentation and your process controller's documentation.

Phase Failures

Phase failures can occur for a multitude of reasons. Simple phase failures occur when an operator attempts to connect to a procedure that is not idle, or when an operator attempts to run a phase that is owned externally. When the most serious phase-specific failures occur, an alarm is displayed in the Client's Alarm Summary screen. These phase failures are defined in the failure register of the process controller and are sent when a phase fails to function properly. For example, a phase programmed to open a valve fails and the valve remains closed.

While only the most serious phase failures result in a display in the Alarm Summary screen, if you are using iFIX, all failures are displayed in the Alarm Summary window. For additional information on using the Alarm Summary window, refer to the *Implementing Alarms and Messages* manual.

Arbitration Deadlocks

Arbitration deadlocks can occur if arbitration is not carefully considered in the design process. The resources each phase needs – especially if the phases are synchronized – must be evaluated during the design phase to avoid deadlock during run time.

Example: Arbitration Deadlock

For example, suppose two phases are created, PHASE_1 and PHASE_2. PHASE_1 needs resources A and B to function; PHASE_2 needs resources B and A. As the batch starts, PHASE_1 acquires resource A and PHASE_2 acquires resource B. If these phases are programmed to work simultaneously, a deadlock occurs because each phase will acquire only one of the resources it needs and cannot run.

By listing the needed resources for each phase alphabetically or numerically, or by programming the phases to work independently, as opposed to simultaneously, the developer can avoid this deadlock situation.

Controlling Batches with the Batch Execution ActiveX Controls

Batch Execution includes a set of ActiveX controls that allow you to perform some batch control operations from any ActiveX container, such as the Proficy iFIX WorkSpace or a Web page. These controls work as a client to VBIS, either on the same workstation or remotely. Essentially, these controls allow you to a build your own Client from which you can monitor and control batches.

The Proficy Batch Execution ActiveX controls are the Intellution:

- BatchList Control
- BatchAdd Control
- BatchRecipeList Control
- BatchAlarmList Control
- BatchOperatorPromptsList Control
- BatchBindingPromptsList Control
- Manual Phase Control
- SFC Control

The sections that follow discuss the run-time use of these controls. For configuration information, refer to the Custom Applications e-book.

Using the BatchList Control

The BatchList Control, shown in the following figure, has much of the same functionality as the Batch List found in the Batch Execution Client. The control uses most of the same command buttons to control the batch as the standard Client Batch List. There are two additional buttons on the control that are not found in the Client, however:

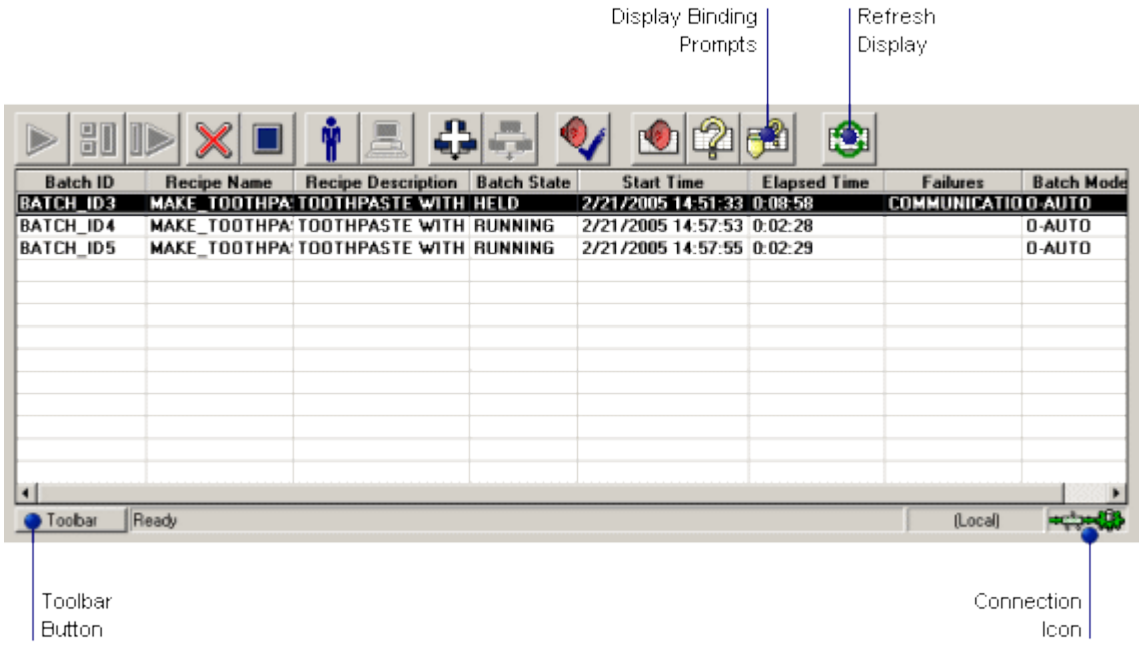
Display Binding Prompts – launches the BatchBindingPromptsList control. These items launch in a separate dialog box from standard operator prompts. In the Batch Execution Client, both sets of prompts are visible in the same dialog box.

Refresh display – manually refreshes the Batch List information from VBIS.

Additionally, all the Batch Execution ActiveX controls have two other graphical elements:

Connection icon – located at the bottom-right of each control, this icon allows the operator to connect to the VBIS Server, either locally or remotely.

Toolbar button – located on the bottom-left of each control, this button toggles the control's command button toolbar from visible to not visible.



BatchList Control

Using the BatchAdd and BatchRecipeList Controls

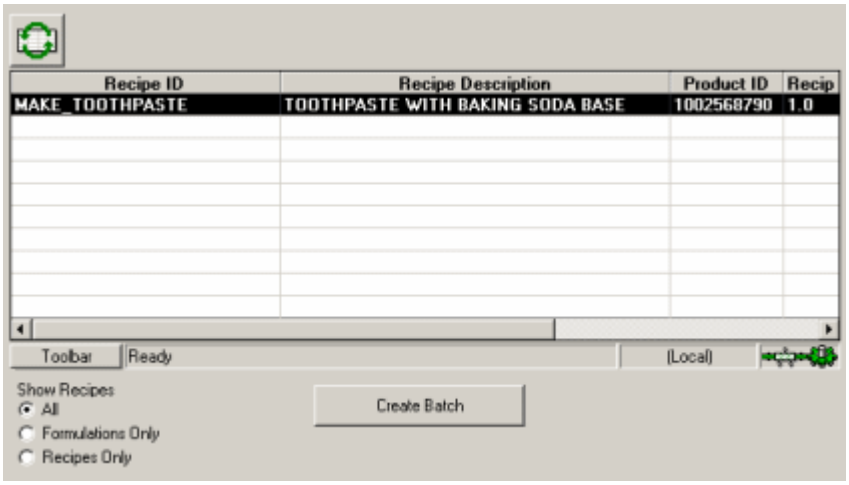
The BatchAdd Control, shown in the following figure, allows you to add a batch to the Batch List. This control uses a three-step wizard to guide you through the process of adding a batch. While using the wizard, you have the ability to use the Next and Back buttons to click through its screens.

To add a batch using the BatchAdd Control:

1. Select a recipe from the list.
2. Click the Create Batch button. This opens the first dialog of the wizard.
3. Enter the Batch ID.

   IMPORTANT: *You cannot use the following characters in the batch ID: left bracket { [}, right bracket {] }, left parenthesis { (}, right parenthesis { (}, comma { , }, double quotes { " }, single quotes { ` }, new line { \n }, carriage return { \r }, tab character { \t }, or NULL.*

4. Optionally, enter a scaling amount. Click the Next button.
5. Select parameter values, if applicable. Click the Next button.
6. Make binding selections for each step in the Unit Bound section. Click the Finish button.
7. A "Batch has been added successfully" message is generated. Click OK.
8. Click Done.



BatchAdd Control

BatchRecipeList Control

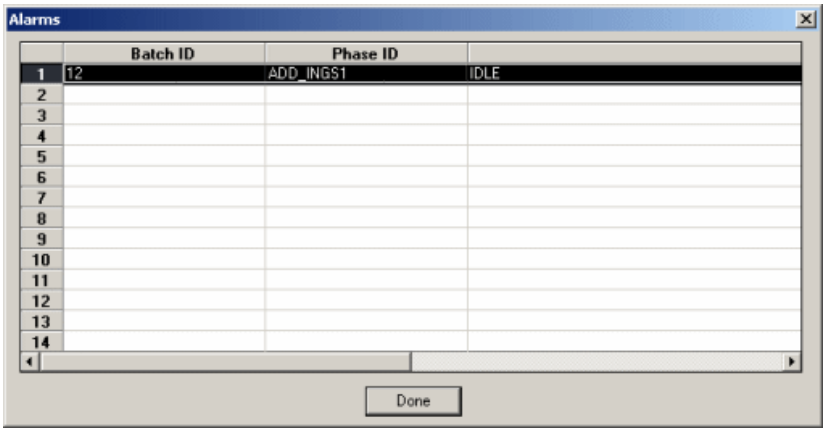
To view available recipes only, use the BatchRecipeList control. This control displays all available recipes and is similar in appearance to the BatchAdd Control, but does not have a command button toolbar.

Using the BatchAlarmList Control

You can include the BatchAlarmList control, shown in the following figure, in your custom client to view alarms from an environment other than the Batch Execution Client. When an alarm occurs, the Display Alarms button on the BatchList control flashes.

To access the BatchAlarmList control from the BatchList control:

1. Click the Display Alarms button to display the BatchAlarmList control.
2. When you are finished viewing the Alarms, click Done.



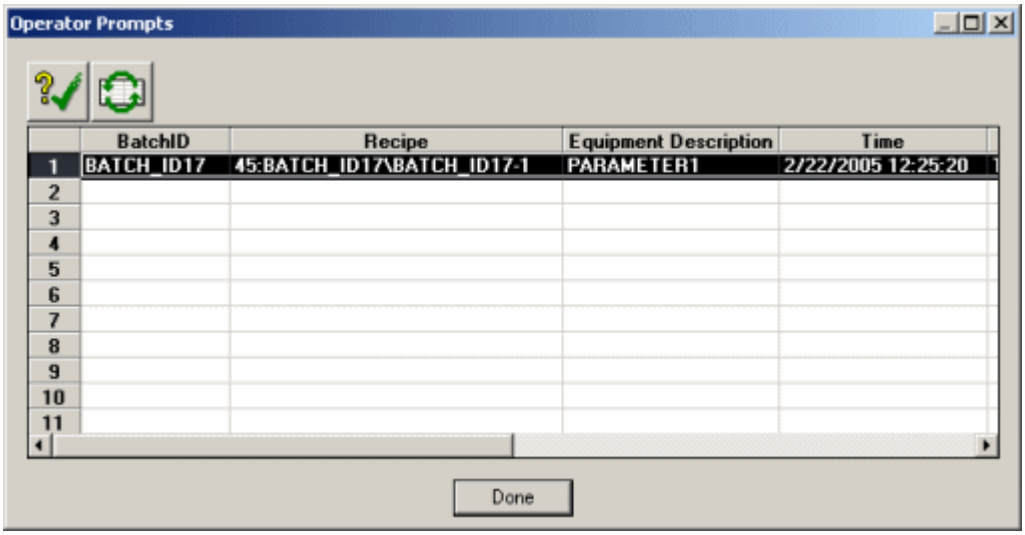
BatchAlarmList Control

Using the BatchOperatorPromptsList Control

You can include the BatchOperatorPromptsList control, shown in the following figure, in your custom client to acknowledge prompts from an environment other than the Batch Execution Client. When a prompt occurs, the Display Prompts button on the BatchList control flashes.

To access the BatchOperatorPromptsList control from the BatchList control:

1. Click the Display Prompts button to display the BatchOperatorPromptsList control.
2. Select a prompt from the list and double click it. This opens the Acknowledge Prompt dialog.
3. Enter an appropriate value in the Value field and click OK. This returns you to the Prompts dialog.
4. Click Done.



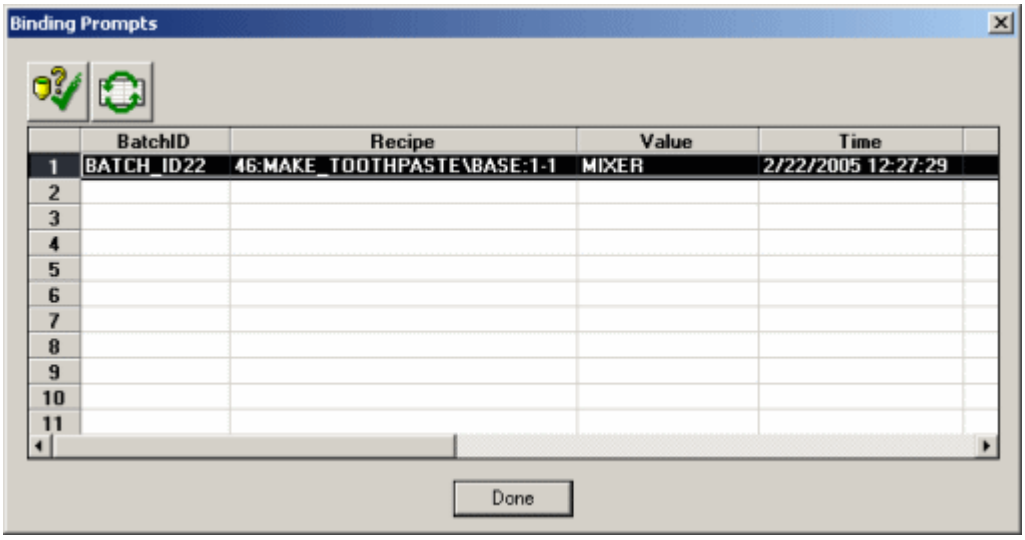
BatchOperatorPromptsList Control

Using the BatchBindingPromptsList Control

You can include the BatchBindingPromptsList control, shown in the following figure, in your custom client to acknowledge binding prompts from an environment other than the Batch Execution Client. When a binding prompt occurs, the Display Binding Prompts button on the BatchList control flashes.

To access the BatchBindingPromptsList control from the BatchList control:

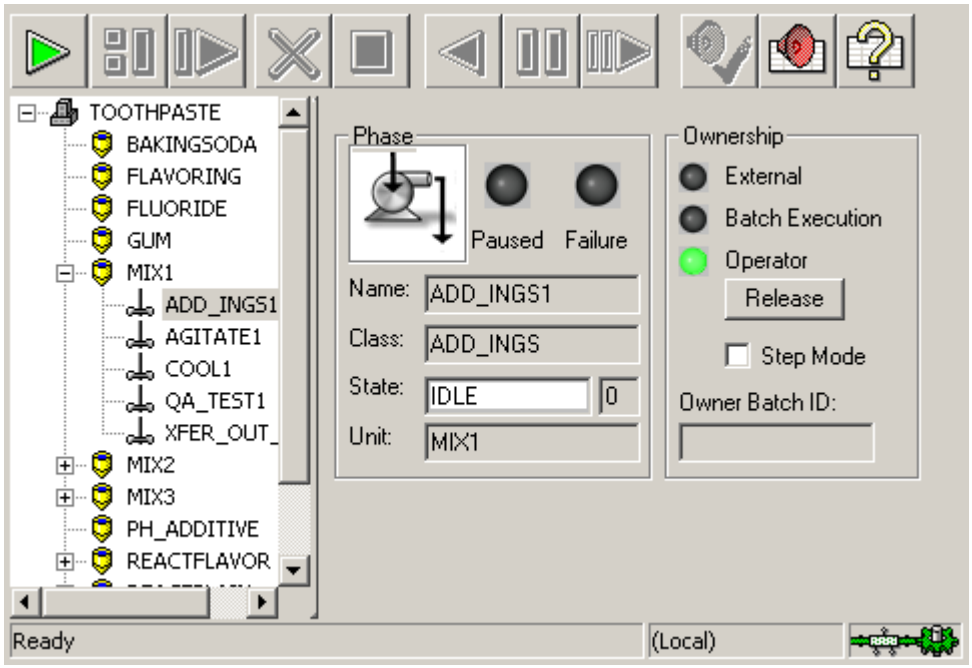
1. Click the Display Binding Prompts button to display the BatchBindingPromptsList control.
2. Select a prompt from the list and double click it. This opens the Acknowledge Binding Prompt dialog.
3. Make a binding selection and click OK. This returns you to the Binding Prompts dialog.
4. Click Done.



BatchBindingPromptsList Control

Using the Batch Manual Phase Control

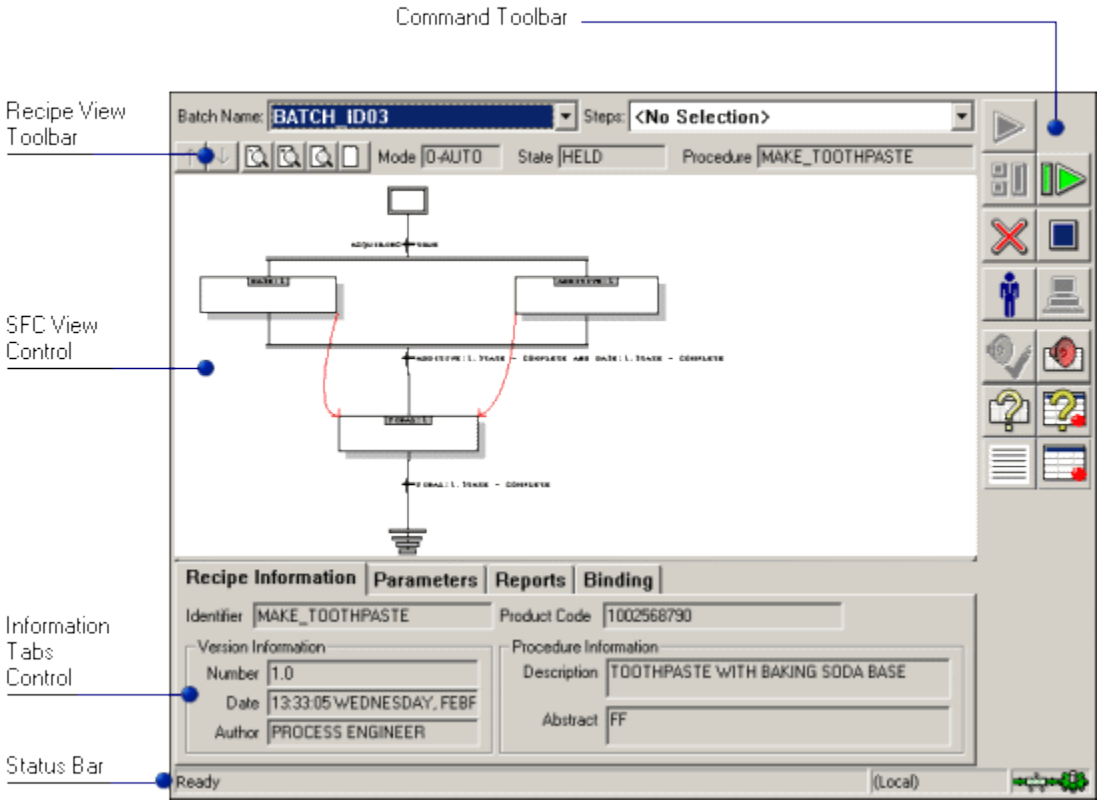
The Batch Manual Phase ActiveX control allows you to manually control phases. It provides a tree view of the area model from which you can select the appropriate phase. Once you select a phase, you can use the command buttons to control the phase.



Manual Phase Control with Area Model Tree View

Using the Batch SFC Control

The GE Intelligent Platforms Batch SFC control, shown in the following figure, allows you to monitor and control a batch from a sequential function chart representation of the batch. The SFC control contains two controls, SFC View and Information Tabs. The SFC View control functions in the same manner as Batch Execution's Client SFC View.



SFC Control

Connecting to VBIS

The Batch Execution ActiveX controls function as clients to VBIS, either on the same workstation or remotely. By default, the control assumes that VBIS resides on the same computer as the control. Therefore, to connect the control to VBIS, you simply have to click the connection icon at the bottom-right of the control. The status bar will indicate the connection's status.

To connect to VBIS remotely:

1. Position your cursor anywhere on the control and click the right mouse button.
2. Select Properties from the right-mouse menu. The control's property sheet appears.
3. Select the Server tab.
4. Select the Remote button.
5. Use the browse button to locate the computer on the network where VBIS is located. If you

know the computer name, you can enter that information in the field next to the Remote button.

6. Click OK.
7. Click the connection icon at the bottom-right of the control to connect to VBIS remotely.

Using ActiveX Controls in iFIX

While the Batch Execution ActiveX controls are designed to work in ActiveX containers, you can also configure them to work from iFIX pictures.

To use Batch Execution ActiveX controls in iFIX pictures:

1. Drop the Batch Execution ActiveX control into a Visual Basic form.
2. Save the project as an executable.
3. In iFIX scripting, write a RUNTASK command that calls the new executable.
4. Add a button to your iFIX picture that launches the RUNTASK command.

Batch Client Dialog Boxes

The Batch Client application includes the following dialog boxes (listed in alphabetical order):

- Acknowledge Dialog Box
- Add a Remote Server Dialog Box
- Add User Event Dialog Box
- Batch Creation Dialog Box
- Color Dialog Box
- Edit Server Dialog Box
- Event Data Files Dialog Box
- Event Files List Options Dialog Box
- Font Dialog Box
- Operating Rebinding Dialog Box
- Recipe List Dialog Box
- Recipe List Options Dialog Box
- Server Selection Dialog Box
- System Configuration and Defaults Dialog Box
- Transition Expression Dialog Box
- Update Parameter Value Dialog Box
- Unacknowledged Prompts Dialog Box
- View Deferred Parameter Value Dialog Box

Acknowledge Breakpoint Dialog Box

The Acknowledge Breakpoint dialog box displays the following items:

Batch ID

Displays the Batch ID currently generating an operator prompt.

Expression

Displays the expression for the transition where the breakpoint is set.

Recipe

Displays the recipe currently generating an operator prompt.

Acknowledge

Click to acknowledge the operator prompt.

Cancel

Click to cancel the action.

Acknowledge Dialog Box

The Acknowledge dialog box displays the following items:

Batch ID

Displays the Batch ID currently generating an operator prompt.

Recipe

Displays the recipe step currently generating an operator prompt.

Process Cell

Displays the process cell in which the batch generating the operator prompt is running.

Unit

Displays the unit on which the recipe step generating the operator prompt is running.

Phase

Displays the phase that contains the parameter that is generating the current operator prompt.

Parameter

Displays the parameter defined to prompt the operator at run time. The operator can either verify the default value or enter a new value in the field in response to the prompt.

Minimum

Displays the minimum amount you can enter as a response to the current operator prompt.

Maximum

Displays the maximum amount you can enter as a response to the current operator prompt.

Eng. Units

Displays the engineering units defined for the parameter generating the operator prompt.

Response Input Field

Use this dialog to enter an appropriate response to the unacknowledged prompt, and then click Acknowledge to clear the prompt.

Add a Remote Server Dialog Box

The Add a Remote Server dialog box displays the following items:

Server Name

Enter the name of the remote server, or click the Browse (…) button to select a server.

Alias

Enter an alias for the remote server. You must enter an alias for each server in the list. It cannot exceed 30 characters.

The alias can contain the numbers: 0-9, the letters: A-Z and a-z, the underscore character, and a space character. The underscore and space characters cannot appear at the beginning of an entry, or alone. Duplicate alias names are not allowed in the list.

Default

Select this check box to make this server the default server. Only one default server is allowed.

Add User Event Dialog Box

The Add User Event dialog box displays the following items:

Add Event to this Batch Option

Click to add these event messages to only the current batch's Event Journal file.

Add Event to All Batches Option

Enter the user name who has access to the database where the AuditTable is located.

Value

Enter text you want to appear in the Event Journal's Value column.

Engineering Unit

Enter text you want to appear in the Event Journal's Engineering Unit column.

Phase

Enter text you want to appear in the Event Journal's Phase column.

Unit Name

Enter text you want to appear in the Event Journal's Unit Name column.

Process Cell

Enter text you want to appear in the Event Journal's Process Cell column.

Description

Enter text you want to appear in the Event Journal's Description column.

Batch Creation Dialog Box

The Batch Creation dialog box displays the following items:

Selected Recipe

Displays the recipe name defined in the recipe header. This field is display-only.

Recipe Version

Displays the recipe’s version number as defined in the recipe header. This field is display-only.

General Info

The following table lists the contents of the General Info section:

Item	Description
Batch ID	Click to select the needed resource of the current device focus.
Batch Scale	Enter the percentage amount to scale the batch. The default percentage is 100%. **Valid Entries:** Enter a numerical value based on your equipment's capabilities. **Example:** If you are creating the batch in a 100 gallon tank and the standard batch produces 20 gallons of product, do not scale the batch by 1000%, as this will exceed your equipment's capabilities.
Description	Displays a description of the recipe as defined in the recipe header. This field is display-only.

Audit Information - Audit Version

Displays the audit version number of the recipe from which you are creating the batch.

Color Dialog Box

The Color dialog box displays the following items:

Basic Colors

Displays the basic colors available. You can define a custom color by clicking the closest basic color and then defining a custom color by using the color matrix.

Custom Colors

Displays any custom colors you have already defined.

To change a custom color, click it, and then click Define Custom Colors. When you have completed your changes, click Add to Custom Colors.

To define a new custom color, click an empty custom color box, and then click Define Custom Colors. Define the new color, and then click Add to Custom Colors.

Edit Server Dialog Box

The Edit Server dialog box displays the following items:

Server Name

Enter the name of the remote server, or click the Browse (…) button to select a server.

Alias

Enter an alias for the remote server. You must enter an alias for each server in the list. It cannot exceed 30 characters. The alias can contain the numbers: 0-9, the letters: A-Z and a-z, the underscore character, and a space character. The underscore and space characters cannot appear at the beginning of an entry, or alone. Duplicate alias names are not allowed in the list.

Default

Select this check box to make this server the default server. Only one default server is allowed.

Event Data Files Dialog Box

The Event Data Files dialog box displays the following items:

Event Data File List

Select a file from this list to display on the Event Journal screen.

Begin of List

Click to scroll to the top of the Event Data File List.

Add Event

Click to access the Add User Event dialog box.

End of List

Click to scroll to the bottom of the Event Data File List.

Options

Click to access the Event File List Options dialog box.

Event File List Options Dialog Box

The Event File List Options dialog box displays the following items:

Batch ID

Check this box to display the Batch ID column in the screen.

Description

Check this box to display the Description column in the screen.

Start Time

Check this box to display the Start Time column in the screen.

Recipe

Check this box to display the Recipe column in the screen.

Width

Defines the column width.

Valid Entries: An integer between 1 and 1000.

Filter

Enter a character to filter the information that is visible in a column.

Valid Entries: Any alphanumeric character. The percentage sign (%) is used as the wildcard.

Example: B% entered in the Batch ID field filters out all batches that do not start with the letter B.

Font Dialog Box

The Font dialog box displays the following items:

Font

Lists the available fonts.

Font Style

Lists the available styles for the specified font.

Size

Lists the available point sizes for the specified font.

Sample

Shows a sample of how text will appear with the specified font settings.

Script

Lists the available language scripts for the specified font. When you select a different language script, the character set for that language becomes available for creating multilingual documents.

Operator Rebinding Dialog Box

The Operator Rebinding dialog box displays the following items:

Batch ID

Displays the name of the Batch ID on which the operator is performing rebinding.

Recipe Step

Displays the name of the recipe step on which the operator is performing rebinding.

Bind Type

Displays the bind type defined for the unit procedure.

Valid Entries: Operator or Automatic

Unit Class

Displays the unit class from which you can choose a unit to bind to the unit procedure.

Current Binding

Displays the unit currently selected to bind to the unit procedure or the method of binding (Automatic or Operator) selected to perform the binding.

Unit Used

Displays the unit that was bound to the unit procedure.

Unit Selection

Select the bind type or the unit you want the unit procedure to use.

Recipe List Dialog Box

The Recipe List dialog box displays the following items:

All

Click to display both master recipes and formulations in the Recipe List dialog box.

Formulations Only

Click to display only formulations in the Recipe List dialog box.

Recipes Only

Click to display only recipes in the Recipe List dialog box.

Options Button

Click to access the Recipe List Options dialog box. Use this dialog box to configure the columns in the Recipe List dialog box.

Recipe List Options Dialog Box

The Recipe List Options dialog box displays the following items:

Column Display

The following table lists the columns to display on the Recipe List.

Item	**Description**
Recipe ID	Check this box to display the Recipe ID column in the screen.
Version	Check this box to display the Version column in the screen.
Version Date	Check this box to display the Version Date column in the screen.
Author	Check this box to display the Author column in the screen.
Approved By	Check this box to display the Approved By column in the screen.
Product Code	Check this box to display the Product Code column in the screen.
Product Name	Check this box to display the Product Name column in the screen.

Item	Description
Batch Size Min	Check this box to display the Minimum Batch Size column in the screen.
Batch Size Default	Check this box to display the Batch Size Default column in the screen.
Batch Size Max	Check this box to display the Maximum Batch Size column in the screen.
Batch Size EU	Check this box to display the Batch Size Engineering Units column in the screen.
Batch Run Length	Check this box to display the Batch Run Length column in the screen.
Procedure Description	Check this box to display the Procedure Description column in the screen.
Procedure Abstract	Check this box to display the Procedure Abstract column in the screen.
Area Model	Check this box to display the Area Model column in the screen.
Validated Against	Check this box to display the Validated Against column in the screen.
Recipe Type	Check this box to display the Recipe Type column in the screen.
Equipment	Check this box to display the Equipment column in the screen.
Class Instance	Check this box to display the Class Instance column in the screen.
Validation Time	Check this box to display the Validation Time in the screen.
Audit Version	Check this box to display the Audit Version column in the screen.
Width	Defines the column width. Valid Entries: An integer between 1 and 1000.

Item	Description
Filter	Enter a character to filter the information that is visible in a column. Valid Entries: Any alphanumeric character. The percentage sign (%) is used as the wildcard. Example: B% entered in the Batch ID field filters out all batches that do not start with the letter B.

Batch Client - Server Selection Dialog Box

The Batch Client - Server Selection dialog box displays the following item:

Please Select a Server to Connect

Select a remote server from the list, and then click OK to connect to that server.

System Configuration and Defaults Dialog Box

The System Configuration and Defaults dialog box displays the following tabs (listed in alphabetical order):

- Alarm Summary Tab
- Batch List Tab
- General Tab
- Hierarchical Step List Tab
- Journal Tab
- Operations Table Tab
- Operator Binding Prompts Tab
- Phase Control Tab
- Phase Summary Tab
- Procedures Table Tab
- Procedure Parameters Tab
- Procedure Prompts Tab
- Procedure Reports Tab
- Remote Server Configuration Tab
- SFC View Tab
- Unacknowledged Prompts Tab
- Unit Procedures Table Tab

Alarm Summary Tab

The Alarm Summary tab displays the following items:

Column Display Group

The following table lists the Column Display Group contents:

Item	Description
Phase	Check this box to display the Phase column in the screen.
State	Check this box to display the State column in the screen.
Failure	Check this box to display the Failure column in the screen.
Unit	Check this box to display the Unit column in the screen.
Batch ID	Check this box to display the Batch ID column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Filter	Enter a character to filter the information that is visible in a column. **Valid Entries:** Any alphanumeric character. The percentage sign (%) is used as the wildcard. You may use multiple OR filters. **Example:** B% entered in the Batch ID field filters out all batches that do not start with the letter B. Entering 22 | 23 | 24 | 25 returns all of the Batches with any of those IDs.
Sorting Priority	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Up Button	Moves the selected item up in the sorting priority.
Down Button	Moves the selected item down in the list box.
Ascending	Check this button to sort items in the Sorting Priority box in ascending order.

Item	Description
Descending	Check this button to sort items in the Sorting Priority box in descending order.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

Batch List Tab

The Batch List tab displays the following items:

Column Display Group

The following table lists the columns to be displayed in the batch list:

Item	Description
Batch ID	Check this box to display the Batch ID column in the screen.
Recipe	Check this box to display the Recipe column in the screen.
Description	Check this box to display the Description column in the screen.
Start Time	Check this box to display the Start Time column in the screen.

Item	Description
Elapsed Time	Check this box to display the Elapsed Time column in the screen.
State	Check this box to display the State column in the screen.
Mode	Check this box to display the Mode column in the screen.
Process Cell	Check this box to display the Process Cell column in the screen.
Unit	Check this box to display the Unit column in the screen.
Phase	Check this box to display the Phase column in the screen.
Failure	Check this box to display the Failure column in the screen.
Audit Version	Check this box to display the Audit Version column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Filter	Enter a character to filter the information that is visible in a column. **Valid Entries:** Any alphanumeric character. The percentage sign (%) is used as the wildcard. You may use multiple OR filters. **Example:** B% entered in the Batch ID field filters out all batches that do not start with the letter B. Entering 22 | 23 | 24 | 25 returns all of the Batches with any of those IDs.
Sorting Priority	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Up Button	Moves the selected item up in the sorting priority.
Down Button	Moves the selected item down in the list box.
Ascending	Check this button to sort items in the Sorting Priority box in ascending order.

Item	Description
Descending	Check this button to sort items in the Sorting Priority box in descending order.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

General Tab

The General Tab displays the following items:

Status Bar Font Group

The following table lists the Status Bar Font Group Contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.

Item	Description
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

Screen Size (%) Group

The following table lists the Screen Size Group contents:

Item	Description
Horizontal	Specifies the percentage of the computer monitor that Proficy Batch Execution occupies horizontally. Valid Entries: An integer between 50 and 100.
Vertical	Specifies the percentage of the computer monitor that Proficy Batch Execution occupies vertically. Valid Entries: An integer between 50 and 100.

Enable Commands Group

The following table lists the Enable Commands Group contents:

Item	Description
Start	Check this box to enable this command for the associated batch.
Hold	Check this box to enable this command for the associated batch.
Restart	Check this box to enable this command for the associated batch.
Abort	Check this box to enable this command for the associated batch.
Stop	Check this box to enable this command for the associated batch.

Item	**Description**
Reset	Check this box to enable this command for the associated batch.
Manual	Check this box to enable this command for the associated batch.
Pause	Check this box to enable this command for the associated batch.
Resume	Check this box to enable this command for the associated batch.
Auto	Check this box to enable this command for the associated batch.
Download	Check this box to enable this command for the associated batch.
Single Step	Check this box to enable this command for the associated batch.
Add Batch	Check this box to enable this command for the associated batch.
Remove Batch	Check this box to enable this command for the associated batch.
Step Change	Check this box to enable this command for the associated batch.
Clear Failures	Check this box to enable this command for the associated batch.
Acquire	Check this box to enable this command for the associated batch.
Release	Check this box to enable this command for the associated batch.
Acknowledge	Check this box to enable this command for the associated batch.

Command Prompts Group

The following table lists the Command Prompts Group contents:

Item	Description
Start	Check this box to prompt operators issuing this command for the associated batch.
Hold	Check this box to prompt operators issuing this command for the associated batch.
Restart	Check this box to prompt operators issuing this command for the associated batch.
Abort	Check this box to prompt operators issuing this command for the associated batch.
Stop	Check this box to prompt operators issuing this command for the associated batch.
Reset	Check this box to prompt operators issuing this command for the associated batch.
Manual	Check this box to prompt operators issuing this command for the associated batch.
Pause	Check this box to prompt operators issuing this command for the associated batch.
Resume	Check this box to prompt operators issuing this command for the associated batch.
Auto	Check this box to prompt operators issuing this command for the associated batch.
Download	Check this box to prompt operators issuing this command for the associated batch.
Single Step	Check this box to prompt operators issuing this command for the associated batch.

Item	Description
Remove Batch	Check this box to prompt operators issuing this command for the associated batch.
Step Change	Check this box to prompt operators issuing this command for the associated batch.
Clear Failures	Check this box to prompt operators issuing this command for the associated batch.
Acquire	Check this box to prompt operators issuing this command for the associated batch.
Release	Check this box to prompt operators issuing this command for the associated batch.

Splitter Bar Size Group

The following table lists the Splitter Bar Size Group contents:

Item	Description
Horizontal	Defines the size of the horizontal splitter bars used in several of the Client screens. **Valid Entries:** An integer between 4 and 32.
Vertical	Defines the size of the vertical splitter bar used in several of the Client screens. **Valid Entries:** An integer between 4 and 32.

Human-Machine Interface (HMI) Group

The following table lists the Human-Machine Interface Group contents:

Item	Description
.EXE Path	Enter the full path name of your HMI executable. Examples: C:\Program Files\Proficy\Proficy iFIX\WORKSPACE.EXE

Item	Description
Window Title	Enter the title bar name from your HMI application. **Examples:** Proficy iFIX WorkSpace
Toolbar Bitmap	Enter the name and full path of a bitmap for the HMI button on the toolbar. The bitmap size must be 42 X 42 pixels. By default, this button displays a GE bitmap.

Equipment Bitmap Paths Group

The following table lists the Equipment Bitmap Path Group contents:

Item	Description
Process Cells	Enter the full path to the directory where the process cell bitmaps are located. **Example:** C:\Program Files\Proficy\Proficy Batch Execution\BMP\PROCCELL\
Units	Enter the full path to the directory where the unit bitmaps are located. **Example:** C:\Program Files\Proficy\Proficy Batch Execution\BMP\UNIT\
Manifolds	Enter the full path to the directory where the manifold bitmaps are located. **Example:** C:\Program Files\Proficy\Proficy Batch Execution\BMP\MANIFOLD\

Security Configuration Group

The following table lists the Security Configuration Group contents:

Item	Description
Show Login Dialog	Select this check box to enable users to log in to iFIX by clicking the Login button Proficy Batch Execution Client toolbar. The Login button is enabled only if iFIX Security is configured and iFIX is running.

Precision Group

The following table lists the Precision Group contents:

Item	Description
Decimal Places	Enter the number of places after the decimal point that you want to allow for recipe parameter values in the Batch Creation screen.

Recipe Information

The following table lists the Recipe Information contents:

Item	Description
Show Version Information	Select this check box to display the recipe and audit version information on the SFC View screen in the Recipe Information tab, at the bottom of the screen. By default, this check box is selected. When this check box is cleared, the recipe and audit version information is hidden from the Recipe Information tab.

Hierarchical Step List Tab

The Hierarchical Step List tab displays the following items:

Column Display Group

The following table lists the columns to display on the hierarchical step list:

Item	Description
State	Check this box to display the State column in the screen.
Mode	Check this box to display the Mode column in the screen.
Unit	Check this box to display the Unit column in the screen.
Index	Check this box to display the Step Index column in the screen.
Key Parameter	Check this box to display the Parameters column in the screen.
Header	Indicates the name of the column heading.

Item	Description
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.

Step List Font Group

The following table lists the Step List Font contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

Journal Tab

The Journal Tab displays the following items:

Column Display Group

The following table lists Column Display Group contents:

Item	Description
Time	Check this box to display the Time column in the screen.
Batch ID	Check this box to display the Batch ID column in the screen.

Item	Description
Recipe	Check this box to display the Recipe column in the screen.
Description	Check this box to display the Description column in the screen.
Event Type	Check this box to display the Event Type column in the screen.
Value	Check this box to display the Value column in the screen.
Eng. Units	Check this box to display the Eng. Units column in the screen.
Area	Check this box to display the Area column in the screen.
Process Cell	Check this box to display the Process Cell column in the screen.
Unit	Check this box to display the Unit column in the screen.
Phase	Check this box to display the Phase column in the screen.
Phase Descr.	Check this box to display the Phase Desc. column in the screen.
User	Check this box to display the User column in the screen.
Recipe Type	Check this box to display the Recipe Type column in the screen.

Item	Description
Sequence	Check this box to display the Sequence column in the screen.
Key Report	Check this box to display the Key Report column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Filter	Enter a character to filter the information that is visible in a column. **Valid Entries:** Any alphanumeric character. The percentage sign (%) is used as the wildcard. You may use multiple OR filters. **Example:** B% entered in the Batch ID field filters out all batches that do not start with the letter B. Entering 22 | 23 | 24 | 25 returns all of the Batches with any of those IDs.
Sorting Priority	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Up Button	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Down Button	Moves the selected item down in the list box.
Ascending	Check this button to sort items in the Sorting Priority box in ascending order.
Descending	Check this button to sort items in the Sorting Priority box in descending order.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.

Operation Table Tab

The Operations Table Tab displays the following items:

Column Display Group

The following table lists the Column Display Group Contents:

Item	Description
Name	Check this box to display the Name column in the screen.
State	Check this box to display the State column in the screen.
Mode	Check this box to display the Mode column in the screen.
Index	Check this box to display the Index column in the screen.
Unit	Check this box to display the Unit column in the screen.

Item	Description
Owner	Check this box to display the Owner column in the screen.
Control	Check this box to display the Control column in the screen.
Message	Check this box to display the Message column in the screen.
Request	Check this box to display the Request column in the screen.
Failure	Check this box to display the Failure column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.

Column Display and Counts Group

The following table lists the Column Display and Counts Group contents:

Item	Description
Parameters	Check this box to display the Parameters column in the screen.
Reports	Check this box to display the Reports column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Count	Defines the number of columns of parameter data that is visible in the screen. **Valid Entries:** An integer between 1 and 32.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

Operator Binding Prompts Tab

The Operator Binding Prompts Tab displays the following items:

Column Display Group

The following table lists the Column Display Group contents:

Item	Description
Time	Check this box to display the Time column in the screen.
Batch ID	Check this box to display the Batch ID column in the screen.
Recipe	Check this box to display the Recipe column in the screen.
Description	Check this box to display the Description column in the screen.
Area	Check this box to display the Area column in the screen.
Process Cell	Check this box to display the Process Cell column in the screen.

Item	Description
Default Unit	Check this box to display the Default Unit column in the screen.
Unit Class	Check this box to display the Unit Class column in the screen.
Step Name	Check this box to display the Step Name column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Filter	Enter a character to filter the information that is visible in a column. **Valid Entries:** Any alphanumeric character. The percentage sign (%) is used as the wildcard. You may use multiple OR filters. **Example:** B% entered in the Batch ID field filters out all batches that do not start with the letter B. Entering 22 | 23 | 24 | 25 returns all of the Batches with any of those IDs.
Sorting Priority	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Up Button	Moves the selected item up in the sorting priority.
Down Button	Moves the selected item down in the list box.
Ascending	Check this button to sort items in the Sorting Priority box in ascending order.
Descending	Check this button to sort items in the Sorting Priority box in descending order.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.

Item	Description
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

Operator Notification Group

The following table lists the Operator Notification Group contents:

Item	Description
Every Unacknowledged	Click this button to notify the operator every time a binding prompt occurs.
Outstanding Number	Click this button to define a specific number of binding prompts that can occur before the operator is notified.
Over	Enter the number of binding prompts you want to occur before the operator is notified.

Phase Control Tab

The Phase Control Tab displays the following items:

Equipment View Font Group

The following table lists the Equipment View Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.

Item	Description
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.

Phase State Font Group

The following table lists the Phase State Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.

Phase Messages Font Group

The following table lists the Phase Messages Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.

Phase Parameters List box Font Group

The following table lists the Phase Parameters List box Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.

Phase Summary Tab

The Phase Summary tab displays the following items:

Column Display Group

The following table lists the Column Display Group contents:

Item	Description
Phase	Check this box to display the Phase column in the screen.
State	Check this box to display the State column in the screen.
Mode	Check this box to display the Mode column in the screen.
Unit	Check this box to display the Unit column in the screen.
Index	Check this box to display the Index column in the screen.
Owner	Check this box to display the Owner column in the screen.
Batch ID	Check this box to display the Batch ID column in the screen.
Message	Check this box to display the Message column in the screen.
Failure	Check this box to display the Failure column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. Valid Entries: An integer between 1 and 1000.
Filter	Enter a character to filter the information that is visible in a column. **Valid Entries:** Any alphanumeric character. The percentage sign (%) is used as the wildcard. You may use multiple OR filters. **Example:** B% entered in the Batch ID field filters out all batches that do not start with the letter B. Entering 22 | 23 | 24 | 25 returns all of the Batches with any of those IDs.
Sorting Priority	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.

Item	Description
Up Button	Moves the selected item up in the sorting priority.
Down Button	Moves the selected item down in the list box.
Ascending	Check this button to sort items in the Sorting Priority box in ascending order.
Descending	Check this button to sort items in the Sorting Priority box in descending order.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

Procedure Parameters Tab

The Procedure Parameters Tab displays the following items:

Column Display Group

The following table lists Column Display Group contents:

Item	Description
Name	Check this box to display the Name column in the screen.
Low	Check this box to display the Low column in the screen.
Value	Check this box to display the Value column in the screen.
High	Check this box to display the Value column in the screen.
Eng. Units	Check this box to display the Eng. Units column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Sorting Priority	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Up Button	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Down Button	Moves the selected item down in the list box.
Ascending	Check this button to sort items in the Sorting Priority box in ascending order.
Descending	Check this button to sort items in the Sorting Priority box in descending order.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.

Procedure Prompts Tab

The Procedure Prompts Tab displays the following items:

Column Display Group

The following table lists Column Display Group contents:

Item	Description
Time	Check this box to display the Time column in the screen.
Batch ID	Check this box to display the Batch ID column in the screen.
Recipe	Check this box to display the Recipe column in the screen.
Description	Check this box to display the Description column in the screen.
Event Type	Check this box to display the Event Type column in the screen.
Value	Check this box to display the Value column in the screen.

Item	Description
Eng. Units	Check this box to display the Eng. Units column in the screen.
Area	Check this box to display the Area column in the screen.
Process Cell	Check this box to display the Process Cell column in the screen.
Unit	Check this box to display the Unit column in the screen.
Phase	Check this box to display the Phase column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Sorting Priority	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Up Button	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Down Button	Moves the selected item down in the list box.
Ascending	Check this button to sort items in the Sorting Priority box in ascending order.
Descending	Check this button to sort items in the Sorting Priority box in descending order.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.

Item	Description
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.

Procedure Reports Tab

The Procedure Reports Tab displays the following items:

Column Display Group

The following table lists Column Display Group contents:

Item	Description
Name	Check this box to display the Name column in the screen.
Value	Check this box to display the Value column in the screen.
Eng. Units	Check this box to display the Eng. Units column in the screen.
Key Report	Check this box to display the Key Report column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Sorting Priority	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Up Button	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.

Item	Description
Down Button	Moves the selected item down in the list box.
Ascending	Check this button to sort items in the Sorting Priority box in ascending order.
Descending	Check this button to sort items in the Sorting Priority box in descending order.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.

Procedures Table Tab

The Procedures Table Tab displays the following items:

Column Display Group

The following table lists Column Display Group contents:

Item	Description
Name	Check this box to display the Name column in the screen.
State	Check this box to display the State column in the screen.
Mode	Check this box to display the Mode column in the screen.
Failure	Check this box to display the Failure column in the screen.
Binding Unit	Check this box to display the Binding Unit column in the screen.
Used Unit	Check this box to display the Unit column in the screen.
Owner	Check this box to display the Owner column to in the screen.
Parameters	Check this box to display the Parameters column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Count	Defines the number of parameters visible on screen. Valid Entries: An integer between 1 and 32.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.

Item	Description
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

Remote Server Configuration Tab

The Remote Server Configuration Tab displays the following items:

Remote Server

Select this check box to enable remote servers. If you do not select this check box, the Local computer is used as the server.

Enable Remote Server in Toolbar

Select this check box to enable Remote Server button in the toolbar. When this option is enabled, the Remote Server button appears next to the Login or Reconnect button in the toolbar.

Up

Select a row by clicking the row number, and then click the Up button to move the row up in the list. The order in which the servers appear in this list box is the order in which the list will be presented to the operator. Use the Up and Down buttons to adjust the order.

Down

Select a row by clicking the row number, and then click the Down button to move the row down in the list. The order in which the servers appear in this list box is the order in which the list will be presented to the operator. Use the Up and Down buttons to adjust the order.

Add Server

Click to add a remote server to the list that displays in this screen.

Edit Server

Select a remote server from the list by clicking the row number, and then click this button to change the server name, alias name, or default server assignment.

Delete Server

Select a remote server from the list by clicking the row number, and then click this button to remove it from the list.

SFC View Tab

The SFC View Tab displays the following items:

SFC Step Fill Group

The following table lists the SFC Step Fill Group contents:

Item	Description
Solid	Click this button to fill the SFC Step for the selected state with a solid pattern.
Horizontal Hatch	Click this button to fill the SFC Step for the selected state with a horizontal hatch pattern.
Vertical Hatch	Click this button to fill the SFC Step for the selected state with a vertical hatch pattern.
Upward Hatch	Click this button to fill the SFC Step for the selected state with an upward hatch pattern.
Downward Hatch	Click this button to fill the SFC Step for the selected state with a downward hatch pattern.
Cross Hatch	Click this button to fill the SFC Step for the selected state with a cross hatch pattern.
Diagonal Cross Hatch	Click this button to fill the SFC Step for the selected state with a diagonal cross hatch pattern.

SFC Step Color Group

The following table lists the SFC Step Color contents:

Item	Description
SFC Step Color Box	Double click to open the Color dialog box and define a color for the selected state.

Item	Description
Show Text Box	Check this box to display text in the SFC enclosed in a box.

SFC Display Group

The following table lists the SFC Display Group contents:

Item	Description
Show Expressions	Select the Show Expressions check box to show transition expressions in the SFC. Deselect the Show Expressions check box to remove transition expressions from the SFC.
Line Width	Defines the width of the connecting lines in the SFC display. **Valid Entries:** An integer between 1 and 20.

Unacknowledged Prompts Tab

The Unacknowledged Prompts Tab displays the following items:

Column Display Group

The following table lists the Column Display Group contents:

Item	Description
Time	Check this box to display the Time column in the screen.
Batch ID	Check this box to display the Batch ID column in the screen.
Recipe	Check this box to display the Recipe column in the screen.
Description	Check this box to display the Description column in the screen.
Event Type	Check this box to display the Event Type column in the screen.
Value	Check this box to display the Value column in the screen.

Item	Description
Eng. Units	Check this box to display the Eng. Units column in the screen.
Area	Check this box to display the Area column in the screen.
Process Cell	Check this box to display the Process Cell column in the screen.
Unit	Check this box to display the Unit column in the screen.
Phase	Check this box to display the Phase column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Filter	Enter a character to filter the information that is visible in a column. **Valid Entries:** Any alphanumeric character. The percentage sign (%) is used as the wildcard. You may use multiple OR filters. **Example:** B% entered in the Batch ID field filters out all batches that do not start with the letter B. Entering 22 | 23 | 24 | 25 returns all of the Batches with any of those IDs.
Sorting Priority	To set the Sort Priority, highlight an item in the Sorting Priority list and then use the arrow buttons to move it up or down.
Up Button	Moves the selected item up in the sorting priority.
Down Button	Moves the selected item down in the list box.
Ascending	Check this button to sort items in the Sorting Priority box in ascending order.
Descending	Check this button to sort items in the Sorting Priority box in descending order.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

Operator Notification Group

The following table lists the Operator Notification Group contents:

Item	Description
Every Unacknowledged	Click this button to notify the operator every time an unacknowledged prompt occurs.
Outstanding Number	Click this button to define a specific number of unacknowledged prompts that can occur before the operator is notified.
Over	Enter the number of unacknowledged prompts you want to occur before the operator is notified.

Unit Procedures Table Tab

The Unit Procedures Table Tab displays the following items:

Column Display Group

The following table lists Column Display Group contents:

Item	Description
Name	Check this box to display the Name column in the screen.
State	Check this box to display the State column in the screen.
Mode	Check this box to display the Mode column in the screen.
Failure	Check this box to display the Failure column in the screen.
Binding Unit	Check this box to display the Binding Unit column in the screen.
Used Unit	Check this box to display the Unit column in the screen.
Owner	Check this box to display the Owner column to in the screen.
Parameters	Check this box to display the Parameters column in the screen.
Header	Indicates the name of the column heading.
Width	Defines the column width. **Valid Entries:** An integer between 1 and 1000.
Count	Defines the number of parameters visible on screen. **Valid Entries:** An integer between 1 and 32.

Table Font Group

The following table lists the Table Font Group contents:

Item	Description
Name	Displays the name of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.
Size	Displays the size of the font displayed in the corresponding screen. This field is display-only. To change any aspect of the font, click the Select Font button.

Item	Description
Style	Displays the font style, for example Bold or Italic. This field is display-only. To change any aspect of the font, click the Select Font button.
Select Font Button	Accesses the Font menu, which is used to control the size and style of the text.

Transition Breakpoints Dialog Box

The Transition Breakpoints dialog box displays the following items:

Batch ID

Displays the Batch ID.

Transition Expression

Displays the transition expression for the breakpoint.

Recipe

Displays the recipe name.

ID

Displays the ID of the transition breakpoint.

Clear All

Click to clear all transition breakpoints.

Done

Click to close the Transition Breakpoints dialog box.

Transition Expression Dialog Box

The Transition Expression dialog box displays the following items:

Prompt

Select to insert a breakpoint for this transition.

Transition Expression

Displays the transition expression. This field is display-only.

Left Expression/Value

Displays the expression or value on the left side of the operator.

Operator

Displays the mathematical operator for the expression.

Right Expression/Value

Displays the expression or value on the right side of the operator.

Update Parameter Value Dialog Box

The Update Parameter Value dialog box displays the following item:

Value

Update the parameter value with an entry that falls between the defined minimum and maximum parameters.

Valid Entries: An integer.

Unacknowledged Prompts Dialog Box

The Unacknowledged Prompts dialog box displays the following items:

DSN

Enter the name of the ODBC data source that contains the AuditTable, or click Browse to select a data source.

User Name

Enter the user name who has access to the database where the AuditTable is located.

Password

Enter the password for the user who has access to the database where the AuditTable is located.

Browse

Click to browse for a data source.

View Deferred Parameter Value Dialog Box

The View Deferred Parameter Value dialog box displays the following items:

Parameter

Update the parameter value by selecting a defined enumeration from the pull-down menu.

Valid Entries: An enumeration.

Minimum

Update the parameter value with an entry that falls between the defined minimum and maximum parameters.

Valid Entries: An integer.

Maximum

Update the parameter value with an entry that falls between the defined minimum and maximum parameters.

Valid Entries: An integer.

Eng. Units

Update the parameter value with an entry that falls between the defined minimum and maximum parameters.

Valid Entries: An integer.

Value

Update the parameter value with an entry that falls between the defined minimum and maximum parameters.

Valid Entries: An integer.

How Do I...

The following sections explain how to work with the Batch Execution Client:

- Controlling Batches
- Configuring the Batch Client

Starting the Client

To start the Client:

1. Start the Batch Server:
    a. On the Start menu, point to Programs, Proficy Batch Execution, and then Server Manager.
    b. Click the Start Server button.
    c. If one or a Boot Method dialog boxes appear, select a start option. Click Cold if you are unsure which option to select.
2. On the Start menu, point to Programs, Proficy Batch Execution, and then Client. The Batch Client application opens.

    NOTE: *You cannot run the Batch Client if the Batch Server is not running.*

Controlling Batches

Refer to the following sections for more information on controlling batches in the Batch Client:

- Controlling a Batch from the Client
- Changing the Batch Mode

Controlling a Batch from the Client

Refer to the following sections for more information on controlling a batch in the Batch Client:

- Adding a Batch
- Starting a Batch from the Client
- Holding a Batch from the Client
- Restarting a Batch from the Client
- Stopping a Batch from the Client
- Aborting a Batch from the Client
- Removing a Batch from the Client
- Starting a Batch Scheduled with VBIS
- Rebinding a Unit Procedure to a Unit
- Accessing the Table View Screen
- Accessing the SFC View Screen
- Clearing Failures from the Batch List Screen
- Clearing Failures from the SFC View and Table View Screens
- Clearing Failures from the Phase Control Screen
- Performing Active Step Change
- Acknowledging Prompts from the Unacknowledged Prompts Alert dialog box
- Binding a Unit

Adding a Batch

Refer to the following sections for information on adding a batch in the Batch Client:

- Adding a Batch from the Client
- Scaling Batches
- Binding a Unit
- Selecting a Recipe
- Configuring the Recipe List

Adding a Batch from the Client

To add a batch from the Client:

1. In the Batch Client, on the command toolbar, click the Add Batch button. The Recipe List appears.
2. Double-click the recipe for which you want to create a batch. The Batch Creation dialog box appears.
3. In the Batch ID field, enter a unique batch ID.

   IMPORTANT: *You cannot use the following characters in the batch ID: left bracket { [}, right bracket {] }, left parenthesis { (}, right parenthesis { (}, comma { , }, double quotes { " }, single quotes { ‘ }, new line { \n }, carriage return { \r }, tab character { \t }, or NULL.*

4. In the Batch Scale field, enter a percentage amount if you want to increase or decrease the size of the batch.
5. If appropriate, enter new parameter values by double-clicking the current parameter value and entering a new value.
6. If appropriate, bind the recipe to equipment.
7. Click the Create button to create a new batch. The new batch appears in the Batch List.

Scaling Batches

To scale batches:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Add a recipe from the list of recipes released from production. The Batch Creation dialog box appears.
3. In the Batch Scale field, enter a percentage amount.
4. Complete the other fields in the window and then click Create to create a batch or Cancel to terminate the batch creation process.

Selecting a Recipe

To select a recipe:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. On the command bar, click the Add Batch. The Recipe List dialog box appears.
3. Select a recipe from the list and click OK to add it to the Batch List.

Configuring the Recipe List

To configure the Recipe List:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. On the command bar, click the Add Batch. The Recipe List dialog box appears.
3. Click Options. The Recipe List options dialog box.
4. Select which columns you want to display or to hide.
5. Change the width of the column.
6. Set filtering for the Event File list.

Starting a Batch from the Client

To start a batch from the Client:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Select the batch you want to start.
3. On the command button bar, click the Start Batch button.
4. If you are prompted for confirmation, click Yes to start the Batch or No to cancel.

   NOTE: *You may also start a batch from the SFC and the Table View screens. However, the Start button is only active if the highlighted procedure is in O-Auto or Manual mode.*

Holding a Batch in the Client

To hold a batch from the Client:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Select the Batch you want to hold.
3. On the command button bar, click the Hold Batch button.
4. If you are prompted for confirmation, click Yes to hold the Batch or No to cancel.

Restarting a Batch from the Client

To restart a batch from the Client:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Select the Batch you want to restart.
3. On the command button bar, click the Restart Batch button.
4. If you are prompted for confirmation, click Yes to restart the Batch or No to cancel.

   NOTE: *You may also restart a batch from the SFC and the Table View screens. However, the Restart button is only active if the highest level of the Hierarchical Step List or SFC is highlighted. If the focus is on a lower step of the procedure, the command buttons are inactive.*

Stopping a Batch from the Client

To stop a batch from the Client:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Select the Batch you want to stop.
3. On the command button bar, click the Stop Batch button.
4. If you are prompted for confirmation, click Yes to stop the Batch or No to cancel.

   NOTE: *You may also stop a batch from the SFC and the Table View screens. However, the Stop button is only active if the highlighted procedure is in O-Auto or Manual mode.*

Aborting a Batch from the Client

To abort a batch from the Client:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Select the Batch you want to abort.
3. On the command button bar, click the Abort Batch button.

   NOTE: *You may also abort a batch from the SFC and the Table View screens. However, the Abort button is only active if the highlighted procedure is in O-Auto or Manual mode.*

Removing a Batch from the Client

To remove a batch from the Client:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Select the Batch you want to remove.
3. On the command button bar, click the Remove Batch button.
4. If you are prompted for confirmation, click Yes to stop the Batch or No to cancel.

   NOTE: *The batch must be in Auto mode to be removed from the batch list. The batch must also be in one of the following states: Aborted, Stopped, Complete, or Idle.*

Starting Batch Scheduled with VBIS

To start a batch scheduled with the VBIS Automation Interface:

1. Start the Proficy Batch Execution Client application.
2. In the Batch Client, click the Batch List button to open the Batch List screen.
3. Select the Batch you want to bind.
4. On the command bar, click the yellow Bind Batch button. The Bind Batch dialog box appears.
5. If appropriate, enter a new parameter value by double-clicking the current parameter value and typing in a new value.
6. If appropriate, bind the recipe to equipment.
7. Click the Bind button to initiate the changes. The Bind Batch dialog closes and the yellow Bind Batch button changes to the green Start Batch button in the Batch List screen.
8. Click the Start Batch button to start the batch.

   NOTE: *The Parameter Values and Unit Binding sections of the Bind Batch dialog may be display-only. VBIS allows developers to set control flags that limit the interaction the operator has with the batch when the batch is scheduled.*

Rebinding a Unit Procedure to a Unit

To rebind a unit procedure to a unit:

1. In the Batch Client's SFC or Table View screen, select a unit procedure that uses Active Binding.
2. With the unit procedure selected, right-mouse click and select Binding from the pop-up menu. The Operator Rebinding dialog box appears. Alternately, you can use the Binding tab auxiliary window at the bottom of these screens.
3. Select a unit or a method of binding (Operator or Automatic) from the Unit Selection box.
4. Click the Bind button.

Accessing the Table View Screen

To access the Table View:

1. In the Batch Client, from the Batch List screen, select a batch.
2. Click the Table View button on the toolbar.

Accessing the SFC View Screen

To access the SFC View:

1. In the Batch Client, from the Batch List screen, select a batch.
2. Click the SFC View button.

Clearing Failures from the Batch List Screen

To clear failures from the Batch List screen:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Highlight the batch in the batch list that owns the failed phases.
3. On the commands toolbar, click the Clear All Failures button.
4. If you are prompted for confirmation, click Yes to clear the failures or No to cancel.
5. Click the Restart button to restart the Batch.

   NOTE: *If you remove the batch before clearing failed phases, you must clear the phases from the Phase Control screen.*

Clearing Failures from the Table View and SFC View Screens

To clear failures from the Table View and SFC View screens:

1. In the Batch Client, from the Batch List screen, select a batch.
2. Click the Procedure as Table button to open the Table View screen, or the Procedure as SFC button to open the SFC View screen.
3. Highlight the highest step in the Hierarchical Step List section of the screen. You must have the focus on the highest step to enable the Clear All Failures button.
4. Click the Clear All Failures button from the Commands button toolbar.
5. If you are prompted for confirmation, click Yes to clear the failures or No to cancel.
6. Click the Restart button to restart the Batch.

   NOTE: *If you remove the batch before clearing failed phases, you must clear the phases from the Phase Control screen.*

Clearing Failures from the Phase Control Screen

To clear failures from the Phase Control screen:

1. In the Batch Client, click the Phase Control button to open the Phase Control screen.
2. Click the Display Units button.
3. Select the unit in the graphical display to which the failed phase belongs.
4. Click the Phase button of the failed phase.
5. If the batch that owns the failed phase has been removed from the batch list and you do not already own the phase, acquire the phase.
6. Start the phase to enable the Clear All Failures button. .
7. Click the Clear All Failures button from the Commands button toolbar.
8. If you are prompted for confirmation, click Yes to clear the failures or No to cancel.
9. Click the Restart button to restart the phase.
10. Reset the phase.

11. Release the phase.
12. Optionally, save the report template for future use.

    NOTE: *The operator can only clear failed phases from the Phase Control screen if the batch that owns the failed phase has been removed from the batch list or if the operator has already acquired ownership of the phase.*

Performing Active Changing Steps

To perform active step change:

1. In the Batch Client, start a batch.
2. Click the Procedure as SFC button to open the SFC View screen.
3. Place the batch in Manual mode.
4. Click the Active Step Change button on the Command button bar. This changes the Command button bar so that only buttons used in Active Step Change are visible.
5. Select the Remove Step(s) button from the Command button bar. The cursor changes to a minus (-) sign.
6. Click the cursor over the step in the SFC that you want to remove.
7. Select the Add Step(s) button from the Command button bar. The cursor changes to a plus (+) sign.
8. Click the cursor over the step in the SFC that you want to add.
9. Click the Execute ASC button from the Command button bar. The active step executes.
10. Return the Batch to Automatic mode.

Acknowledging Prompts from the Unacknowledged Prompts Alert dialog box

To acknowledge prompts from the Unacknowledged Prompts alert dialog box:

1. Select the prompt you want to acknowledge by highlighting it.
2. Click the Acknowledge button. The standard Unacknowledged Prompts dialog box appears.
3. Acknowledge the prompt.
4. Repeat this process for all prompts you need to acknowledge. When the last prompt is acknowledged, the dialog box closes.

Acknowledging Prompts from the Unacknowledged Prompts Screen

To acknowledge prompts from the Unacknowledged Prompts screen:

1. In the Batch Client, click the Unacknowledged Prompts button to open the Unacknowledged Prompts screen.
2. Double-click the prompt. The Acknowledge dialog box appears.
3. If prompted, enter the appropriate response in the highlighted field.
4. Click the Acknowledge button to acknowledge the prompt. The Acknowledge dialog box closes and the prompt is removed from the Acknowledged Prompts list.

Binding a Unit

To bind a unit:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. On the command bar, click the Add Batch. The Recipe List dialog box appears.
3. Select a recipe from the list of recipes released from production, and click OK. The Batch Creation dialog box appears.
4. In the Unit Binding section row, select a unit from the Bound Unit column.
5. Click the down-arrow to see a list of selections.
6. Select either a unit or a method of binding from the list of selections.
7. Click Create to close the dialog and add the batch to the Batch List.

Adding a Transition Breakpoint

To add a transition breakpoint to a batch:

NOTE: *Transition breakpoints can only be added to transitions that are not yet completed.*

1. In the Batch Client's SFC View screen, double-click the transition where you want to add a breakpoint. The Transition Expression dialog box appears.
2. Select Prompt.
3. Click OK.

Acknowledging Transition Breakpoint Prompts

To acknowledge a transition breakpoint prompt:

1. In the Batch Client, click Unacknowledged Prompts.
2. On the Unacknowledged Prompts screen, double-click the prompt. The Acknowledge Breakpoint dialog box appears.
3. Click Acknowledge.

Removing Transition Breakpoints

To remove transition breakpoints:

1. On the Batch Client, click Transition Breakpoints.
2. To clear a single breakpoint, double-click the breakpoint to clear, and then click OK.
3. To clear all breakpoints, click Clear All and then click OK.
4. Click Done.

Viewing Unacknowledged Transition Breakpoints

To view unacknowledged Transition Breakpoints:

- On the Batch Client, click Transition Breakpoints. The Transition Breakpoints dialog box appears.

Changing the Batch Mode

Refer to the following sections for more information on changing the batch mode in the Batch Client:

- Placing a Batch in Manual Mode
- Returning a Batch to Automatic Mode
- Controlling Phases
- Arbitration
- Acknowledging Prompts

Placing a Batch in Manual Mode

To place a batch in Manual mode:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Select the Batch you want to place in manual mode. It must currently be in Auto mode.
3. On the commands toolbar, click the Manual mode button.
4. If you are prompted for confirmation, click Yes to switch the mode or No to cancel.

Returning a Batch to Automatic Mode

To return a batch to Automatic mode:

1. In the Batch Client, click the Batch List button to open the Batch List screen.
2. Select the Batch you want to place in Auto mode. It must currently be in Manual mode.
3. On the commands toolbar, click the Auto Mode button.
4. If you are prompted for confirmation, click Yes to switch the mode or No to cancel.

Controlling Phases

Refer to the following sections for more information on controlling phases in the Batch Client:

- Overview: Manually Controlling Phases
- Acquiring Ownership of a Phase
- Starting a Phase
- Releasing a Phase
- Resetting a Phase

Overview: Manually Controlling Phases

To manually control phases:

1. In the Batch Client, click the Phase Control button to open the Phase Control screen.
2. Acquire ownership of the phase.
3. Issue commands to the phase. For example, start the phase.
4. Reset the phase.
5. Release ownership of the phase.

Acquiring Ownership of a Phase

To acquire ownership of a phase:

1. In the Batch Client, click the Phase Control button to open the Phase Control screen.
2. Select the process cell from the graphical display. This enables the Display Units button.
3. In the Unit Display field, click the Display Units button to expand the graphical display.
4. In the Unit Display field, select a unit.
5. Click the phase in the Phase List.
6. Click the Acquire (+) button on the Command Buttons bar. If you are prompted for confirmation, click Yes to acquire the phase or No to cancel.
7. If you click Yes, the Opr light next to the phase turns green, indicating the phase is acquired.

Starting a Phase

To start a phase:

1. In the Batch Client, click the Phase Control button to open the Phase Control screen.
2. If you don't own the phase, acquire the phase.
3. On the commands toolbar, click the Start button.

Resetting a Phase

To reset a phase:

1. In the Batch Client, click the Phase Control button to open the Phase Control screen.
2. Place the phase in the Stopped or Aborted state or wait for it to complete.
3. On the commands toolbar, click the Reset button.

Releasing a Phase

To release a phase:

1. In the Batch Client, click the Phase Control button to open the Phase Control screen.
2. In the Phase List, click the phase.
3. On the commands toolbar, click the Release (-) button. If you are prompted for confirmation, click Yes to release the phase or No to cancel.
4. If you click Yes, the Opr light next to the phase turns off, indicating the phase is released.

   IMPORTANT: *If you acquire a phase in the Idle state, it must be in the Idle state when you release it. If you acquire a phase in a state other than Idle and you issue commands to the phase, the phase must be in the Idle state when you release it.*

Arbitration

Refer to the following sections for more information on arbitration in the Batch Client:

- Selecting the Device Focus
- Acquiring Resources from the Arbitration Screen
- Releasing Equipment from the Arbitration Screen

Selecting the Device Focus

To select the device focus:

1. In the Batch Client, click the Arbitration button to open the Arbitration screen.
2. In the List Devices area, select an option: All, Equipment, Phases, Recipes, or Operator.
3. Click the down-arrow button on the Device Focus field to view a list of resources.
4. Highlight one of the resources. This resource is now the device focus.

Acquiring Resources from the Arbitration Screen

To acquire resources from the Arbitration screen:

1. In the Batch Client, click the Arbitration button to open the Arbitration screen.
2. In the List Devices area, select an option: All, Equipment, Phases, Recipes, or Operator.
3. Click the down-arrow button next to the Device Focus field to view a selection list of resources.
4. In the Device Focus field, select a resource.
5. In the Current Profile List, double-click the resource to determine if it belongs to another resource.
6. In the Priority List, double-click the resource to determine if it belongs to another resource.
7. If appropriate, click the up-arrow button to move the resource to the top of the Priority List.
8. Click the Acquire Button to gain ownership of the selected resource.

Releasing Equipment from the Arbitration Screen

To release equipment from the Arbitration screen:

1. In the Batch Client, click the Arbitration button to open the Arbitration screen.
2. In the List Devices area, click the down-arrow button next to the Device Focus field to select the resource you want to release.
3. Click the Release button on the Command Buttons bar to release the resource.

   CAUTION: *Forcing the release of a resource may affect running batches. You should fully understand the operation of a resource prior to releasing it.*

Acknowledging Prompts

Refer to the following sections for more information on acknowledging prompts in the Batch Client:

- Acknowledging Prompts from the Unacknowledged Prompts Screen
- Acknowledging Prompts from the Unacknowledged Prompts Alert dialog box
- Acknowledging Prompts from the Phase Control Screen
- Acknowledging Prompts from the Table View and SFC Screens

Acknowledging Prompts from the Phase Control Screen

To acknowledge prompts from the Phase Control screen:

NOTE: *Transition breakpoint prompts can only be acknowledged from the Unacknowledged Prompts screen.*

1. In the Batch Client, click the Phase Control button on the toolbar to open the Phase Control screen.
2. In the Unacknowledged Prompt section, click the Acknowledge button. The Acknowledge dialog box appears.
3. Enter the appropriate response in the highlighted field.
4. Click the Acknowledge button to acknowledge the prompt. The Acknowledge dialog box closes and the prompt is removed from the list.

Acknowledging Prompts from the Table View and SFC Screens

To acknowledge prompts from the Table View and SFC screens:

NOTE: *Transition breakpoint prompts can only be acknowledged from the Unacknowledged Prompts screen.*

1. In the Batch Client, click the SFC View or Table View button on the toolbar to open either the SFC View or Table View screen.
2. In the Auxiliary windows area, select the Prompts tab to open the Prompts window.
3. Double-click the unacknowledged prompt. The Acknowledge dialog box appears.
4. Enter the appropriate response in the highlighted field.

Configuring the Batch Client

Refer to the following sections for more information on configuring the Batch Client:

- System-level Configuration Tasks
- Screen Specific Configuration Tasks
- Configuring the Client Screens

Screen Specific Configuration Tasks

Refer to the following sections for more information on screen specific configuration tasks in the Batch Client:

- Filtering Information in the Client
- Displaying or Hiding Columns
- Changing Column Sizes
- Ordering and Prioritizing Sorts
- Changing Fonts
- Enabling and Disabling Command Prompts
- Configuring the Operator Binding Prompts screen
- Enabling the Remote Server Button in the Client Toolbar
- Selecting a Remote Server
- Adding a Server to the Remote Server Configuration list
- Configuring a Remote Server
- Configuring the Precision of Recipe Parameters Displayed in the Batch Creation Screen
- Adding User Event Data to the Batch Journal
- Defining the Frequency of Binding Prompts Notification
- Defining the Frequency of Unacknowledged Prompts Notification

Filtering Information in the Client

To filter information in the Client:

1. In the Batch Client, click the Configuration and Defaults button.
2. Click the tab that corresponds to the screen or the portion of a screen you want to configure.
3. Enter an alphanumeric character in the filter field that corresponds to the column of information you want to filter. The percentage sign (%) functions as a wildcard. For example, B% entered in the field displays items beginning with B and filters out all others.
4. Click OK.
5. Click Apply to initiate the changes.

Displaying or Hiding Columns

To display or hide columns:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar.
2. Click the tab of the screen you want to configure.
3. Select the check boxes of the columns you want to be visible. Clear the check boxes of the columns you do not want to be visible.
4. Click OK.

Changing Column Sizes

To change column sizes:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar.
2. Click the tab of the screen you want to configure.
3. Enter the column width in the Width field.
4. Click OK.

Ordering and Prioritizing Sorts

To order and prioritize sorts:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar.
2. Click the tab of the screen you want to configure.
3. Highlight an item in the Sorting Priority field.
4. Click the Up or Down button to move the item up or down in the priority list.
5. Click the Ascending or Descending button to establish the sort order.
6. Click OK.

Changing Fonts

To change fonts:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar.
2. Click the tab of the screen you want to configure.
3. Click the Select Font button. The Font dialog box appears.
4. Select font options from the scrolling lists to change the font features.
5. Click OK to return to the System Configuration and Defaults screen.
6. Click OK.

Enabling and Disabling Command Prompts

To enable and disable command prompts:

1. In the Batch Client, click the Configuration and Defaults button to open the System Configuration and Defaults screen.
2. Click the General tab to open the General dialog box.
3. Clear the check boxes for any of the Command Prompts for which you do not want to be prompted. By default, all the check boxes are selected.
4. Click OK.

   Your Proficy Batch Execution system will now prompt operators for confirmation when issuing specific commands.

Configuring the Operator Binding Prompts screen

To configure the Operator Binding Prompts screen:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar to open the System Configuration and Defaults screen.
2. Click the Operator Binding Prompts tab. The Operator Binding Prompts dialog appears.
3. From the Operator Binding Prompts dialog you can perform the following tasks:
   - Select which columns you want to display or to hide.
   - Change the column sizes.
   - Order and prioritize sorts.
   - Set filtering for the Operator Binding Prompts screen.
   - Change the fonts.
4. Click OK.

Enabling the Remote Server Button in the Client Toolbar

To enable the Remote Server button in the toolbar:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar to open the System Configuration and Defaults screen.
2. Click the Remote Server Configuration tab. The Remote Server Configuration dialog appears.
3. Click the Enable Remote Server in Toolbar check box. This check box is only available if you selected the Remoter Server check box.
4. Click Apply.
5. Click OK.

Selecting a Remote Server

To select a remote server:

NOTE: *You must add the remote servers and enable the Remote Server button from toolbar, before you can select a remote server. For more information see the Enabling the Remote Server Button in the Client Toolbar and Adding a server to the Remote Server Configuration list sections.*

1. In the Batch Client, click the Remote Server button on the toolbar. The Select a Remote Server dialog box appears.
2. Click on the remote server in the list that you want to connect to.
3. Run the report again to view the result of the changes.
4. Click OK. The server name that you select appears in the status bar, in the bottom right corner of the screen.

Adding a Server to the Remote Server Configuration list

To add a server to the Remote Server Configuration list:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar to open the System Configuration and Defaults screen.
2. Click the Remote Server Configuration tab. The Remote Server Configuration dialog appears.
3. Click the Add Server button. The Add a Remote Server dialog box appears.
4. In the Server Name field, enter the name of the remote server, or click the Browse (…) button to select a server.
5. In the Alias field, enter an alias for the server name. You must enter an alias with every server, even if it is the same name as the server.

   NOTE: *The alias cannot exceed 30 characters. It can contain the numbers: 0-9, the letters: A-Z and a-z, the underscore character, and a space character. The underscore and space characters cannot appear at the beginning of an entry, or alone. Duplicate alias names are not allowed in the list.*

6. Click the Default check box if you want this remote server to act as the default server. You can only assign one server as the default server.
7. Click OK.

   NOTE: *The limit for the number of servers that you can add is 25.*

Configuring a Remote Server

To configure the Remote Server Configuration screen:

1. In the Batch Client, on the toolbar, click the Configuration and Defaults button. The System Configuration and Defaults dialog box appears.
2. Click the Remote Server Configuration tab. The Remote Server Configuration screen appears.
3. Click the Remote Server check box to allow the Proficy Batch Execution Client to connect to a specified remote server.

4. If you want the Remote Server button to display in the toolbar, click the Enable Remote Server in Toolbar check box.
5. Add a server.

   Make sure that you specify one server as the default server.

6. Click Apply.
7. Click OK.

Configuring the Precision of Recipe Parameters Displayed in the Batch Creation Screen

To configure the precision of recipe parameters displayed in the Batch Creation screen:

1. Start the Proficy Batch Execution Client.
2. In the Batch Client, click the Configuration and Defaults button. The Configuration and Defaults dialog box appears.
3. Select the General tab.
4. In the Decimal Places field, enter the number of places after the decimal point that you want to allow for recipe parameter values in the Batch Creation screen.
5. Click OK.

Adding User Event Data to the Batch Journal

To add user event data to the Event Journal file:

1. In the Batch Client, click the Event Journal button from the toolbar. The Event Journal screen opens.
2. Click the Journal button. The Event Data Files dialog box appears.
3. Select a batch by highlighting its row.
4. Click the Add Event button. The User Event Data Adding dialog box appears.
5. Select either the Add Event to this Batch or Add Event to all Batches button.
6. Enter text into all the fields you want to change or update.
7. Click Add to add this information and close this dialog box.
8. Click OK to close the Event Data Files dialog box. The information you added appears in the Event Journal screen.

Defining the Frequency of Binding Prompts Notification

To define how frequently operators are notified of binding prompts:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Select the Operator Binding Prompts tab.
3. In the Operator Notification section, select the Every Acknowledged or Outstanding Number button.

4. If you select the Outstanding Number button, enter an integer in the Over field.
5. Click OK.

Defining the Frequency of Unacknowledged Prompts Notification

To define how frequently operators are notified of unacknowledged prompts:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Select the Unacknowledged Prompts tab.
3. In the Operator Notification section, select the Every Acknowledged or Outstanding Number button.
4. If you select the Outstanding Number button, enter an integer in the Over field.
5. Click OK.

System-level Configuration Tasks

Refer to the following sections for more information on system-level configuration tasks in the Batch Client:

- Configuring the Client
- Establishing the Interface to an iFIX Client
- Defining Equipment Bitmap Paths
- Defining the HMI
- Defining the Splitter Bar Size
- Defining the Screen Size
- Enabling and Disabling Commands

Configuring the Client

To configure the Client:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the General tab.
3. Perform any of the following tasks from the General tab:
    - Enable or disable commands. For more information, refer to the Enabling and Disabling Commands section.
    - Enable or disable command prompts. For more information, refer to the Enabling and Disabling Commands section.
    - Define screen size to determine the percentage of the computer monitor Proficy Batch Execution occupies. For more information, refer to the Defining Screen Size section.

- Define the splitter bar size. For more information, refer to the Defining the Splitter Bar Size section.
- Define the HMI. For more information, refer to the Defining the HMI section.
- Define the equipment bitmap paths. For more information, refer to the Define the Equipment Bitmap Paths section.
- Configure the precision of recipe parameters displayed in the Batch Creation screen. For more information, refer to the Configuring the Precision of Recipe Parameters Displayed in the Batch Creation Screen section.
- Change the fonts. For more information, refer to the Changing Fonts section

Establishing the Interface to iFIX Client

To establish the interface to an iFIX Client:

1. Click the In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the General tab.
3. In the .EXE Path field, enter the full path name of your iFIX Client executable. For example, C:\Program Files\Proficy\Proficy iFIX\WORKSPACE.EXE.
4. In the Window Title field, enter Proficy iFIX WorkSpace.
5. Click OK.

Defining Equipment Bitmap Paths

To define equipment bitmap paths:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the General tab.
3. In the Process Cells field, enter the full directory path that points to your process cell bitmaps.
4. In the Units field, enter the full directory path that points to your unit bitmaps.
5. In the Manifold field, enter the full directory path that points to your manifold bitmaps.
6. Click OK.

Defining the HMI

To define the HMI:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the General tab.
3. In the .EXE Path field, enter the full path name of the HMI executable.
4. In the Window Title field, enter the name of the HMI application’s title bar.

5. Enter the full path name of the toolbar bitmap you want to use for the HMI button on the Client toolbar. By default, this is an iFIX bitmap.
6. Click Apply to initiate the changes.

Defining the Splitter Bar Size

To define the splitter bar size:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the General tab.
3. In the Splitter Bar section in the Horizontal field, enter a numeric value.
4. In the Splitter Bar section in the Vertical field, enter a numeric value.
5. Click Apply to initiate the change.

Defining the Screen Size

To define the screen size:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the General tab.
3. In the Screen Size section in the Horizontal field, enter a numeric value.
4. In the Screen Size section in the Vertical field, enter a numeric value.
5. Click Apply to initiate the change.

Enabling and Disabling Commands

To enable and disable commands:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the General tab.
3. Clear the check boxes for any commands you want to disable. By default, all the check boxes are selected and all commands are available.
4. Click Apply to initiate the change.

Configuring the Client Screens

Refer to the following sections for more information on configuring the client screens in the Batch Client:

- Overview: Configuring the Client Screens
- Configuring the Alarm Summary Screen

- Configuring the Batch List Screen
- Configuring the Event Journal Screen
- Configuring the Phase Control Screen
- Configuring the Phase Summary Screen
- Configuring the SFC View Screen
- Configuring the Unacknowledged Prompts Screen

Overview: Configuring the Client Screens

To configure the Client screens:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the tab that corresponds to the screen or the portion of a screen you want to configure. From the tab dialogs, you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Set filtering for the Client's screen.
    - Change the fonts.
3. Make your modifications and then click OK.

Configuring the Batch List Screen

To configure the Batch List screen:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Batch List tab.
3. From the Batch List tab you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Set filtering for the Batch List screen.
    - Change the fonts.
4. Click OK.

Configuring the SFC View Screen

To configure the SFC View screen:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the SFC View tab.
3. From the SFC View tab you can perform the following tasks:
    - Select the SFC step color.
    - Select the SFC step fill.
    - Select or clear expressions.
4. Click OK.

Changing the SFC Step Color

To change the SFC step color:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the SFC View tab.
3. Select a state from the SFC Step Color section of the screen and double click the state to open the Color dialog box.
4. Select a color from the palette and click OK to change the state to the new color, or click Cancel to retain the original color. Clicking either button closes the Color box.
5. Click OK.

Selecting the SFC Step Fill

To select the SFC step fill:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the SFC View tab.
3. From the SFC Step Color section of the screen, select a state.
4. In the SFC Step Fill area, select a fill pattern to change the fill pattern for the selected state.
5. Click OK.

Setting the Line Width of the SFC

To set the line width of the SFC:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the SFC View tab.
3. In the Line Width field, enter a numeric value.
4. Click Apply to initiate the change.

Displaying Expressions in the SFC View

To display expressions in the SFC View:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the SFC View tab.
3. Select the Show Expressions check box to show transition expressions in the SFC. Clear the Show Expressions check box to remove transition expressions from the SFC.
4. Click Apply to initiate the changes.

Displaying a Transition's Status

To display a transition’s status:

1. In the Batch Client, in the Batch List screen, select a batch.
2. Click the Procedure as SFC button.
3. Double-click a transition in the SFC to open the Transition Expression dialog box.
4. If the transition is active, its status is visible in the dialog box. If the transition is not currently active, the following message is displayed in the dialog box:

   ```
   Expression is not being evaluated now
   ```

3. Click OK to exit the Transition Expression dialog box and return to the SFC window.

Components of the SFC Screen

Refer to the following sections for more information on components of the SFC screen in the Batch Client:

- Configuring the Hierarchical Step List
- Configuring the Procedures Table
- Configuring the Operations Table
- Configuring the Unit Procedures Table
- Auxiliary Windows

Configuring the Hierarchical Step List

To configure the Hierarchical Step list on the SFC and Table View screens:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Hierarchical Step tab.
3. From the Hierarchical Step tab, you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the fonts.
4. Click OK.

Configuring the Procedures Table

To configure the Procedures Table section of both the SFC View and Table View screens:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Procedures Table tab.
3. From the Procedures Table dialog you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Change the fonts.
4. Click the Apply button to initiate the changes.

    NOTE: *The custom configurations made to the Procedures Table are visible only when the focus is on a procedure in the Hierarchical Step List section of the screen. If the focus is on either an operation or a unit procedure, the table's appearance reflects the configuration defined for those tables.*

Configuring the Operations Table

To configure the Operations Table of the SFC and Table View screens:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Operations Table tab.
3. From the Operations Table dialog you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Change the fonts.
4. Click OK.

NOTE: *The custom configurations made to the Operations Table are visible only when the focus is on an operation in the Hierarchical Step List section of the screen. If the focus is on either a procedure or a unit procedure, the table's appearance reflects the configuration defined for those tables.*

Configuring the Unit Procedures Table

To configure the Unit Procedures Table section of the SFC and Table View screens:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Unit Procedures Table tab.
3. From the Unit Procedures Table dialog you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Change the fonts.
4. Click OK.

    NOTE: *The custom configurations made to the Unit Procedures Table are visible only when the focus is on a unit procedure in the Hierarchical Step List section of the screen. If the focus is on either a procedure or an operation, the table's appearance reflects the configuration defined for those tables.*

Auxiliary Windows

Refer to the following sections for more information on auxiliary windows in the Batch Client:

- Configuring the Prompts Tab Window
- Configuring the Parameters Tab Window
- Configuring the Reports Tab Window

Configuring the Prompts Tab Window

To configure the Prompts tab window in the SFC and Table View screens:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Procedure Prompts tab.
3. From the Procedure Prompts dialog you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Change the fonts.
4. Click OK.

Configuring the Parameters Tab Window

To configure the Parameters tab window in the SFC and Table View screens:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Procedure Parameters tab.
3. From the Procedures Parameters tab dialog you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Change the fonts.
4. Make your modifications and then click OK.

Configuring the Reports Tab Window

To configure the Reports tab window in the SFC and Table View screens:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Procedure Reports tab.
3. From the Procedure Reports dialog you can perform the following tasks
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Change the fonts.
4. Make your modifications and click OK.

Configuring the Alarm Summary Screen

To configure the Alarm Summary screen:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Alarm Summary tab.
3. From the Alarm Summary tab you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Set filtering for the Alarm Summary screen.
    - Change the fonts.
4. Click OK.

Configuring the Phase Summary Screen

To configure the Phase Summary screen:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Phase Summary tab.
3. From the Phase Summary tab you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Set filtering for the Phase Summary screen.
    - Change the fonts.
4. Click OK.

Configuring the Phase Control Screen

To configure the Phase Control screen:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Phase Control tab.
3. Change the Font style in each of the screen's sections.

Configuring the Event Journal Screen

To configure the Event Journal screen:

1. In the Batch Client, click the Configuration and Defaults button on the toolbar. The System Configuration and Defaults dialog box appears.
2. Click the Journal tab.
3. From the Journal tab you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Set filtering for the Event Journal screen.
    - Change the fonts.
4. Click OK.

Displaying a Journal File

To display a Journal file:

1. In the Batch Client, click the Event Journal button on the Client toolbar to open the Event Journal screen.
2. Click the Journal button. The Event Data Files dialog box appears.
3. Select a batch from the list.
4. Click OK to display the batch's Journal file.

Customizing the current Journal file

To customize the current Journal file:

1. In the Batch Client, click the Event Journal button on the Client toolbar to open the Event Journal screen.
2. Click the Journal button and select a file from the list provided.
3. Select the check boxes for the columns you want visible, and clear the check boxes for the columns you do not want to be visible.
4. Select the sort order for the visible columns by highlighting a column name in the sort priority field and clicking the Up and Down arrows to change its position in the list.
5. Enter a value in the filter field if you want to filter specific columns.
6. Click the Refresh button to update the screen's configuration.

Configuring the Event Files List

To configure the Event File list:

1. In the Batch Client, click the Event Journal button on the Client toolbar to open the Event Journal screen.
2. Select which columns you want to display or to hide.
3. Change the column sizes.
4. Set filtering for the Event File list.

Configuring the Unacknowledged Prompts Screen

To configure the Unacknowledged Prompts screen:

1. Click the Configuration and Defaults button on the toolbar to open the System Configuration and Defaults screen.
2. Click the Unacknowledged Prompts tab.

3. From the Unacknowledged Prompts tab you can perform the following tasks:
    - Select which columns you want to display or to hide.
    - Change the column sizes.
    - Order and prioritize sorts.
    - Set filtering for the Unacknowledged Prompts screen.
    - Change the fonts.
    - Define how frequently operators are notified of binding prompts.
4. Click OK.

Acknowledging Prompts

To acknowledge prompts:

1. In the Batch Client, click the Unacknowledged Prompts button to open the Unacknowledged Prompts screen.
2. Double-click the prompt. The Acknowledge dialog box appears.
3. If prompted, enter the appropriate response in the highlighted field.
4. Click the Acknowledge button to acknowledge the prompt. The Acknowledge dialog box closes and the prompt is removed from the Acknowledged Prompts list.

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