

Flagship Automation Ltd.

# DQCsys Operator User Manual

Revision 1.21

For DQCsys Operator Revision 12.00

January 6, 2011

[www.DQCsys.com](http://www.DQCsys.com)

## Document Revision Table

Revision	Description	Date
1.00	Initial Release	June 11, 2011
1.10	Major content changes to the following sections: <ul style="list-style-type: none"> <li>- <b>Section 1:</b> DQCsys Operator Navigation</li> <li>- <b>Section 2:</b> Configuration</li> <li>- <b>Section 7:</b> Process Alarms</li> </ul> Updated pictures of the User Interface Improvements	September 7, 2011
1.20	Updated for Revision 12.00: <ul style="list-style-type: none"> <li>- <b>Section 2.5:</b> Notes added on Recipe Designation Name</li> <li>- <b>Section 2.6:</b> Notes added on Recipe Precision</li> <li>- <b>Section 4&amp;5:</b> Notes added on Recipe Change Log and Record Display</li> <li>- <b>Section 8:</b> Updated for the new webserver</li> </ul> Updated pictures of the User Interface changes	December 23, 2011
1.21	Changes include: <ul style="list-style-type: none"> <li>- <b>Section 1:</b> Update to reflect User Interface changes</li> <li>- <b>Section 5:</b> Updated to reflect User Interface changes</li> <li>- <b>Section 7:</b> Updated the alarm color scheme</li> <li>- <b>Section 8.6:</b> Custom Logo Section added</li> </ul> Additional minor corrections were made	January 6, 2012

## Table of Contents

Introduction.....	iv
DQCsyst Operator Requirements.....	iv
1 DQCsyst Operator Navigation.....	1
1.1 Header Section.....	<b>Error! Bookmark not defined.</b>
1.1.1 Header Information.....	1
1.1.2 Navigation Bar.....	<b>Error! Bookmark not defined.</b>
1.2 Login.....	2
1.3 Logout.....	2
2 Configuration.....	3
2.1 Accessing DQCsyst Configuration Window.....	3
2.2 DQCsyst Configuration Window Navigation.....	4
2.3 Database Connections Page.....	4
2.3.1 Database Statuses.....	5
2.3.2 Test and Save Database Connections.....	5
2.2.3 SQL Server Communication Settings.....	6
2.4 Users Page.....	6
2.4.1 User Access Level.....	6
2.4.2 Find User.....	6
2.4.3 User Creation.....	7
2.4.4 Edit Users.....	7
2.4.5 User Deletion.....	7
2.5 Setup Information Page.....	8
2.5.1 Edit Setup Information.....	8
2.6 Processes Page.....	9
2.6.1 Find Process.....	9
2.6.2 New Process.....	9
2.6.4 Delete Process.....	9
2.7 Recipe Fields Page.....	10
2.7.1 New Recipe Field.....	10
2.7.2 Edit Recipe Field.....	11
3 Process Specification.....	12
3.1 Specification Settings.....	12
3.2 Parameters Details.....	13
4 The Recipe Database.....	14
4.1 Accessing Recipe Database.....	14
4.2 Select Recipe.....	15
4.3 Find Recipe.....	15

4.4	New Recipe .....	15
4.5	Copy Recipe .....	15
4.6	Rename Recipe.....	16
4.7	Edit Each Process Parameter Values .....	16
4.8	Recipe Record Display.....	17
4.9	Edit Recipe Info.....	17
4.10	Load Recipe into Manage Recipe Window .....	18
5	Further Recipe Management.....	19
5.1	Edit Recipe Data.....	19
5.2	Save Recipe Data.....	19
5.3	Recipe Auto Update.....	20
5.4	Recipe Record Display.....	20
5.5	Load Recipe into DQCsys Operator.....	20
5.6	Update Process Controls .....	21
5.7	Update All Process Controls.....	21
6	The Process Page .....	22
7-1	Enabling a Process.....	22
6.2	Clear a Specific Process .....	23
7-3	Clear All Processes .....	23
7	Process Alarms.....	24
7.1	Global Alarms.....	24
7.2	Specific Alarms .....	24
7.2.1	X-Bar Specification Alarm.....	25
7.2.2	X-Bar Control Limit.....	25
7.2.3	Range Control Limit .....	25
7.3	Alarm Log .....	26
7.4	Reset Alarms.....	26
7.5	Reset All Alarms.....	26
8	Web Server.....	27
8.1	Requirements .....	27
8.1.1	Opening Ports on Windows Firewall .....	27
8.2	How to View Remotely.....	31
8.3	WebStation Main Page.....	31
8.4	Process Webpage.....	32
8.5	Auto Update .....	32
8.6	Custom Logo.....	32

## Introduction

---

Welcome to DQCsys Operator User Manual. This manual will cover the features and usage of DQCsys Operator, software designed for distributed quality control systems. However, it does not cover the installation and first-time configuration, Please see [DQCsys Operator Quick Start Guide](#) to get started on using DQCsys Operator.

## DQCsys Operator Requirements

---

The following sections list the requirements to run DQCsys Operator.

A Flagship Protection Key is required to run the full version of DQCsys Operator. Contact us at [sales@DQCsys.com](mailto:sales@DQCsys.com) to acquire a key. Please note that the DEMO version will exit automatically after 10 minutes of run time.

### Software Requirements

The following listed software is available free to download and is required for DQCsys Operator to run properly.

- [HASP Driver](#) is the driver used for the protection key. It must be installed on every computer that the protection key is used.
- [Microsoft SQL Server Express Edition](#) is the program the DQCsys system uses to store information. The server must be configured for SQL Server Authentication.
- [LabVIEW Run-Time Engine 2010](#) is required to be installed on computers that will be remotely accessing DQCsys Operator. See [9 Remote Access](#) for more details on this feature.

### System Requirements

The hardware requirements for the supported operating systems, Windows XP Pro SP3 and Windows 7 Pro, are listed below.

**Operating System:** Windows XP Pro SP3

**CPU Required:** 1.5 GHz or faster

**Memory Required:** 1 GB RAM or higher required

**Monitor Required:** 1280x1024 capable monitor

**Installation and Operation:** 4G or higher free hard drive space required

**Operating System:** Windows 7 Pro

**CPU Required:** 1.5 GHz or faster

**Memory Required:** 2 GB RAM or higher required

**Monitor Required:** 1280x1024 capable monitor

**Installation and Operation:** 4G or higher free hard drive space required

## 1 DQCsys Operator Navigation

### 1.1 Navigation Bar

The **Navigation Bar** on DQCsys Operator provides access to its various pages through buttons and selectors. The current page displayed on Operator is indicated by the button or selector highlight in light blue. (Figure 1.1-1)

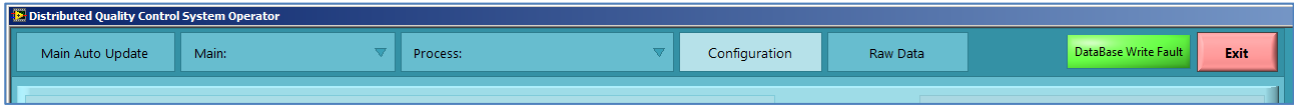


Figure 1.1-1: DQCsys Operator's **Navigation Bar**

The following describes each page that can be access through the navigation bar.

- A summary of all plotted data for each process can be viewed in five at a time when selected a main page. To access these pages, click the **Main** selector and then select the group of processes of interest.
- To cycle through every main page automatically, click on **Main Auto Update**. Every 4 second, the next main page will be displayed.
- Each process has its own page where incoming data is plotted and statistical information is displayed. To access a process's page, click **Process** and then select a process's page.
- The **Configuration** page contains access to the user login, configuration options, project management, and various process functions. To access this page, click the **Configuration** button
- The **Raw Data** page contains tables of each process's incoming data. To access this page, click the **Raw Data** page.
- To exit DQCsys Operator, click the **Exit** button.

The **Database Write Fault** alarm is also displayed on this bar. It is triggered **red** when data cannot be written to the Data database, see figure 1.1-2.

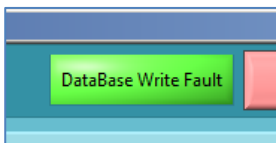


Figure 1.1-2: Database Write Fault Alarm, currently **green** indicating data can be written to the Data database.

### 1.2 Version Display

On the **Configuration** page, the version of DQCsys Operator is displayed as seen in Figure 1.2.-1. This information includes the current revision of Operator, the serial number of the Protection Key, and the number of processes licenced according to the key.

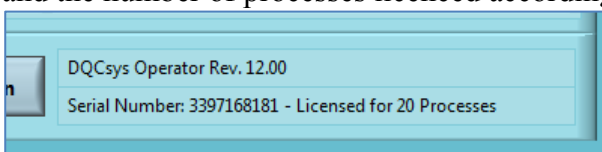


Figure 1.2-1: Database Write Fault Alarm

### 1.3 Login

Users must be logged in to access essential functions of DQCsys Operator. The default user account is given below:

**Username:** Admin

**Password:** flagship

**Access Level:** Manager

To login, follow the steps below:

1. Go to the **Configuration** page on DQCsys Operator by clicking the **Configuration** button located on the navigation bar (Figure 1.3-1).

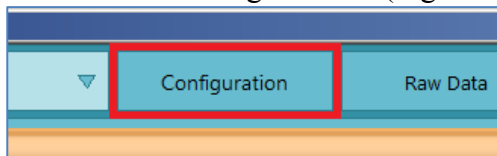


Figure 1.2-1: The **Configuration** button on DQCsys Operator's navigation bar.

2. Next, click the **Login** button, (Figure 1.3-1).

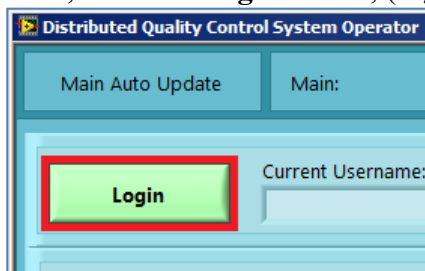


Figure 1.3-1: The **Login** Button.

3. Enter a valid username and password on the **Login** window (Figure 1.3-2). Please note that the password is case sensitive. When done, click the **Login**

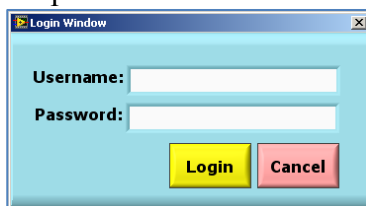


Figure 1.3-2: The Login Window

### 1.4 Logout

Users that are logged in can logout by clicking the **Logout** button (Figure 1.4-1) on the **Configuration** page of DQCsys Operator.

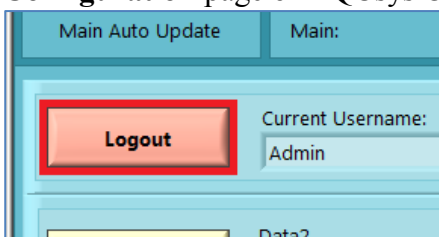


Figure 1.4-1: **Logout** Button

## 2 Configuration

DQCsyst Operator can be configured by the database connections, the setup information, and the processes. This is the location where new processes can be added. Users must have an access level of a Manager to configure DQCsyst Operator.

### 2.1 Accessing DQCsyst Configuration Window

The **DQCsyst Configuration** window allows configuration of database connection, setup information, and processes. This window can be accessed by the following steps.

1. Login to an authorized user account. See [1.2 Login](#) for more details.
2. Click the **Configuration** button on the **Configuration** tab of DQCsyst Operator. (Figure 2.1-1)

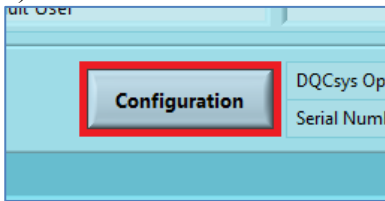


Figure 2.1.1: The **Manage User** and **Configuration** buttons.

3. A popup appears warning that continuing may reinitialize the program. Click **OK**.
4. The **DQC Configuration** window will appear.(Figure 2.1-2)

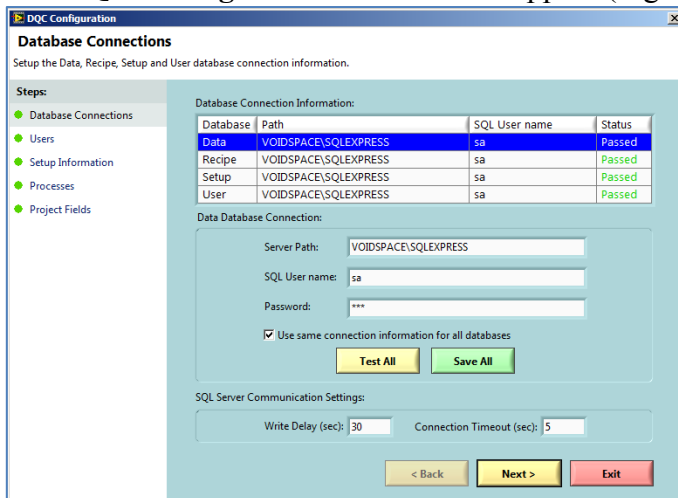


Figure 2.1-2: The **DQC Configuration** window



## 2.2 DQCsyst Configuration Window Navigation

There are five steps in DQC Configuration. They are the **Database Connection**, **Users**, **Setup Information**, **Processes**, and **Project Fields** steps. Each step has its own page which can be accessed by the **Steps** side bar (Figure 2.2-1).

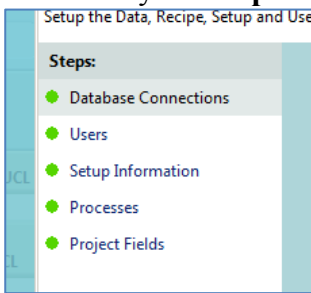


Figure 2.2-1: The **Steps** side bar

The steps that are enabled have a green circle adjacent to their label. In order to enable the next step, the current step must be completed successfully.

The next or previous page can also be accessed by clicking the **Next** or **Back** buttons located at the bottom of **DQC Configuration** window. (Figure 2.2-2)

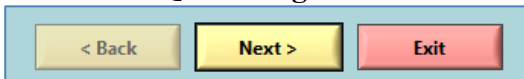


Figure 2.2-2: **Back**, **Next**, and **Exit** buttons

Clicking **Exit** will close the window if all the steps are enabled. If not, a message will appear indicating that the configuration must be completed. However, the option to exit DQCsyst Operator is given.

**Note:** Any changes made in the DQCsyst Configuration will restart DQCsyst Operator.

## 2.3 Database Connections Page

DQCsyst Operator uses four databases to save process data, recipes, setup configuration, and its internal user system.

Each connection to a database can be configured on the **Database Connections** page of the **DQC Configuration** window. (Figure 2.3-1)

Database	Path	SQL User name	Status
Data	VOIDSPACE\SQLEXPRESS	sa	Passed
Recipe	VOIDSPACE\SQLEXPRESS	sa	Passed
Setup	VOIDSPACE\SQLEXPRESS	sa	Passed
User	VOIDSPACE\SQLEXPRESS	sa	Passed

Recipe Database Connection:

Server Path: VOIDSPACE\SQLEXPRESS

SQL User name: sa

Password: \*\*\*

Use same connection information for all databases

Test Save

SQL Server Communication Settings:

Write Delay (sec): 30 Connection Timeout (sec): 5

Figure 2.3-1: **Database Connections** page

### 2.3.1 Database Statuses

The **Database Connection Information** table list-box displays the **Server Path**, **SQL Username** and **Status** of each database connection. Each status is explained below:

- Missing:** Indicates that the connection to the database does not exist.
- Failed:** Indicates that the connection to the database has failed.
- Passed:** Indicates that the connection to the database has passed.

### 2.3.2 Test and Save Database Connections

DQCsys Operator uses data link files (.UDL) to connect to each database. The following steps describe how to test and save each database connection individually on the **Database Connections** page.

1. First select a database by clicking its row on the **Database Connection Information** table. (Figure 2.3.2-1) The selected database's row is highlighted in blue.

Database	Path	SQL User name	Status
Data	VOIDSPACE\SQLEXPRESS	sa	Passed
Recipe	VOIDSPACE\SQLEXPRESS	sa	Passed
Setup	VOIDSPACE\SQLEXPRESS	sa	Passed

Figure 2.3.2-1: The Recipe Database is selected

2. Enter a valid **Server Path**, **SQL User name**, and **Password**. The server path is the address of the SQL Server. If the server does not already contain the selected database, it will be automatically created.

**Note:** The common format for the server path is the following: the name of the computer that has the SQL Express Server, followed by a backslash “\” and then, the SQL server name which is usually ‘SQLEXPRESS’.

**Warning:** Please see [DQCsys Operator Quick Start-up Guide](#) for the proper setup of the SQL Server.

3. Make sure that the **Use same connection information for all databases** checkbox is unchecked. (Figure 2.3.2-2)

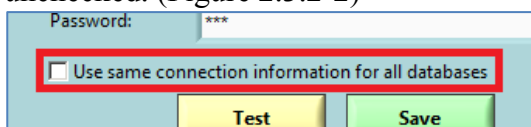


Figure 2.3.2-2: The **Use same connection information for all databases** checkbox is unchecked.

**Note:** When using a single server to contain all four databases, the connection information for each database will be the same. For convenience, check on the **Use same connection information for all databases** checkbox. All the database connections can now be tested or saved using the same inputted **Server Path**, **SQL Username**, and **Password**.

4. Click the **Save** button to save any changes made or the **Test** button to check that the connection information is correct before making any permanent changes.

### 2.2.3 SQL Server Communication Settings

Depending on the location of the SQL Server that is being connected to, the **Write Delay** and **Connection Timeout** may need to be adjusted. (Figure 2.3.3-1)

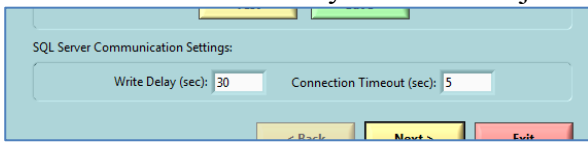


Figure 2.3.3-1: SQL Server Communication Settings

The **Write Delay** is the number of seconds before the data obtained from each processes is sent to the SQL Server. The default value is 30 seconds. This value may be adjusted according to how frequently DQCsys Operator obtains data from each process.

The **Connection Timeout** is the number of seconds before the attempt to connect to the SQL Server fails. The default value is 5 seconds. When connecting to remove servers, this value may need to be increased.

## 2.4 Users Page

DQCsys Operator uses an internal user system to regulate accesses to the configuration options.

The user accounts can be modified in the **User** page of the **DQCsys Configuration** window. To access this page, click on **Users** on the **Steps** side bar. This page is only accessible once all the database connections have passed. (Figure 2.4-1)

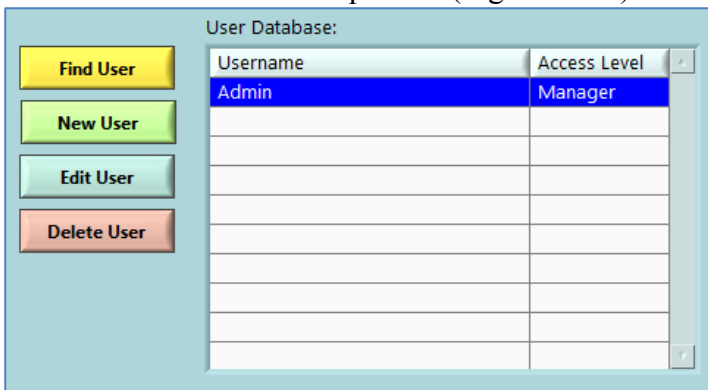


Figure 2.4-1: The Users Page

**Note:** For the description of each **Access Level**, please see 2.4.1 User Access Level.

### 2.4.1 User Access Level

The amount of features that can be accessed by a user account is specified by one of the three access levels listed below

**Operator:** limited to finding and loading recipe from the database.

**Supervisor:** has access to full recipe functions.

**Manager:** has access to full recipe functions, user management, and DQCsys Operator configuration.

### 2.4.2 Find User

To search for a user, click **Find User**. A dialog will appear asking to enter the username to search. When done, click **OK**. Then, the username will be selected on the **User Database** table if it was found.

### 2.4.3 User Creation

New users can be created by clicking the **New User** button. The **Create a New User** window will appear. Enter the user's information to the appropriate fields. When finished, click **OK**. (Figure 2.4.3-1)

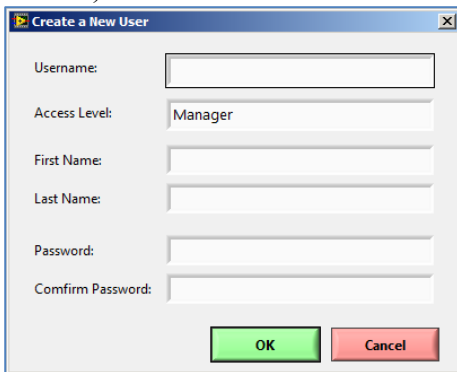


Figure 2.4-3: The **Create a New User** Window

### 2.4.4 Edit Users

User's account information can be edited by the following steps:

1. Select a user by clicking on its username in the **User Database** table. (Figure 3.4-1) The selected user will be highlighted blue.
2. Click **Edit User** to open the **Edit User** window. The Access Level, First Name, Last Name, and Password field can be added.

**Note:** There must be at least one manager account at all times. When editing the only manager, the Access Level cannot be changed.

### 2.4.5 User Deletion

Unwanted Users can be by the following steps:

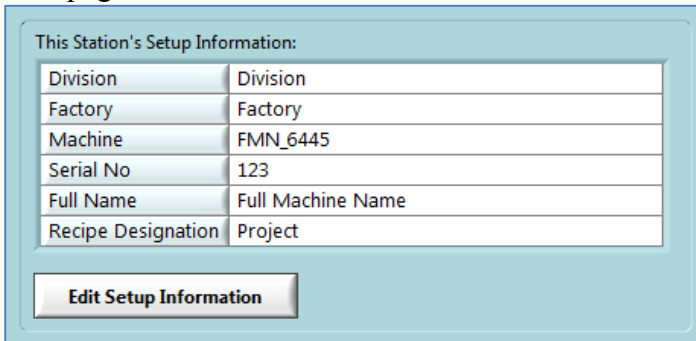
1. Select a user by clicking on its username in the **User Database** table. (Figure 3.4-1) The selected user will be highlighted blue.
1. A confirmation window will appear. Click the **Delete** button to proceed.

**Warning:** Deleting a user is permanent.

## 2.5 Setup Information Page

Each machine is distinguished between other machines by its Setup Information. This information contains the Division, Factory, Machine Tag, Machine's Serial Number, the Machine's Full Name, and the Recipe Designation.

The Setup Information can be modified on the **Setup Information** page of the **DQC Configuration** window. To access this page, click on **Setup Information** on the **Steps** side bar. This page is accessible once all the database connections have passed. (Figure 2.5-1)



This Station's Setup Information:

Division	Division
Factory	Factory
Machine	FMN_6445
Serial No	123
Full Name	Full Machine Name
Recipe Designation	Project

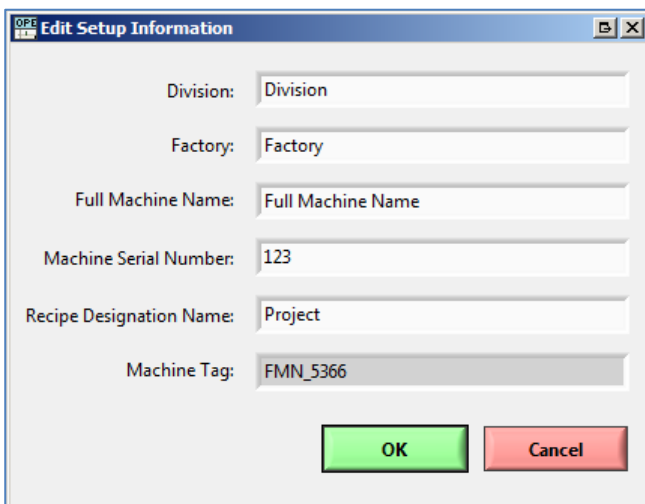
**Edit Setup Information**

Figure 2.5-1: The **Setup Information** Page.

### 2.5.1 Edit Setup Information

To edit the machine's Setup Information, click **Edit Setup Information**. The **Edit Setup Information** window will appear. (Figure 2.5.1-1) When done, click **OK** to save the Setup Information.

**Note:** The **Recipe Designation Name** specifies how recipes will be called. In this manual, the recipe designation name used will be project.  
The **Machine Tag** field will be automatically generated.



**Edit Setup Information**

Division:

Factory:

Full Machine Name:

Machine Serial Number:

Recipe Designation Name:

Machine Tag:

**OK** **Cancel**

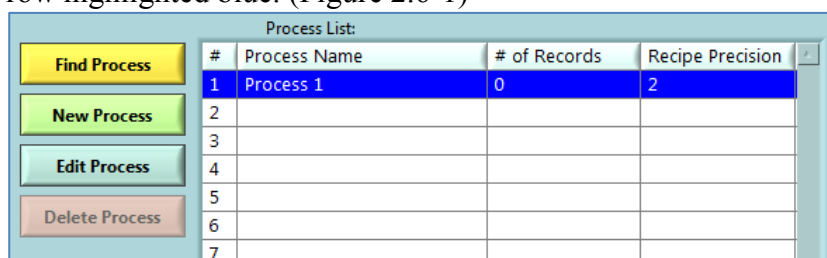
Figure 2.5.1-1: The **Edit Setup Information Configuration** Window

## 2.6 Processes Page

DQCsys Operator's data processing is structured by processes. Each process has its own individual stream of incoming data, plots, statistical computation, recipe and alarms.

Processes can be added, renamed, and deleted on the **Process** page on the **DQCsys Configuration** window. To access this page, click on **Process** on the **Setups** side bar of the window. This page is only accessible once all the database connections have passed and the Setup Information has been filled.

The **Process List** table displays each process's number, name, the number of data records stored in the process's table in the Data database, and the recipe precision. The recipe precision indicates the number of decimals used for the process's parameters in each recipe. The selected process has its row highlighted blue. (Figure 2.6-1)



Process List:			
#	Process Name	# of Records	Recipe Precision
1	Process 1	0	2
2			
3			
4			
5			
6			
7			

Figure 2.6-1: The **Processes** Section on the **DQC Configuration** Window

### 2.6.1 Find Process

To search for a process, click **Find User**. A dialog will appear asking to enter the name of the process to search. When done, click **OK**. Then, the Process will be selected on the **Process List** table if it was found.

### 2.6.2 New Process

To add a new Process, click **New Process**. The **Add New Process** window will appear. Enter the **Process Name** and the **Recipe Precision** and click **OK**. The recipe precision indicates the number of decimal places used for the process's parameters in each recipe. For instance, a recipe precision of 2 will allow that process's control limit in the recipe to be set to 10.54.

**Note:** The highest recipe precision that can be set is 3.  
The maximum number of process that can be added depends on the licence used.

### 2.6.3 Edit Process

To edit a process, first select it by clicking its row on the **Process List** table. Next, click **Edit** and make the necessary changes on the **Rename Process** window. When done, click **OK**.

**Warning:** Be sure that the changes made to the name of the process are still relevant to any pre-existing data currently stored in that process. This would avoid confusion later when viewing this data.

### 2.6.4 Delete Process

To delete a process, first select it by clicking its row on the **Process List** table can be deleted by the following steps. Next, click the **Delete Process** button. On the **Delete Process** window, enter "DELETE" in the field and click **OK** to confirm.

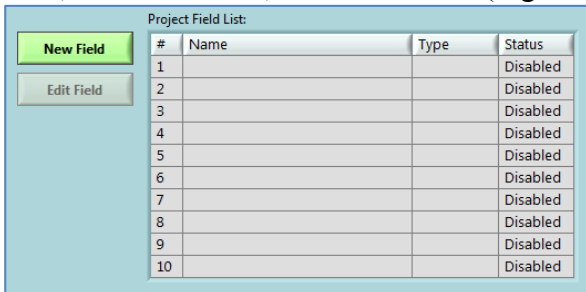
**Warning:** Deleting a process will permanently remove all data records and process's recipes.

## 2.7 Recipe Fields Page

Recipe Fields are custom fields that specify additional information about each Recipe. Recipe also contains each process's own recipe which specifies how incoming data will be processed.

Recipe Fields can be only added or modified on the **Recipe Fields** page on the **DQCsys Configuration** window. To access this page, click on **Recipe Fields** on the **Steps** side bar of the window. This page is only accessible once all the database connections have passed and the Setup Information has been filled.

The **Recipe Fields List** table displays each recipe field's number, name, type, and status. There are 10 available recipe fields that can be used. The three types a Recipe Field can be are a string/text field, a selector field, a number field. (Figure 2.7-1)



#	Name	Type	Status
1			Disabled
2			Disabled
3			Disabled
4			Disabled
5			Disabled
6			Disabled
7			Disabled
8			Disabled
9			Disabled
10			Disabled

Figure 2.7-1: The **Recipe Fields** page

### 2.7.1 New Recipe Field

To create a new Recipe Field, click **New Field**. On the **New – Recipe Field** window the field's name can be entered and the field's type can be chosen.

If the selector field type is chosen, the **Selector Items** list-box will appear. To add new items, click **Add Item**. Enter the new item's name and click **OK**. Newly added items will be highlighted in light blue. (Figure 2.7.1-1)

The **Field Preview** provides a preview of how the field will behave. When done, click **OK**.

**Warning:** Once the Project Field is created, the field type **cannot** be changed and any selector items **cannot** be modified or removed.

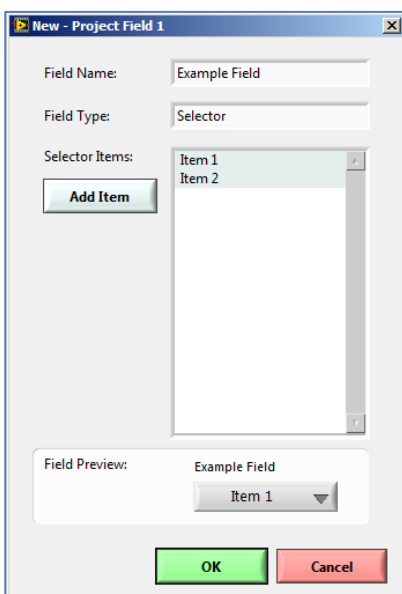


Figure 2.7.1-1: The **New – Recipe Field** Window

### 2.7.2 Edit Recipe Field

To edit a Recipe Field, first select it by clicking its row on the **Process List** table. Next, click **Edit Field**. On the **Edit – Recipe Field**, the field's name can be changed.

New items can be added if the field is a selector by clicking **Add Item**. Enter the new item's name and click **OK**. Newly added items will be highlighted in light blue.

The **Field Preview** provides a preview of how the field will behave. When done, click **OK**.



### 3 Process Specification

DQCsys Operator allows customization of process parameters and specifications which is organized in what are called Recipes.

#### 3.1 Specification Settings

Each process specification has two modes: the Fixed Controls or Delta Controls modes. This option affects the following specification parameters: Upper Spec., X-Bar UCL, X-Bar LCL, and Lower Spec.

##### Fixed Controls:

The actual values for Upper Spec., X-Bar UCL, X-Bar LCL, and Lower Spec are independent from X-bar CL. These values are static.

##### Delta Controls:

The actual values for Upper Spec., X-Bar UCL, X-Bar LCL, and Lower Spec are dependent of X-bar CL. The entered values for the affected controls are the amount of change the actual desired value differs with X-bar CL. For example, If Upper Spec. has a value of 25 and X-bar CL has a value of 25, the actual Upper Spec value is  $25 + 25 = 50$ . See Figure 3.1-1.

Process 1 DATA		Process 2 DATA	
Fixed Controls		Delta Controls	
Upper Spec. 50.00		Upper Spec. 25.00	
X-Bar UCL 35.000	Range UCL 1.000	X-Bar UCL 10.000	Range UCL 1.000
X-bar CL 25.000	Range CL 0.500	X-bar CL 25.000	Range CL 0.500
X-bar LCL 15.000	Range LCL 0.000	X-bar LCL -10.000	Range LCL 0.000
Lower Spec. 0.00		Lower Spec. -25.00	

Figure 3.1-1: Process 1 and Process 2 Controls result in the same values but different use different settings.

### 3.2 Parameters Details

The following describes each parameters of a process speciation:

<b>Parameter</b>	<b>Full Name</b>	<b>Applies to...</b>
Upper Spec. (US)	Upper Speciation	X-Bar & Histogram Chart
Lower Spec. (LS)	Lower Speciation	X-Bar & Histogram Chart
X-Bar UCL	X-Bar Upper Control Limit	X-Bar Chart
X-Bar CL	X-Bar Control Limit	X-Bar Chart
X-Bar LCL	X-Bar Lower Control Limit	X-Bar Chart
Range UCL	Range Upper Control Limit	Range Chart
Range CL	Range Control Limit	Range Chart
Range LCL	Range Lower Control Limit	Range Chart
# of Sample	Total number of Samples	Histogram Chart
SPP	Samples per Point	X-Bar & Range Chart
# of Bars	Number of Bars	Histogram Chart

## 4 The Recipe Database

DQCsys Operator uses a database to store different configurations of each process's parameters. These are organized in recipe which contain a global set of information that apply to all processes.

### 4.1 Accessing Recipe Database

The **Access Recipe Database** window allows to manage recipes and to edit the each of the recipe's parameters. This window can be accessed by the following steps:

1. Login to a user account with manager or supervisor privileges. See section [1.2 Login](#) for more details.
2. Click the **Access Recipe** button on the **Configuration** tab of DQCsys Operator. The **Manage Recipe** window (Figure 4.1-1) will appear. For details on this window, see [6 Manage Recipe](#).

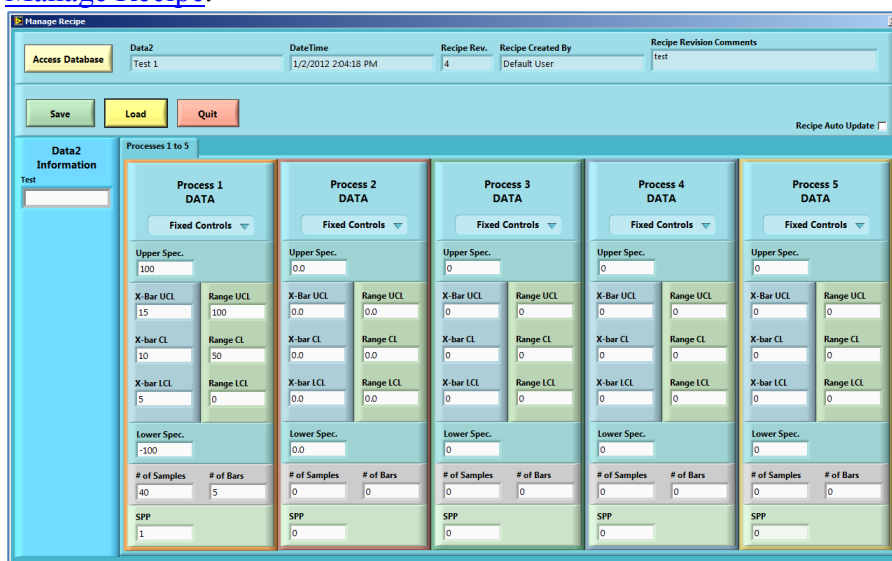


Figure 4.1-1: The Manage Recipe Window

3. Click the **Access Database** button. The **Access Recipe Database** window will appear. (Figure 4.1-2)

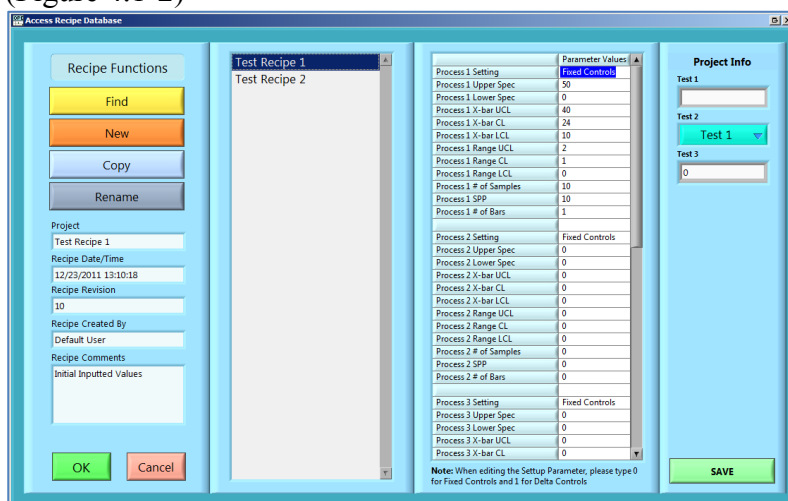


Figure 4.1-2: The Access Recipe Database Window: The "Test" recipe is currently selected.

## 4.2 Select Recipe

Recipes are listed in the centred list-box in the **Access Recipe Database** window. They can be selected by clicking on a recipe's name from the Recipe List-box (Figure 4.2-1). The selected recipe is highlighted in blue.

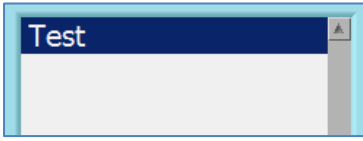


Figure 4.2-1: The Recipe List-box: The “Test” Recipe is selected.

## 4.3 Find Recipe

Recipes can be searched for in the **Access Recipe Database** window by the following steps:

1. Click the **Find** button on the **Access Recipe Database** window. (Figure 4.1-2) The **Enter Recipe** popup will appear.
2. Enter the recipe's name to search for in the **Enter Recipe** popup. Click **Find** to continue.
3. If the recipe exists, it will be automatically selected in the Recipe List-box.

## 4.4 New Recipe

New recipes can be created in the **Access Recipe Database** window by the following steps:

**Note:** when renaming a process, the **Recipe Data/Time** field will be updated (Figure 4.8-1).

1. Click the **New** button on the **Access Recipe Database** window. (Figure 4.1-2) The **Create New Recipe** popup will appear.
2. Enter a unique recipe name in the **Create New Recipe** popup. Click **Create Recipe** to continue.
3. A popup will indicate if the recipe was created successful. The new recipe will also appear in the Recipe List-box.

## 4.5 Copy Recipe

Recipes can be duplicated in the **Access Recipe Database** window by following the procedure below:

1. Select the desired recipe from the Recipe List-box on **Access Recipe Database** window. (Figure 4.2-1) See [4.2 Select Recipe](#) for more details.
2. Click the **Copy** button on the **Access Recipe Database** window. (Figure 4.1-2) **Enter New Recipe Name** popup will appear.
3. Enter a new unique recipe name in the **Enter Recipe** popup. Click **OK** to continue.
4. A popup will indicate if the recipe was copied successful. The copied recipe will also appear in the Recipe list-box.

## 4.6 Rename Recipe

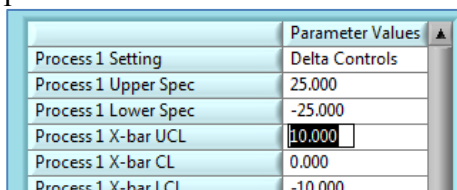
Recipes can be renamed in the **Access Recipe Database** window by following the procedure below:

1. Select the desired recipe from the Recipe List-box on **Access Recipe Database** window. (Figure 4.2-1) See [4.2 Select Recipe](#) for more details.
2. Click the **Rename** button on the **Access Recipe Database** window. (Figure 4.1-2) The **Enter Recipe Name** popup will appear.
3. Enter a new unique recipe name in the **Enter Recipe Name** popup. Click **OK** to continue.
4. A popup will indicate if the recipe was renamed successful. The recipe's name in the Recipe list-box will also be updated.

## 4.7 Edit Each Process Parameter Values

Each process parameter can be edited in the **Access Recipe Database** window by the following steps:

1. Select the desired recipe from the Recipe List-box on **Access Recipe Database** window. (Figure 4.2-1) See [4.2 Select Recipe](#) for more details.
2. Click on a parameter value on the multi-column list-box in the **Access Recipe Database** window. (Figure 4.7-1) Enter new value for that parameter and click on anywhere other than parameter.



	Parameter Values
Process 1 Setting	Delta Controls
Process 1 Upper Spec	25.000
Process 1 Lower Spec	-25.000
Process 1 X-bar UCL	10.000
Process 1 X-bar CL	0.000
Process 1 X-bar LCL	-10.000

Figure 4.7-1: The Multi-Column List-Box: Process 1 X-Bar UCL is being edited.

**Note:** Press the **Enter** or the **Down** keys to edit the next parameter. Press the **Up** key to edit the previous parameter.

3. Repeat this process for any other parameter. Once complete, click **Save** to save all changes made to the recipe. (Figure 4.7-3)

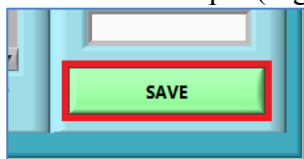



Figure 4.7-3: The **Save** button.

4. The **Recipe Change Log** dialog will then appear. Enter the reason for the change and click **OK**. By not entering any reason, an error message will appear, click **OK** and once again click **OK** to finish without entering any reason.
5. The Recipe Revision and Comments will be updated (Figure 4.8-1).

## 4.8 Recipe Record Display

The **Recipe Record Display** as shown in figure 4.8-1 indicates the creation date/time of the recipe, its latest revision number, who created the recipe, and the latest recipe comments of the current selected recipe.



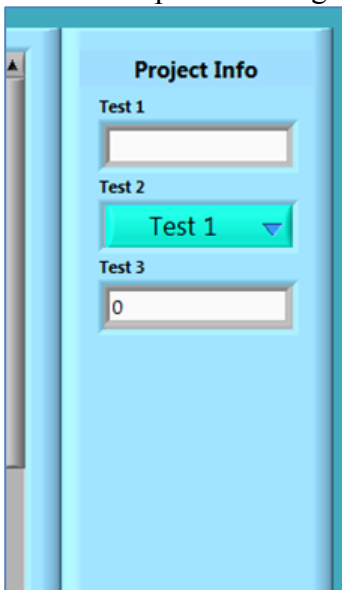
The screenshot shows a form with the following fields and values:

Project	Test Recipe 3
Recipe Date/Time	12/23/2011 13:31:00
Recipe Revision	1
Recipe Created By	Default User
Recipe Comments	Initial Creation

Figure 4.8-1: The **Recipe Record Display**.

## 4.9 Edit Recipe Info

The Recipe Info can be edited on the **Recipe Info** column (Figure 4.9-1) after changes are made, click **Save** to save them. (Figure 4.7-3) To configure the fields used by the **Recipe Info** column, see 2.7 Recipe Fields Page.



The screenshot shows a form titled "Project Info" with the following fields and values:

Test 1	
Test 2	Test 1
Test 3	0

Figure 4.9-1: The **Recipe Info** Column

### 4.10 Load Recipe into Manage Recipe Window

The selected recipe can be loaded into the **Manage Recipe** window from the **Access Recipe Database** window by the following steps:

Please note that the recipe can then be directly loaded into DQCsys Operator by clicking on the **Load** button on **Manage Recipe** window (Figure 4.10-1).

1. Select a recipe from the Recipe List-box on **Access Recipe Database** window. (Figure 4.2-1) See [4.2 Select Recipe](#) for more details.
2. Click **OK**. The selected recipe is loaded into the **Manage Recipe** window (Figure 4.10-1)

The screenshot shows the 'Manage Recipe' window with the following details:

- Access Database:** Data2, Test 1
- Date/Time:** 1/2/2012 2:04:18 PM
- Recipe Rev.:** 4
- Recipe Created By:** Default User
- Recipe Revision Comments:** test
- Buttons:** Save, Load, Quit
- Recipe Auto Update:**
- Process Information:** Processes 1 to 5

Process 1 DATA		Process 2 DATA		Process 3 DATA		Process 4 DATA		Process 5 DATA	
Fixed Controls		Fixed Controls		Fixed Controls		Fixed Controls		Fixed Controls	
Upper Spec.	100	Upper Spec.	0.0	Upper Spec.	0	Upper Spec.	0	Upper Spec.	0
X-Bar UCL	15	X-Bar UCL	0.0	X-Bar UCL	0	X-Bar UCL	0	X-Bar UCL	0
Range UCL	100	Range UCL	0.0	Range UCL	0	Range UCL	0	Range UCL	0
X-bar CL	10	X-bar CL	0.0	X-bar CL	0	X-bar CL	0	X-bar CL	0
Range CL	50	Range CL	0.0	Range CL	0	Range CL	0	Range CL	0
X-bar LCL	5	X-bar LCL	0.0	X-bar LCL	0	X-bar LCL	0	X-bar LCL	0
Range LCL	0	Range LCL	0.0	Range LCL	0	Range LCL	0	Range LCL	0
Lower Spec.	-100	Lower Spec.	0.0	Lower Spec.	0	Lower Spec.	0	Lower Spec.	0
# of Samples	40	# of Samples	0	# of Samples	0	# of Samples	0	# of Samples	0
# of Bars	5	# of Bars	0	# of Bars	0	# of Bars	0	# of Bars	0
SPP	1	SPP	0	SPP	0	SPP	0	SPP	0

Figure 4.10-1: The **Manage Recipe** Window: The Test Recipe Loaded

## 5 Further Recipe Management

DQCsys Operator provides an alternate layout for editing recipes using the **Manage Recipe** window. Process Parameters can be also trimmed without necessarily updating the changes to the database. See [5 The Recipe Database](#) for accessing and loading a recipe to the **Manage Recipe** window. (Figure 6-1)

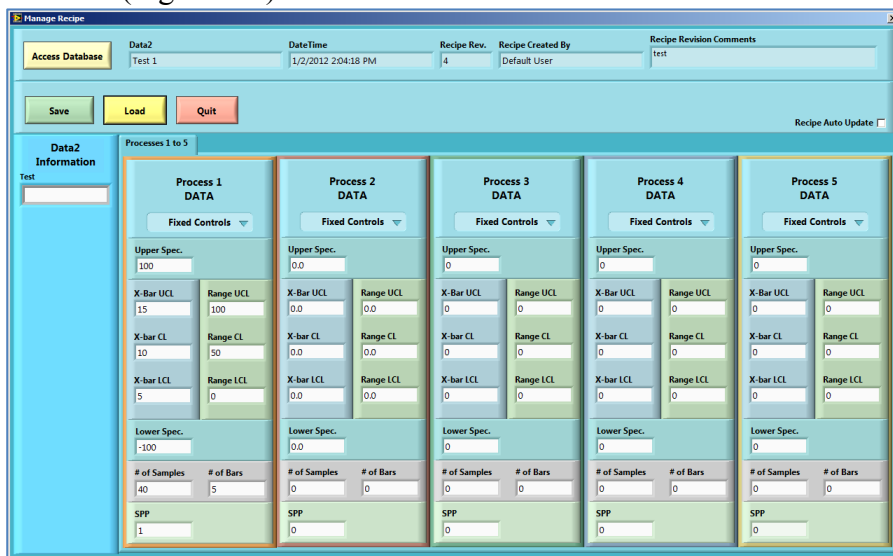


Figure 6-1: The **Manage Recipe** Window

### 5.1 Edit Recipe Data

The recipe information and process specification can be changed on the **Manage Recipe** window.

To change the recipe settings, click on the combo box located below the title of each process's module and select the recipe setting. (Figure 5.1-1) See [3.1 Specification Settings](#) for details on the recipe setting behaviours.

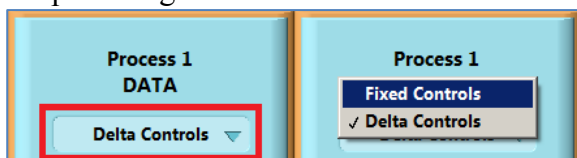


Figure 5.1-1: Change Specification Setting

### 5.2 Save Recipe Data

The loaded recipe data on the **Manage Recipe** window can be saved after being edited by clicking the **Save** button (Figure 5.2-1). A confirmation popup will appear, click **OK** to save.

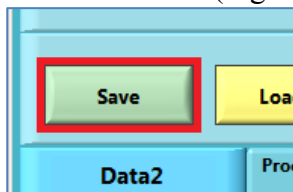


Figure 5.2-1: The **Save** button on the **Manage Recipe** window.

The **Recipe Change Log** dialog will then appear. Enter the reason for the change and click **OK**. By not entering any reason, an error message will appear, click **OK** and once again click **OK** to finish without entering any reason.

The Recipe Revision and Comments will be updated (Figure 5.4-1).



### 5.3 Recipe Auto Update

The behaviour of how recipes are loaded from the **Manage Recipe** window into DQCsys Operator, through the **Recipe Auto Update** checkbox (Figure 5.3.1) on the **Manage Recipe** window.

Enabling this feature will automatically update the specification of each process's plots when a recipe is loaded to the DQCsys Operator.



Figure 5.3.1: The **Recipe Auto Update** Checkbox

### 5.4 Recipe Record Display

The **Recipe Record Display** as shown in figure 5.4-1 indicates the creation date/time of the recipe, its latest revision number, who created the recipe, and the latest recipe comments of the current selected recipe. This display is also visible on the **Configuration** page of DQCsys Operator.

Project	DateTime	Recipe Rev.	Recipe Created By	Recipe Revision Comments
Test Recipe 3	12/23/2011 13:31:00	3	Default User	Test

Figure 5.4-1: The **Recipe Record Display**.

### 5.5 Load Recipe into DQCsys Operator

Recipes can be loaded from the **Manage Recipe** window into DQCsys Operator by the following steps:

1. Click the **Load** button on the **Manage Recipe** window. (Figure 5.5-1)

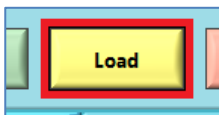


Figure 5.5-1: The **Load** Button.

2. The **Manage Recipe** window will close and the recipe is loaded into DQCsys Operator (Figure 5.5-2)

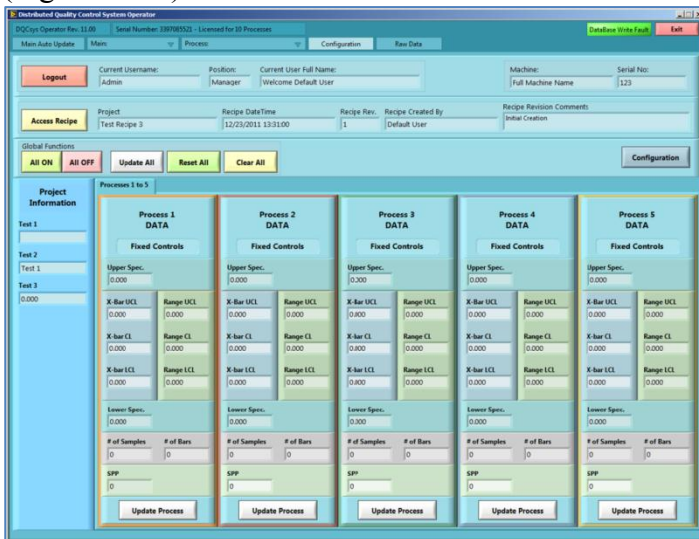


Figure 5.5-2: The **Configuration** page of DQCsys Operator

## 5.6 Update Process Controls

To update a specific process's graph control after making changes to its recipes, click the corresponding **Update** button (Figure 5.6-1) located on the **Configuration** tab of DQCsys Operator

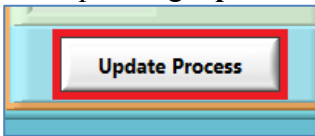


Figure 5.6-1: The **Update** Button for Process 1 Controls.

The current process's graph controls are displayed on the tab labelled by the process's name. See Figure 5.6-2.

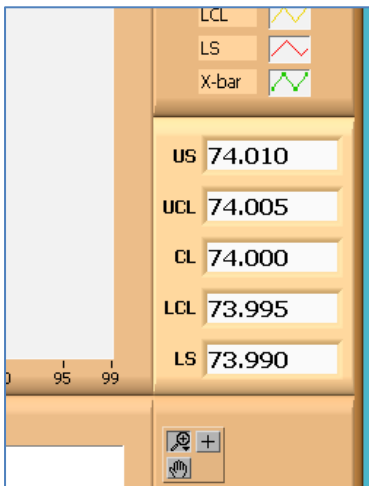


Figure 5.6-2: The X-Bar Chart Controls on Process 1 tab

## 5.7 Update All Process Controls

To update every process's graph control simultaneously after making changes to the loaded recipe, click the **Update All** button on the **Configuration** tab of DQCsys Operator. (Figure 5.7-1)

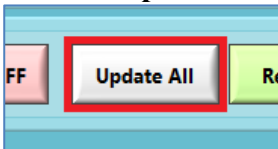


Figure 5.7-1: The **Update All** Button for Process 1 Controls.

## 6 The Process Page

The Process Page (Figure 6-1) monitors and analyses incoming data for a particular process. To access a process’s page, click the tab labelled by the name of the corresponding process on DQCsys Operator.

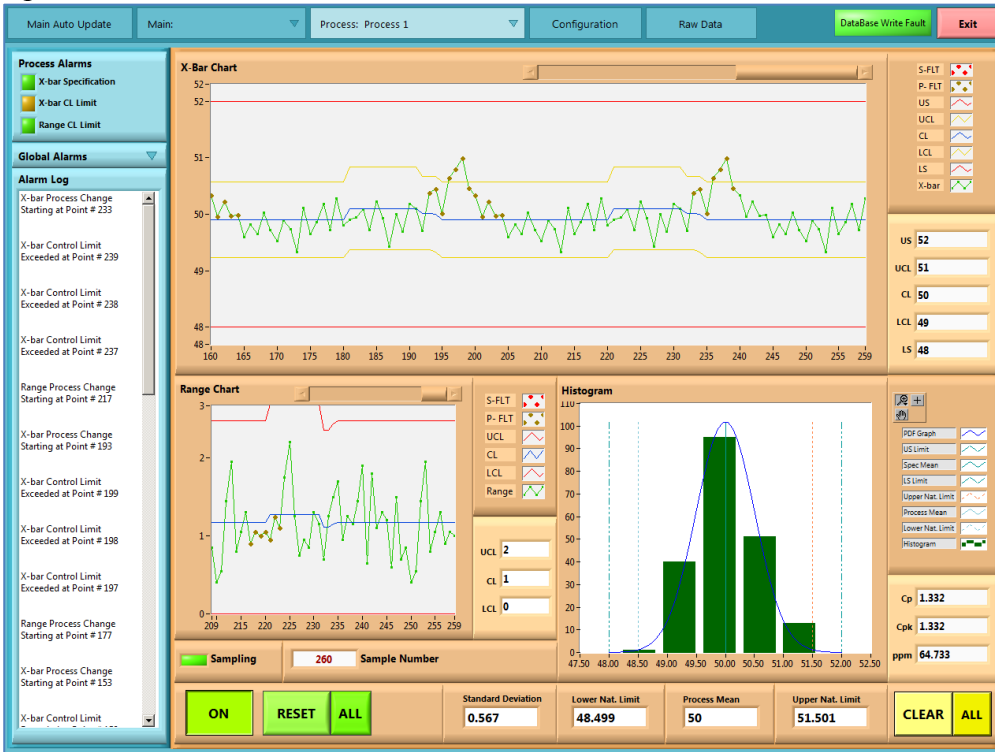


Figure 6-1: The Process Page for “Process 1”.

### 7-1 Enabling a Process

The **On/Off** button on each process’s tab on DQCsys Operator enables or disables a process. If this button is labelled “ON”, the process is currently enabled. (Figure 6.1-1) When a process is enabled, DQCsys Operator will then accept incoming process data.



Figure 6.1-1: The **On/Off** Button

All Process can be turned on or off by clicking the **All ON** or **All OFF** on the **Configuration** page. (Figure 6.1-2)

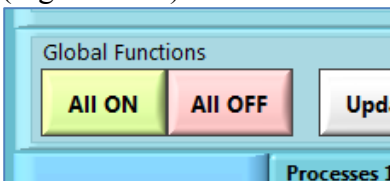


Figure 6.1-2: The **All ON** and **All OFF** Buttons

## 6.2 Clear a Specific Process

To clear the data displayed on a particular process's charts and alarms, click the **Clear** button (Figure 6.2-1) on the corresponding process's tab. A confirmation popup will appear. Click **OK**.



Figure 6.2-1: The **Clear** Button

## 7-3 Clear All Processes

To clear the data displayed on all process's charts and alarms, click the yellow **All** button (Figure 6.3-1) located next to the **Clear** button on any process tab. A confirmation popup will appear. Click **OK**. This can also be done on the **Configuration** page by clicking **Clear All** button. (Figure 6.3-2)



Figure 6.3-1: The Yellow **All** Button.

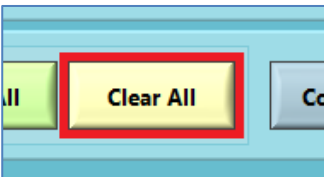


Figure 6.3-2: The **Clear All** Button

## 7 Process Alarms

Alarms provide a real-time feedback whether the incoming data into DQCsys Operator exceed the specifications of the recipe. Each process has four alarms: General, X-bar Specification, X-bar CL Limit, and Range CL Limit.

### 7.1 Global Alarms

Each process's global alarm can be accessed on any process page by clicking **Global Alarms**.

(Figure 7.1-1) A process's global alarm is triggered when one of its specific alarms have been also triggered.

If only the X-bar CL Limit Alarm triggered, the global alarm will be **yellow**. If X-bar Specification Alarm and or Range CL Limit Alarm are either triggered, the global alarm will be **red**.

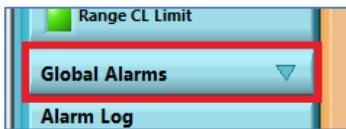


Figure 7.1-1: The **Global Alarms** button.



Figure 7.1-2: The Process

### 7.2 Specific Alarms

A process's specific alarms are visible on the **Main** page or (Figure 7.2-1) the process's own page (Figure 7.2.1-1).

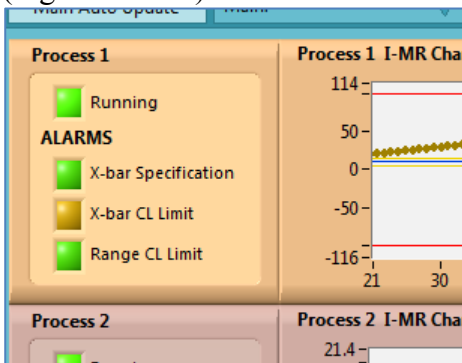


Figure 7.2-1 Process 1's specific alarms; X-bar Specification, X-bar CL Limit, and Range CL Limit Alarms on the **Main** tab.

### 7.2.1 X-Bar Specification Alarm

The X-Bar Specification Alarm is triggered **red** if a point on the X-Bar chart is outside the Upper and Lower Specification. The point that triggered this alarm is coloured **red** on the X-bar/I-MR Chart.

### 7.2.2 X-Bar Control Limit

The X-Bar Control Limit Alarm is triggered **yellow** if a point on the X-Bar chart is outside the Upper and Lower Control Limits. The point that triggered this alarm is coloured **yellow** on the X-bar/I-MR Chart. (Figure 7.2.1-1)

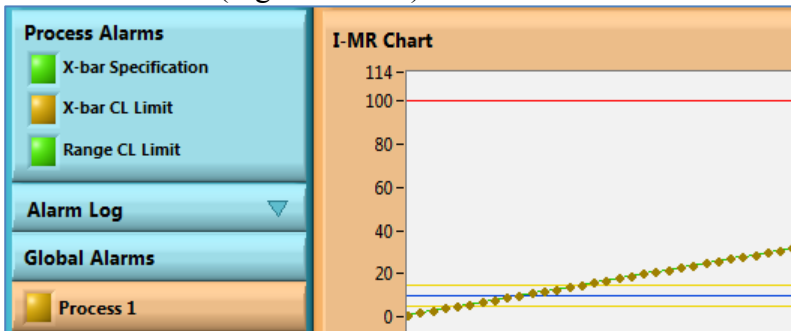


Figure 7.2.1-1: The Control Limit Alarms is triggered.

### 7.2.3 Range Control Limit

The Range Control Limit Alarm is triggered **red** if a point on the Range chart is outside the Upper and Lower Control Limits. The point that triggered this alarm is coloured **red** on the Range Chart. (Figure 7.2.3-1)

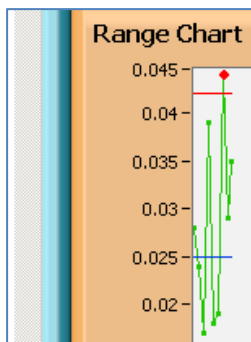


Figure 7.2.3-1: Range Control Limit is triggered.

### 7.3 Alarm Log

Each process's alarm log is displayed on their own process page. To view a process's alarm log, click the **Alarm Log** on that process's page. (Figure 7.3-1)]

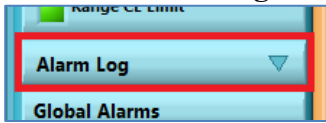


Figure 7.3-1: The **Alarm Log** button

A Process's Alarm Log provides a more detailed presentation of an activated alarm. It includes the data point number where the alarm has been triggered on the X-bar and Range Charts. Process shifts are also indicated on the Alarm Log. (Figure 7.3-2)

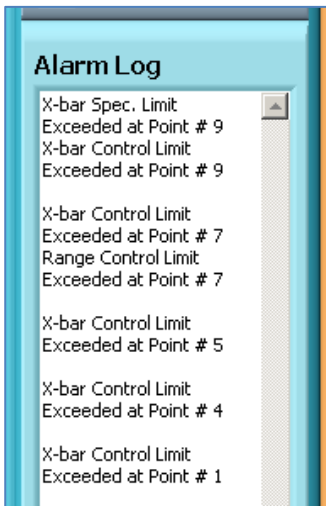


Figure 7.3-2: The **Alarm Log** field

### 7.4 Reset Alarms

To reset a specific process's alarms, click the **Reset** Button (Figure 7.4-1) on the corresponding process's tab.



Figure 7.4-1: The **Reset** Button.

### 7.5 Reset All Alarms

To reset the alarms of every process simultaneously, click the green **All** button (Figure 7.5-1) located next to the **Reset** button on any process tab. This can also be done on the **Configuration** page by clicking **Reset All** button. (Figure 7.5-2)



Figure 7.5-1: The Green **All** Button.



Figure 7.5-2: The **Reset All** Button

## 8 Web Server

The data processed by DQCsys Operator can be view remotely through the web browser. This section will describe how to use this feature.

### 8.1 Requirements

The following lists the requirements to allow others to view the data being processed by Operator using their web browser.

- Both computers, the one running and the one viewing DQCsys Operator, must be connected to the same network.
- The computer name or the IP address of the computer running Operator must be known by the person viewing Operator remotely.
- DQCsys Operator must be currently running.
- The firewall of the computer running Operator must have port 80 opened. Check Windows Firewall as it is most commonly used. For troubleshooting purposes, you may want to turn firewall temporarily.

#### 8.1.1 Opening Ports on Windows Firewall

This section will guide you on opening port 80 in **Windows Firewall** on Windows XP Pro SP3 and Windows 7 Pro if you wish to allow other computers accessed the data being processed by Operator through the web browser.

The following steps will guide you in opening a port in Windows XP Pro SP3:

1. Click the **Start** button. Then click **Control Panel** on the start menu. (Figure 8.1.1-1)

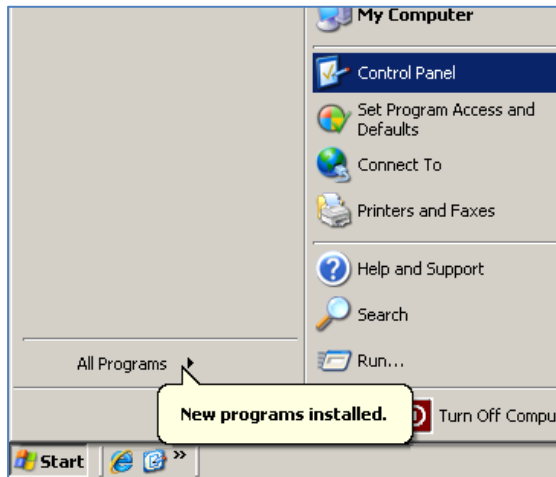


Figure 8.1.1-1: Accessing the **Control Panel** Window



2. The **Control Panel** window will appear. Make sure the Control Panel is set to Classical View. Scroll to find and click on the **Windows Firewall** icon and text.

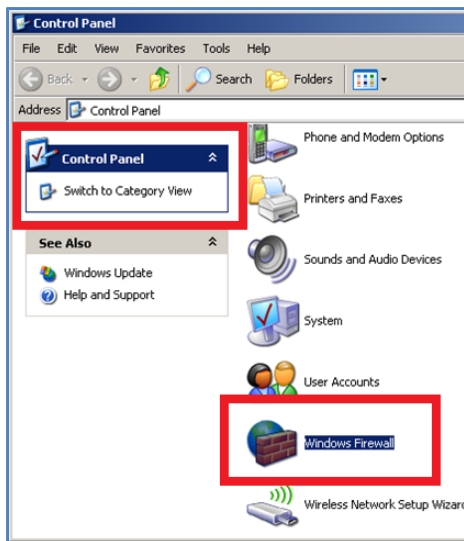


Figure 8.1.1-2: Accessing the **Windows Firewall** button.

3. The **Windows Firewall** window (Figure 8.1.1-3) will appear. Make sure the **On** option is selected and the **Don't allow exceptions** checkbox is not checked. Then, click the **Exceptions** tab.

**Please note:** For troubleshooting purposes, to turn the firewall off is an option. Just, select the **Off** option and click **OK**.

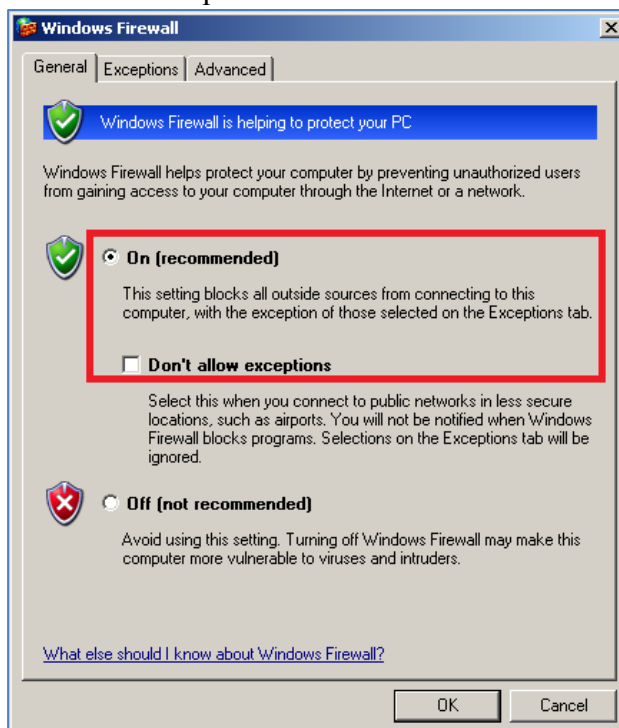


Figure 8.1.1-3: The **Windows Firewall** window

- Click the **Add Port...** button on the **Exceptions** tab of the **Windows Firewall** window. The **Add a Port** window (Figure 8.1.1-4) will appear. Enter the following information and click **OK**:

**Name:** DQCsys Operator Web Server

**Port number:** 80

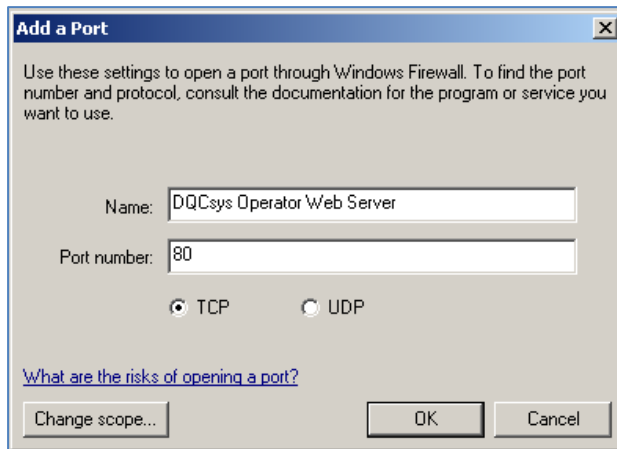


Figure 8.1.1-4: The **Add a Port** Window.

- On the **Windows Firewall** window, click **OK**.

The following steps will guide you in opening a port in Windows 7 Pro:

- Click the Start Button and search for **Windows Firewall** on the Start Menu's search bar. The **Windows Firewall with Advanced Security** item will appear. Click it. (Figure 8.1.1-5)

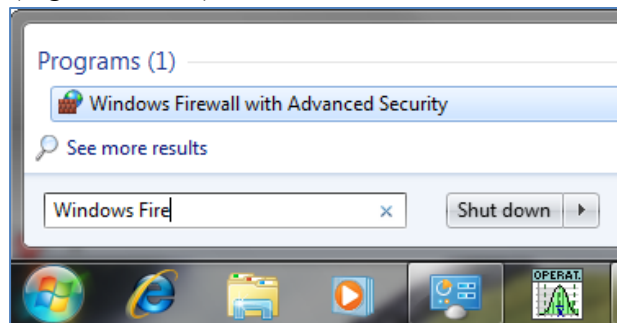
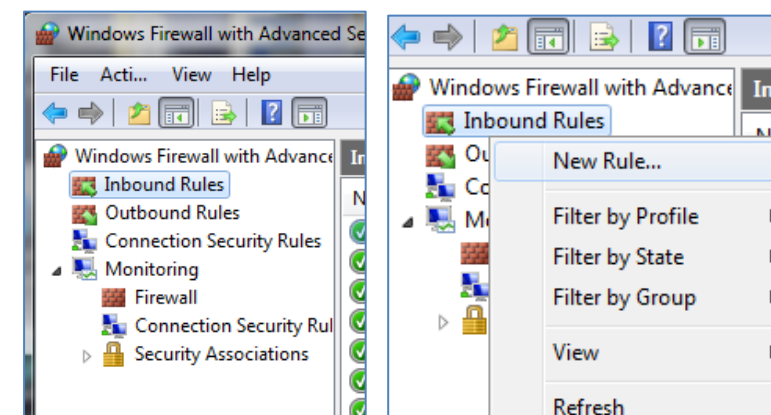


Figure 8.1.1-5: Accessing **Windows Firewall with Advanced Security** window.

- Click on **Inbound Rules** and then right click and select **New Rule...** (Figure 8.1.1-



6)

Figure 8.1.1-6: Accessing **New Inbound Rules Wizard**.

3. The **New Inbound Rules Wizard** appears, select **Port** (Figure 8.1.1-6) and then click **Next** on the **New Inbound Rules Wizard**.

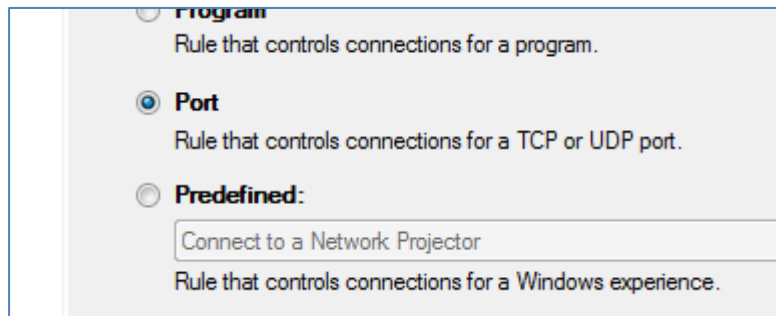


Figure 8.1.1-6: Selecting **Port** on the **New Inbound Rules Wizard**

4. Then select **Specific local ports**, and then enter “80” (Figure 8.1.1-7). When finished, click **Next**.

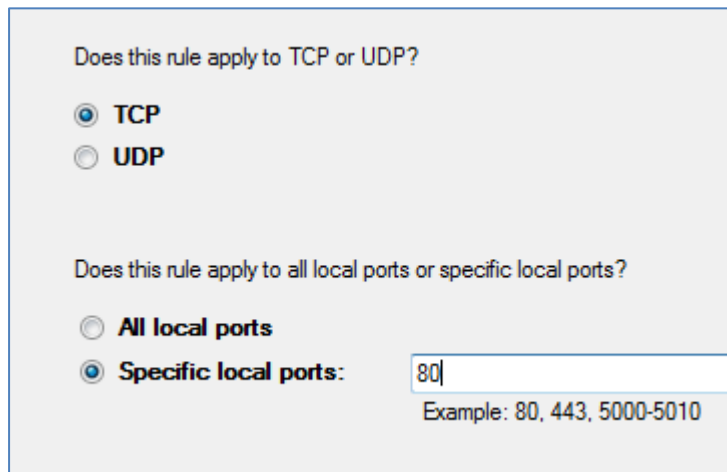


Figure 8.1.1-7: Select Specific local ports.

5. Continue clicking **Next** on the **New Inbound Rules Wizard** window. On the last step of the wizard, enter “DQCsyst Operator Web Server” as the name of this inbound rule and click **Finished**.

## 8.2 How to View Remotely

The following steps will guide you in accessing DQCsys Operator remotely. Before starting, be sure to meet the requirements on [8.1 Requirements](#).

1. Open your web browser of your choice. Windows Internet Explorer will be used in this example.
2. Go to one of the following address below replacing COMPUTER with either the computer name or IP address of the machine running DQCsys Operator. (Figure 8.2-1)

http://COMPUTER  
 http://COMPUTER:80  
 http://COMPUTER/index.html

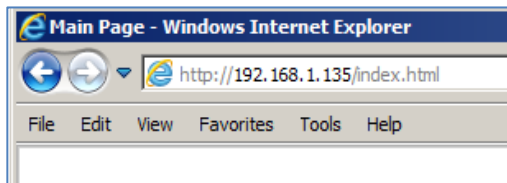


Figure 8.2-1: Example address where the computer running DQCsys Operator has the IP address: **192.168.1.135**

## 8.3 WebStation Main Page

On the main webpage, scroll down to view each a summary of each process which includes the X-bar Chart, Histogram, Process Status and Alarms. To quickly go to a process's summary; click the process's name in the **Station Status** table as seen in Figure 8.3-1.

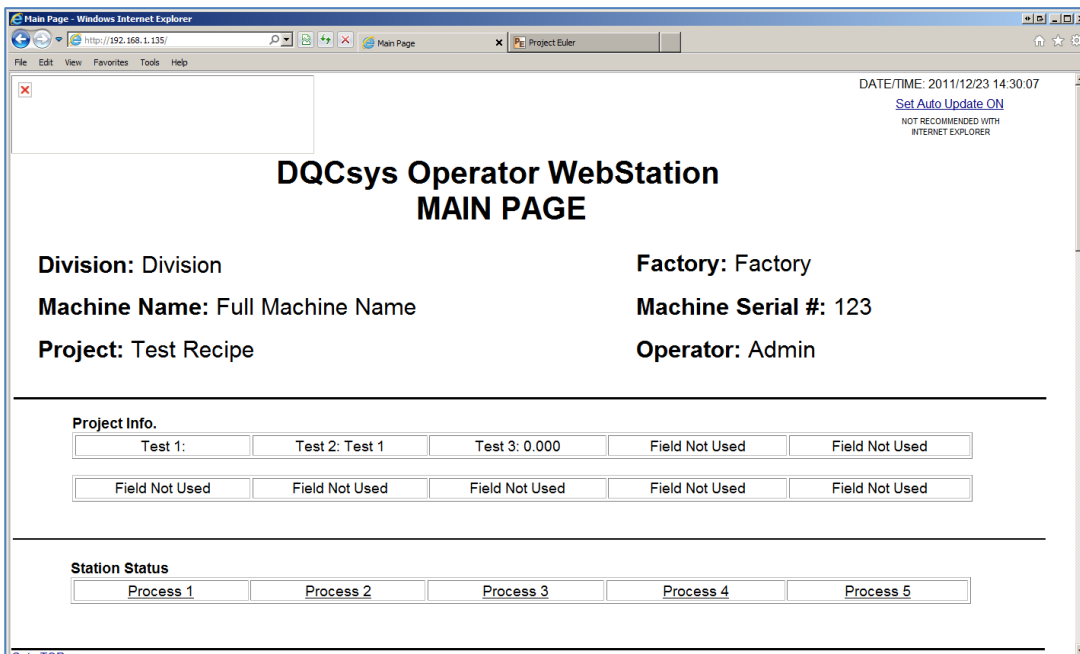


Figure 8.3-1: The **DQCsys Operator WebStation Main Page**

## 8.4 Process Webpage

On each process's webpage, its process alarm log and range chart can be additionally viewed. Also, larger images of the X-bar/I-MR chart and Histogram are displayed on this page.

To visit a process's web page, click the hyperlinked process's name. For instance, in Figure 8.4-1, clicking on the link indicated by the red box will take you to **Process 1**'s web page.

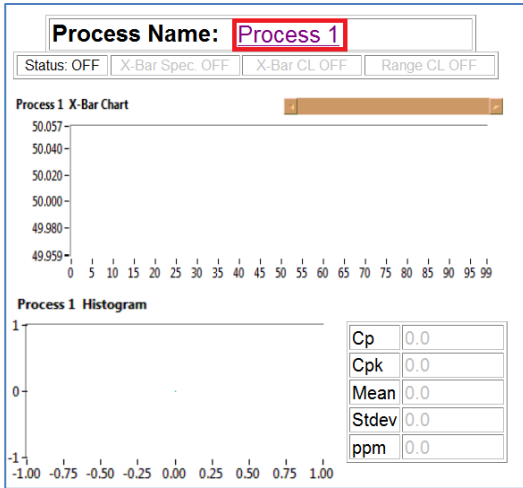


Figure 8.4-1: Process 1's summary on the Main Page.

To return to the main webpage, click on the **DQCsys Operator WebStation** Link, see Figure 8.4-2.

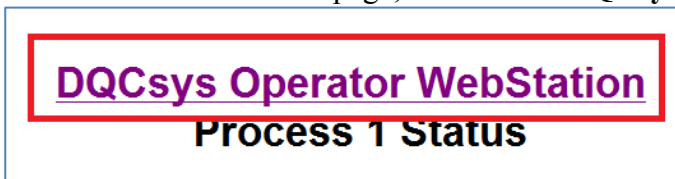


Figure 8.4-2: The **DQCsys Operator WebStation** link

## 8.5 Auto Update

To have the page automatically refreshing itself, click the **Set Auto Update ON** link; see Figure 8.5-3. To turn this feature off click the **Set Auto Update OFF** link. The most current data on the webserver will be displayed when reloading any page on the webserver.

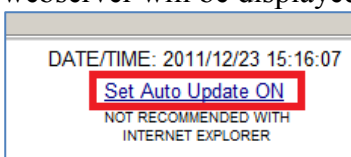


Figure 8.5-3: The **Set Auto Update ON** link

## 8.6 Custom Logo

A custom logo can be placed on the top left of every page on the webserver by placing a JPEG image file called "logo.jpg" in the My Documents folder. The resolution of the image should be 308px x 80px.

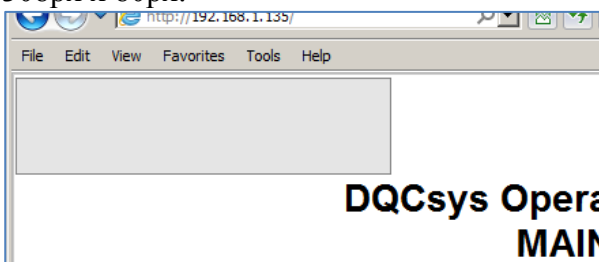


Figure 8.6-1: The grey box indicates the size and location of the custom logo on the webpage.