MilramX Users Manual

Introduction

This manual describes how to use the MilramX website to setup and control automated data transfers between systems.

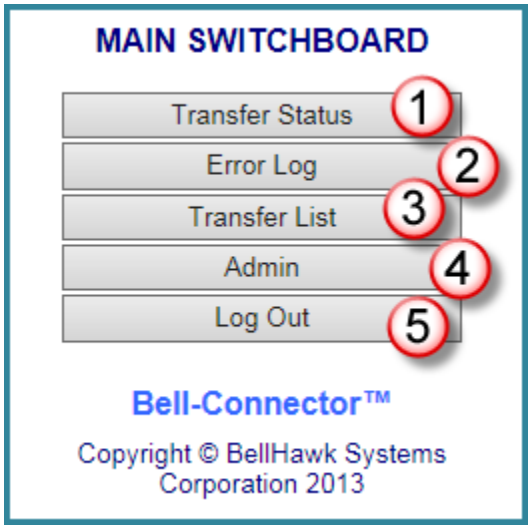
Please note that the MilramX Control and Monitoring website, and the Launcher that uses the data the website sets up, are now common programs used for all data transfers. Please see the document "MilramX Technical Overview" for details of how the MilramX works.

Logging In as Administrator

To use the MilramX Website, simply point the web-browser on your PC or other device to the URL of the MilramX. You can access the MilramX from anywhere you have Internet access to this website to perform remote maintenance. It works best on a PC or tablet but, in a pinch, this will work on an Android phone.

You will first see the MilramX splash screen as shown here. Click on Please Click Here to Continue and you will see the Login screen:

Enter User Name: Admin and Password: BellHawk. Later you will be able to, and should, change the Administrator's password. Once logged in as Administrator you will come to the Main switchboard shown here, which provides the following functionality:



1. Ability (1) to activate DTO transfers (if you are an administrator) or to control existing DTO transfers if you are a user.
2. Ability to view the list (2) of errors that have occurred in the transfers.

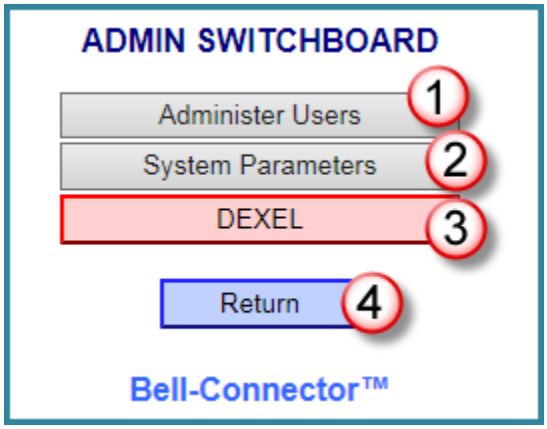
3. Ability to view the list of pending transfers (3) that have been placed on hold due to transfer errors and to correct the transfers before resubmitting them.
4. The Admin switchboard (4) that is only accessible to the systems administrator. Used to setup the available transfer functions and DTOs, as well as users.
5. A button (5) to log users out from the MilramX Website.

Admin Functions

These are reached through the Admin button on the main switchboard. These are only available to the systems administrator (Sys Admin).

Admin Switchboard

This is appears as shown at right. From this switchboard, the Sys Admin can:

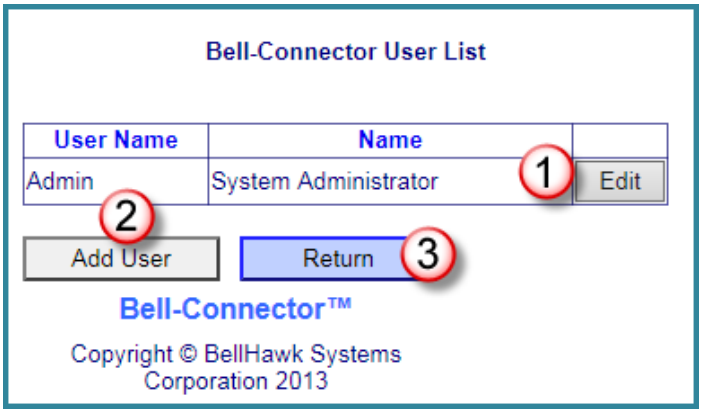


1. Create or edit users (1)
2. Setup System Parameters (2)
3. Import and Export data (3)
4. Return to the next highest level (4)

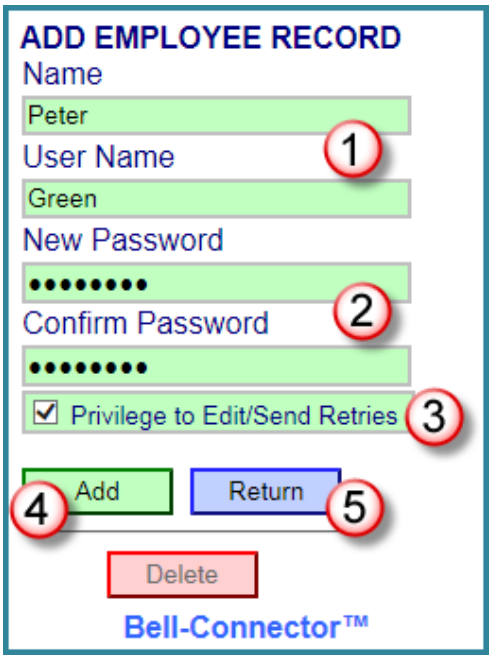
We have now moved the full WebDexel capability into the MilramX Website so that it can be used for maintain the MilramX Control database as well as enabling the development of metadata for reading and writing different databases.

Setting up Users

If the Administer Users button is selected then the screen shown at right appears. From this screen the Sys Admin can edit existing user entries (1) including changing the Sys Admin password, Add a User (2) or Return to the previous screen (3).



If Add User is selected then the screen shown at right appears:

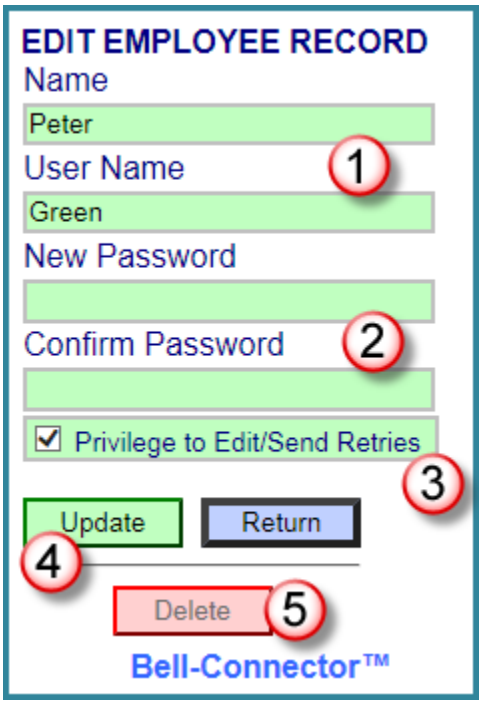


On this screen the Sys Admin can enter a User's name (1) and password (2) and set whether this user has the privilege to Edit/Send Retries(3).

Then the Sys Admin can Add the new user (4).

Please note that the blue Return button (5) simply returns to the prior page so it is important to select the Add button (4) to save the new user before returning.

After selecting Add or selecting the Edit button from the list of Users, the screen shown at right appears:



On this screen the Sys Admin can change the users name (1) or password (2) or their edit/send retries privilege (3).

Then these changes can be saved by selecting the Update button (4).

A User can also be deleted by selecting the Delete Button (5).

Setting Up Systems Parameters

This System Parameters page, which is reached from the Admin switchboard, is used to setup system parameters related to error reporting from the MilramX transfer function.

The error reporting mechanisms that the transfer function uses are:

- Logging the error in a daily log file
- Logging the error in the error log table in the BC Control database so that the error can be seen through the BC Website interface
- Sending an Email message to the system administrator for MilramX
- Outputting a message to the console interface on the system that the transfer function is running (useful during testing and debugging of new DTOs).

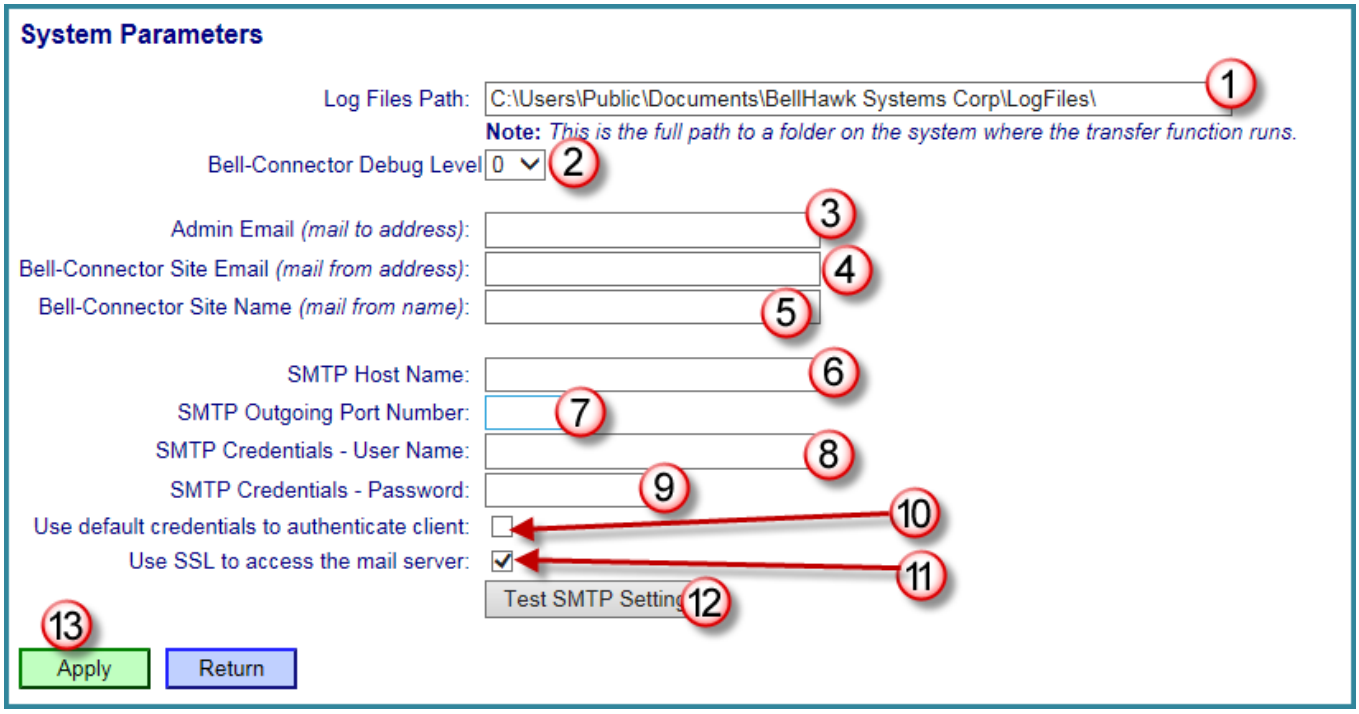
The transfer function has the capability to report three levels of message:

1. Error – the execution of the DTO could not continue as some system or severe operations level error was detected and execution of the transfer function needed to be terminated.
2. Warning – a data error has been detected but the DTO was able to continue – possibly with errors in the data transfer.
3. Informational – used to track the execution of a DTO during debugging

The treatment of these messages is set by the Debug Level as follows:

- Debug = 0 log error messages in the log file and error log table and send an Email message to the systems administrator. This is the default
- Debug = 1 log error and warning messages in the log file and error log table and send an Email message to the systems administrator when errors occur. Also display error and warning messages in the console window.
- Debug = 2 log all messages in the log file and error log table and send an Email message to the systems administrator when an error occurs. Also display all messages in the console window.
- Debug = -1 log error and warning messages in the log file and error log table and send an Email message to the systems administrator when errors occur.
- Debug = -2 log all messages in the log file and error log table and send an Email message to the systems administrator when an error occurs.

These are supported by settings on the System Parameters setup page as follows:



1. The Log Files Path (1) sets the full path to the folder where the transfer function writes its daily log-files. This should be an existing folder where the user-name for the MilramX transfer process has write permission.
2. The Debug Level sets the Debug level for error reporting, as described above.
3. The Admin Email (3) sets the Email address to which transfer functions warnings and errors are sent.
4. The MilramX Site Email (4) can be any legitimate Email address. For the Email to pass through many Spam filters this needs to be a real Email address on a mail server that is not Blacklisted or is Whitelisted.
5. The MilramX Site Name (5) is to identify the site originating the Email for an Administrator with multiple MilramX sites.
6. The SMTP Host Name (6) is the URL of the Mail Server to which the Email will be sent.
7. SMTP Outgoing Port Number (7) is the port number to which mail messages are sent
8. The SMTP Credentials User Name (8) and Password (9) are those required by the SMTP mail server.
9. Use default credentials to authenticate client is checked (10) if the “from” Email is automatically authenticated by the SMTP server (usually not for security reasons).

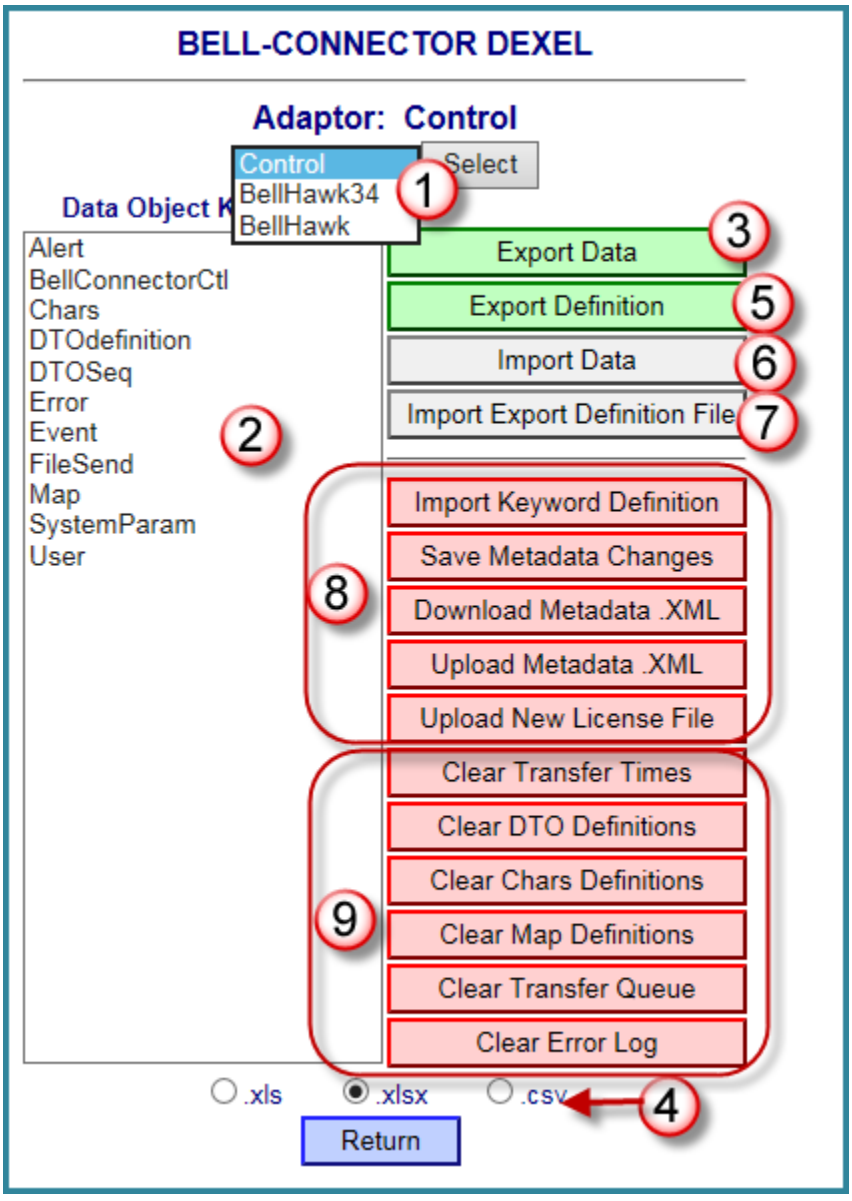
10. Use SSL (secure socket layer) to access mail server (11) is checked if the SMTP port accepts SSL or TSL protocols.

11. Send a Test Message (12) via the SMTP server.

12. Finally select [Apply] (13) to setup these system parameters.

These parameters can be changed at any time from this screen.

DEXEL Functionality



The three primary purposes of DEXEL are:

1. To maintain the Control database
2. To be able to examine data in the databases being connected by DEXEL as high level business data objects.
3. To be able to develop the metadata files that are used to translate between low-level data in each of the databases and the high-level business data objects.

The features of DEXEL are:

1. To provide the ability (1) to select between the Control database and any of the other databases or adaptors specified in the [Adaptors] section of the MilramX Website's Initialization file (see MilramX Installation and Configuration Manual for details). After selecting the adaptor from the drop-down list of available adaptors, select the Select button to connect the DEXEL functionality to that database.
2. The panel "Data Object Keywords" (2) shows the keywords for the High Level Data Objects (HLDOs) that are currently defined in the XML metadata file for the selected database adaptor.
3. After selecting an HLDO keyword entry in the panel (2), all the data for that HLDO can be exported to your local PC by selecting the Export Data button (3). The exact behavior will

depend on your browser but with most browsers you will be able to save or view the resultant dump of All of the active business objects of the selected type. By default, the export is done as an Excel spreadsheet but different formats can also be selected (4).

4. You can also export the HLDO definition for the selected HLDO keyword from panel (2), which lists all the parameters for the HLDO and how they relate to the underlying database.

5. If you need a more complex data export, you can also import an Excel File (5) which specifies what data to export. This is described in detail in the DEXEL section of the BellHawk System Administrators manual and will not be repeated here.

6. If the business object definitions are setup for writing as well as reading, you can import a data file (6) and have it update entries in the selected database. This is also used to import the DTO definitions as well as the mapping, characters, and sequence tables used by the BC supply chain integrator option, in the Control database, using an Excel spreadsheet.

7. All the features marked with (7) are used for maintaining or the developing XML metadata. This is described in detail in the HLDO Users Manual.

8. The features marked with (7) can be used to clear tables in the Control database. This can be very useful when testing out interfaces.

Note that when the definition for an HLDO is imported, all of the parameters are replaced. Any parameters omitted from the import will not appear in the XML metadata. This is different from importing Excel spreadsheets containing data, where a D in the first column will cause the deletion of the specific data record. Do not use a D in the first column of a keyword definition as this will be reported as an error and the input line ignored.

Setting up Available DTO Transfers

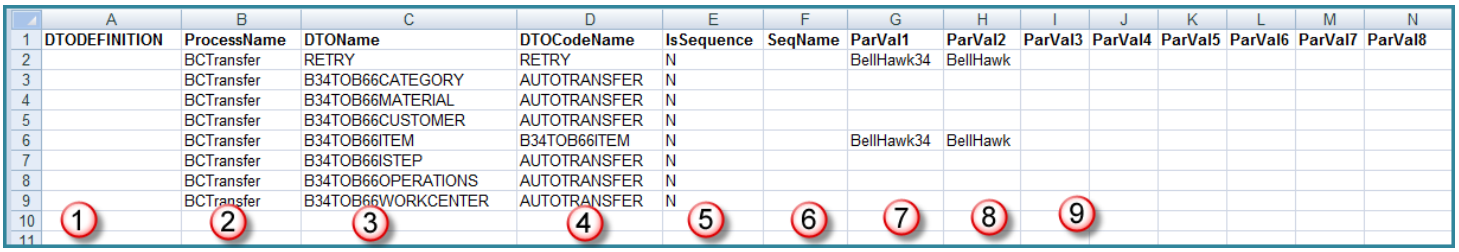
MilramX (BC) supports three types of DTO instance:

1. DTOs written in .Net code and linked with the BC transfer function code to form an executable transfer process.

2. Pre-Programmed DTOs which are included in the transfer function code. These include the RETRY DTO, which retries failed transfers, and the AUTOTRANSFER DTO which performs automated mapping of parameters between DTOs based on mapping tables imported in the form of Excel spreadsheets. Both these are available with the SCI (supply chain integrator) option.

3. Sequences of DTO instances to be executed by the transfer function, as described in the user manual for the SCI option.

The setup data for these DTO instances is provided in an Excel file containing DTODEFINITION data, as shown here:



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	DTODEFINITION	ProcessName	DTOName	DTOCodeName	IsSequence	SeqName	ParVal1	ParVal2	ParVal3	ParVal4	ParVal5	ParVal6	ParVal7	ParVal8
2		BCTransfer	RETRY	RETRY	N		BellHawk34	BellHawk						
3		BCTransfer	B34TOB66CATEGORY	AUTOTRANSFER	N									
4		BCTransfer	B34TOB66MATERIAL	AUTOTRANSFER	N									
5		BCTransfer	B34TOB66CUSTOMER	AUTOTRANSFER	N									
6		BCTransfer	B34TOB66ITEM	B34TOB66ITEM	N		BellHawk34	BellHawk						
7		BCTransfer	B34TOB66ISTEP	AUTOTRANSFER	N									
8		BCTransfer	B34TOB66OPERATIONS	AUTOTRANSFER	N									
9		BCTransfer	B34TOB66WORKCENTER	AUTOTRANSFER	N									
10	1	2	3	4	5	6	7	8	9					
11														

When BellHawk Systems provides a pre-built MilramX transfer function, such as for an interface to QuickBooks, it will provide this setup file with all the available DTOs for the interface. But, those users developing their own set of DTOs and/or using the auto-transfer DTO will need to create this file.

This set of available transfers is imported into the MilramX website using the DEXEL functionality and is stored in the MilramX Control database. This file follows the standard Excel data import and export formats used in BellHawk. An empty “template” file can be obtained by exporting the DTODEFINITION data object using DEXEL. The DTO entries can then be added to this file before importing this setup file.

This Excel file contains all available DTOs in the transfer function. The MilramX systems administrator, however, need only activate those DTOs that are needed for a specific installation.

The entries in this file are used to drive the setup data for each DTO. In this way a wide variety of DTOs and processes can be supported. Please note that if the DTO name is the same as the Process Name, then this means that the transfer process is an entity with no subdivision into a number of DTOs.

The meaning of each of the columns in this Excel file are:

1. The keyword for this metadata is DTODEFINITION (1)
2. The Process Name (2) relates to a section in the Launcher’s initialization file. This section gives the name of the executable transfer function file to be run. Here we simply refer to it by its name, such as BHQBI. The path to the corresponding executable is then looked up by the Launcher in its initialization file with the same section name. The website can control transfers being performed by multiple different transfer processes, each containing a number of DTOs.
3. The DTOName (3) is the instance name for the DTO. Multiple DTO instances can share common DTO code but be executed with different parameters at different times. By convention we name these in the form B2QVEND, where this is the BellHawk To {2} QuickBooks transfer of Vendors. This is what appears to a user of MilramX as the DTO name.
4. DTOCodeName (4) is the name of the DTO class object that is run in the transfer function when it is launched by the launcher.

5. IsSequence (5) Y/N indicates that this DTO instance is a sequence of DTO instances as specified in the DTOSeq table which is imported into MilramX using DEXEL. This feature is only available with the SCI option.

6. SeqName (6). If IsSequence = Y then this is the name of the sequence of DTO instances to be executed.

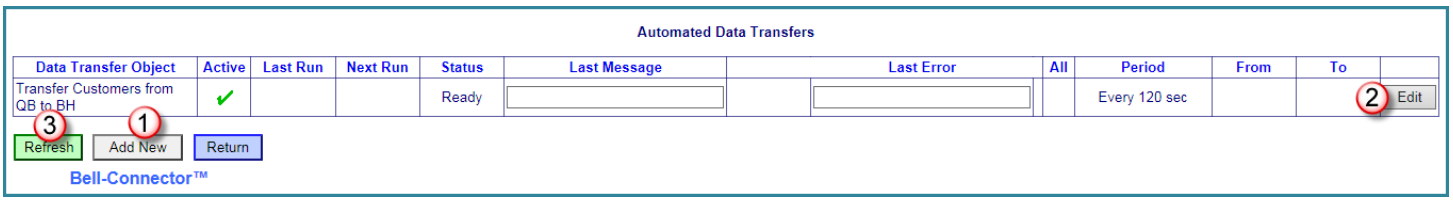
7. In addition to providing the transfer function with the DTO Name, there can be up to 8 optional parameters (ParVal1, ParVal2, etc.). These can used for anything the developer of the DTO code wants. By convention ParVal1 (7) contains the name of the source adaptor and ParVal2 (8) contains the name of the target adaptor, with the other parameters (9) being used for application specific parameters.

Please note that Adaptor Names are not needed for auto-transfer DTOs as these are specified in the mapping table. Also the DTO code name is not needed for DTO instances which are sequences of other DTOs.

For DTOs instances with a corresponding code DTO , we have mostly two adaptors, in columns (7) and (8). The concept is that a common DTO code object can be used to move data between different databases, based on the Adaptor names. MilramX is not limited to just a source and destination and can support interactions with multiple source and target adaptors at the same time, in which case the additional parameters are used to specify the additional parameter names.

Setting Up Transfer Functions and DTOs

DTOs are activated from the Transfer Status button on the Main Switchboard. This brings up a list of DTOs that have been added to the installation, and their status, as shown below:



From the above screen, Sys Admin users can:

1. Add new DTO transfers (1). This can only be done by a Sys Admin

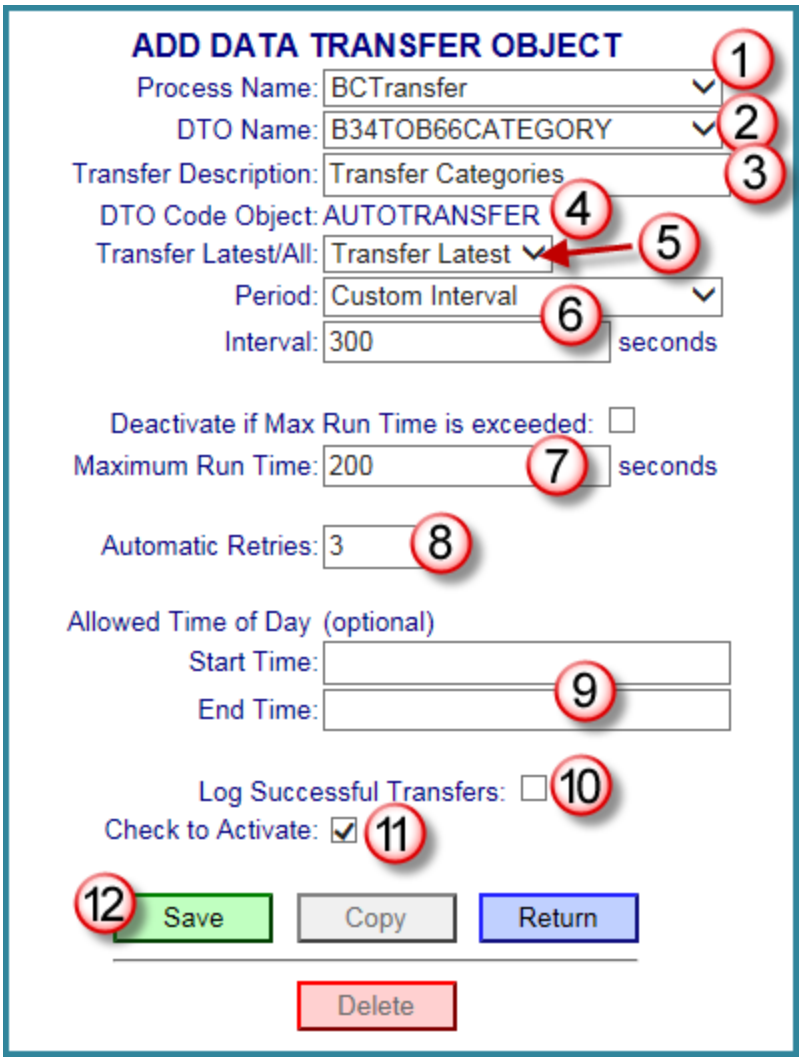
2. Edit existing DTO transfer entries (2) using their Edit buttons.

3. Refresh the screen (3) so as to be able to see the latest status of the DTOs transfers.

Selecting Add New brings up the screen shown on the next page.

On this screen, Sys Admin users can:

1. Select the Process Name (1) and the DTO Name (2) come from those entries that have been pre-loaded into the Transfer Definitions table.



2. Enter a description of the DTO (3) to appear in the list of transfers. The name of the DTO Code instance is then shown (4)

3. Select whether to transfer just the latest updates from the source database or all entries (5). MilramX tracks the time at which it last transferred data for each process and DTO and, if it can, only picks up the latest updates to the source data.

4. Select One Time, Daily or Custom interval for the transfer (6)

   If this is a custom interval, select the interval in seconds between attempted runs of the transfer process/DTO. If the launcher is set to only run one process at a time then this is the interval at which the DTOs will be queued; but they will not be run until their turn comes up. DTOs are run in a run-robin schedule to ensure all DTOs get a fair opportunity to be run.

   In general the intervals for transfers should be set to allow one transfer to compete before the next one begins. This typically means allowing several minutes between transfers.

5. If the Launcher is set to only run one transfers process at a time then you can set the maximum allowed run time (8) after which the Launcher will attempt to kill the process and move onto the next DTO in the queue. Because excessive run-time is often an indication of problems with accessing a source or destination database, it is usually a good idea to set the checkbox to deactivate the DTO if the maximum time is exceeded. The DTO can then be manually activated once the problem is resolved.

6. Sometimes the source for the transfer is unavailable. In this case the launcher will attempt a number of retries (8) before the situation is logged as an error.

7. If it is desired to limit the times of day between which transfers with this DTO can occur, then specify the start and end times in hh:mm 24 hours format or in hh:mm AM or PM

format. (9). This also sets the time at which DTOs to be run once or daily will be run. If a time range is not specified, then these DTOs will be run as soon as they are active.

8. With the SCI, HLDO instances being transferred can be placed in a transfer queue before being transferred to the output to the target system. Normally the transfers are deleted from the transfer queue once they are successfully transferred but it can be valuable, especially when testing, to leave the successful transfers in the transfer queue, by checking (10), and just mark them as having being successfully transferred. These transfers can then, subsequently, be manually deleted if needed.

9. When DTO transfers are defined they can be left in inactive status. Selecting the checkbox (11) puts them into active status, ready to be run on an appropriate schedule. Please note that DTOs selected for execution on a once only basis have their Activate flag cleared after the transfer function completes execution.

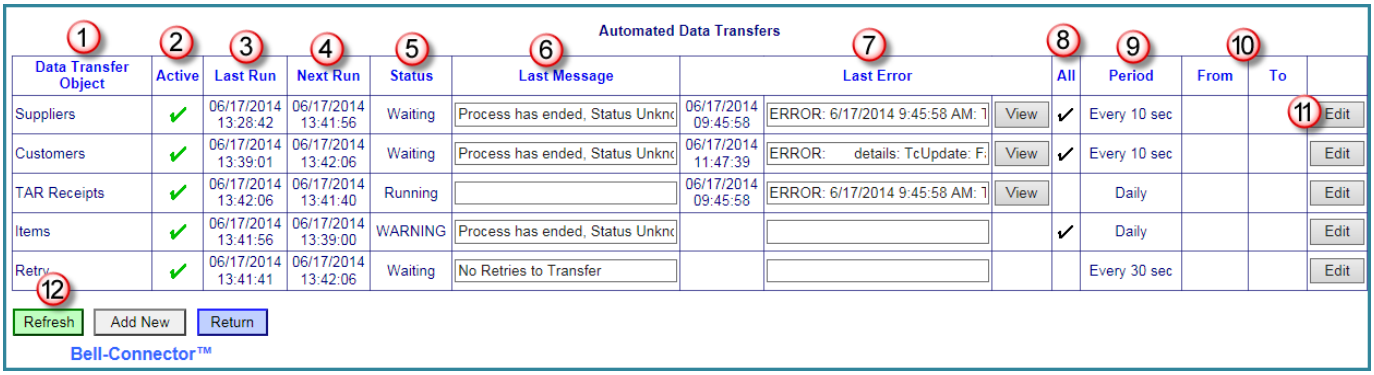
10. Finally selecting the Save button (12) causes the DTO transfer information to be saved.

After the DTO transfer has been saved, it can be edited, set to active or inactive, Copied or Deleted. Note that it is possible to have multiple transfers setup using the same DTO but with different parameters.

All of the DTO transfers, so defined, appear in the Automated Data Transfer list. Those that are active appear with a check mark in this list.

Users who are not systems administrators can view the automated data transfers and their status but cannot edit the DTO transfer parameters.

Monitoring Automated Data Transfers



Once DTO transfers are setup, the Launcher will automatically take care of running the Active DTOs and report their status, as shown above. Here:

1. We see the name of the DTO (1) and whether it is active (2).

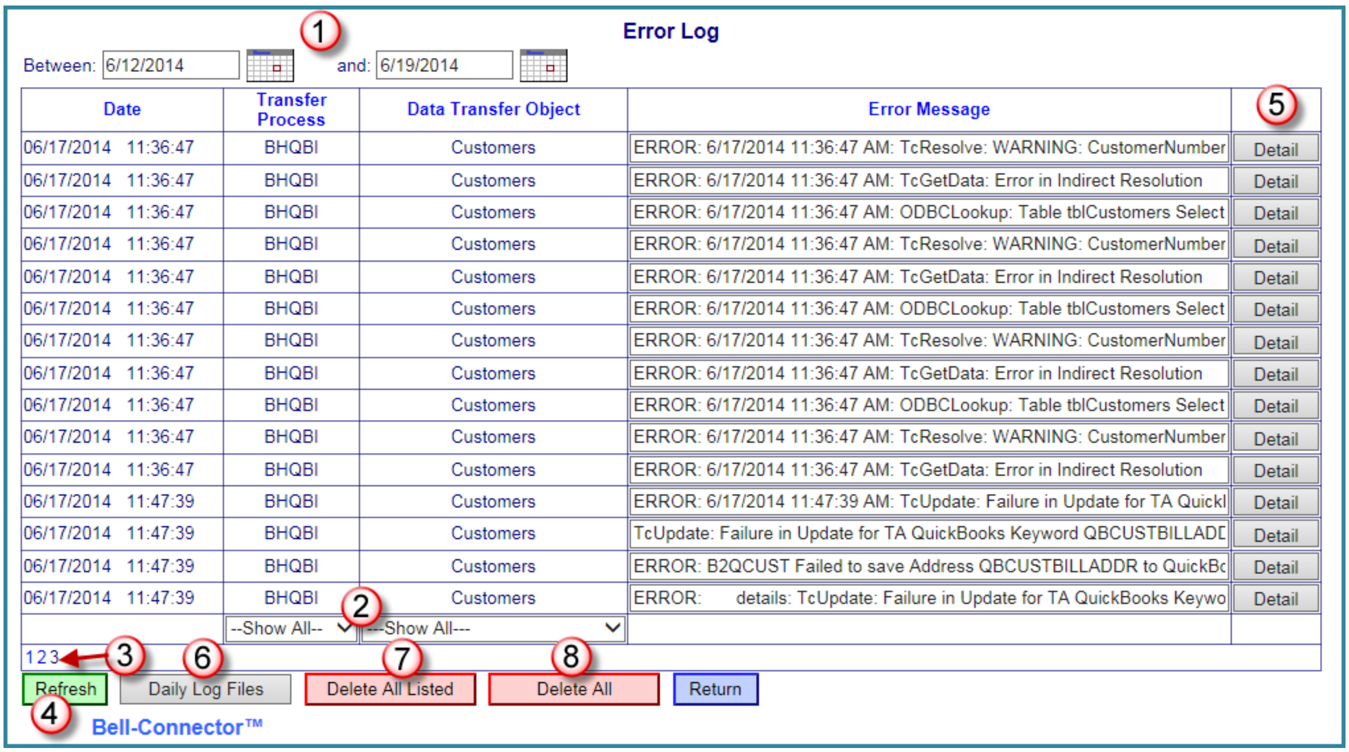
2. The last time that the DTO was run (3) and the next time it is scheduled to be run (4)

3. The status (5) of the DTO and the last message (6) from the Transfer Function or the Launcher about this DTO.

4. The last error message logged by the DTO (7). Note that this may be from a prior run, so compare the time of the last error message with the last run time.
5. Whether All objects are to be transferred or just the latest (8)
6. The period with which the DTO will be run (9) and the times of day when it will be run (10).
7. The buttons (11) through which the DTO transfer setup can be edited.
8. A Refresh button (12) to refresh the screen so as to display any changes.

The Error Log

This is reached from the Error Log button on the main switchboard

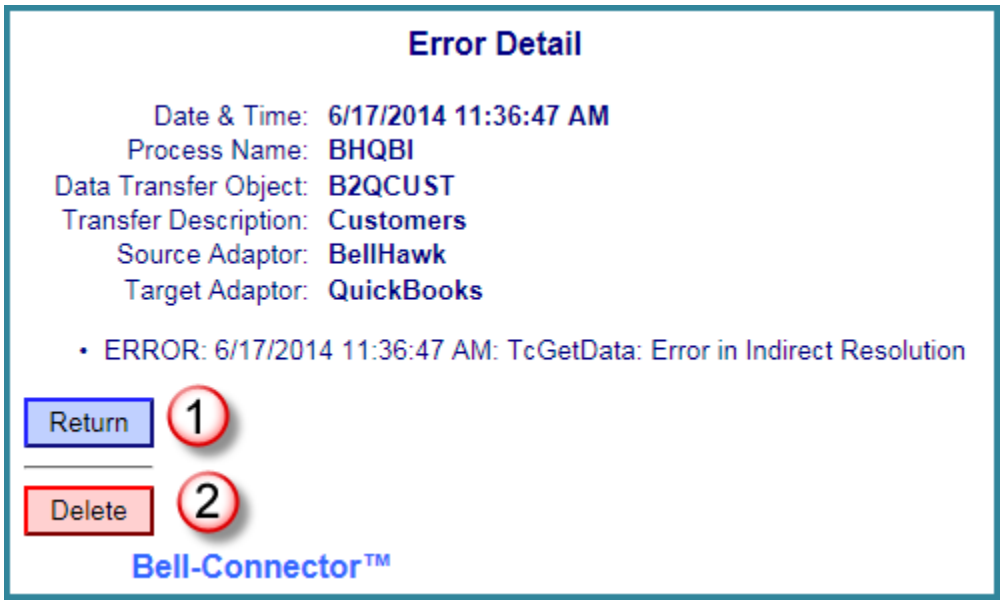


On this screen:

1. Users can select a date range to view errors (1)
2. They can filter on Transfer Process and DTO Name (2)
3. They can select amongst multiple pages of error Listings (3)
4. They can refresh the listing (4)
5. They can look at the error in more detail (5)
6. An Administrator can download a daily log file for the transfer function (6)

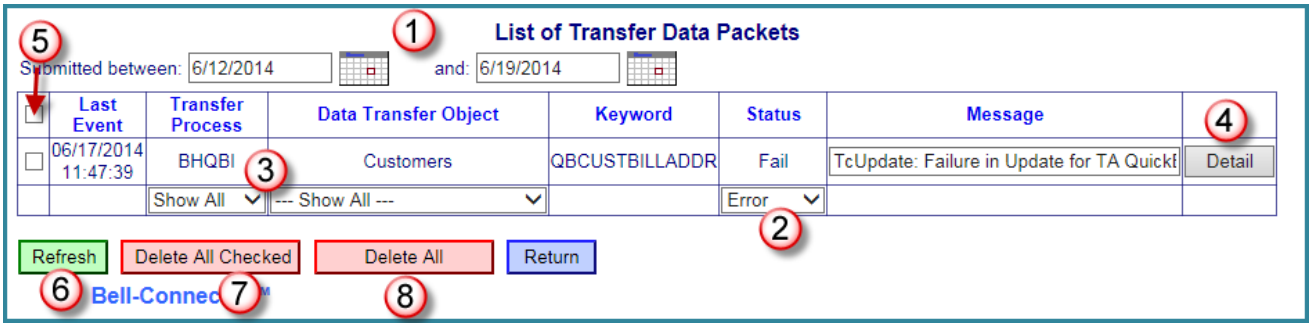
7. Administrators can delete all entries currently shown (7)
8. Administrators can delete all error entries in the error log (8).

From the above screen the details for the error can be seen, as shown below:



From the detail screen, a user can simply return (1) but an administrator can delete the error message (2).

Viewing the Transfer Queue



This can be viewed from the Transfer List button on the main switchboard.

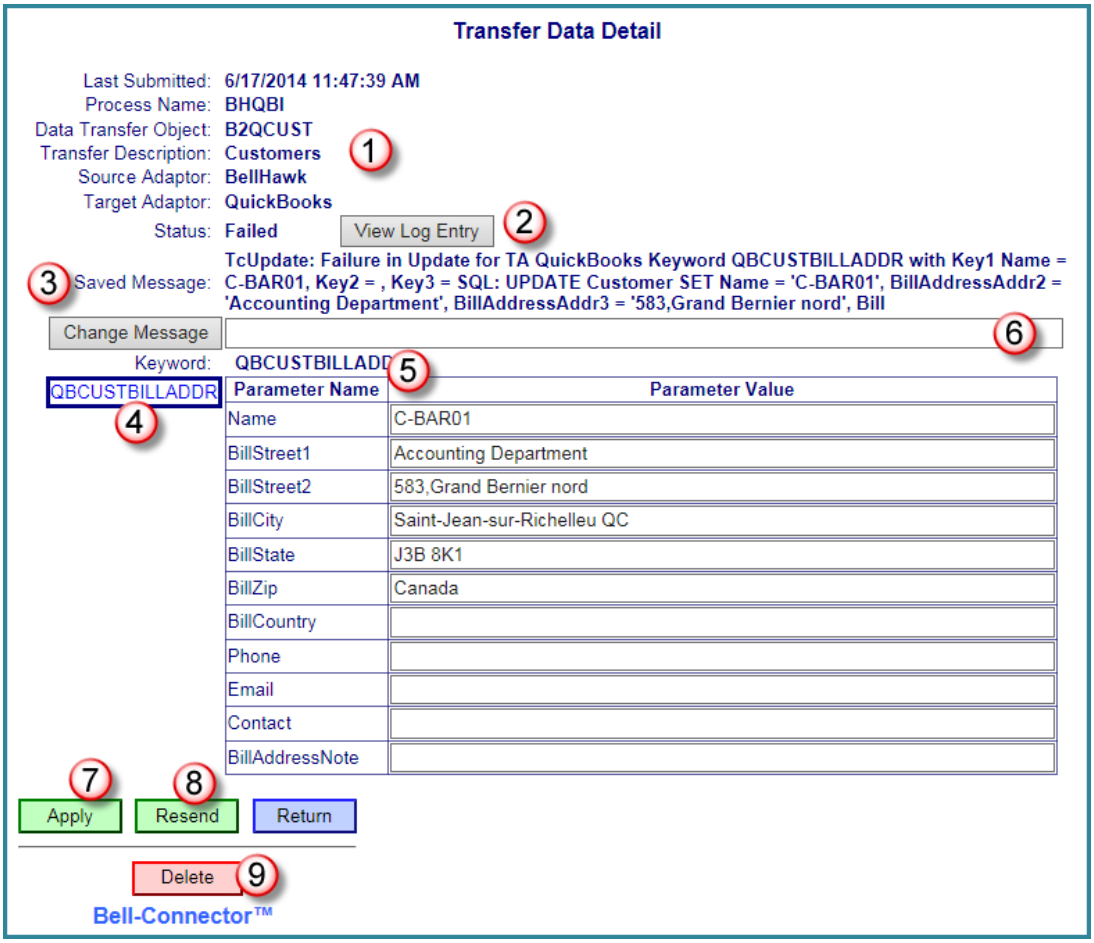
This shows all the transfers in the queue between the dates selected (1). By default, it only shows the transfers with Errors, but transfers with different status settings can be selected (2) or all entries in the queue can also be selected. Entries for just a single transfer process of data transfer object can also be selected (3).

This screen auto-refreshes. It can also be manually refreshed using the Refresh button (6).

The transfer detail (4) can be used to view the details of the transfer and edit the transfer object, if needed, before resending.

Administrators can also delete transfers (7) which are checked (5) or delete all transfers in the queue (8). If the header row is checked then all visible entries are checked.

The Detail button for each entry on the above screen brings up the Transfer Detail screen shown below:



Here:

1. We have details of the DTO and the Process (1)
2. We have the status of the DTO, with the opportunity to View the corresponding Error Log Entry (2), if there is one.
3. We see the Saved Message reported by the Transfer Function (3)
4. The Keyword of the data object being transferred (4)

5. An administrator or a user with permission can edit the parameter values (5) for the data object, to correct the problem, and enter a changed message (6) before applying the changes made to the transfer object (7).
6. An administrator or a user with permission can then mark the data object for resending (8).
7. If the entry is no longer needed to be transferred then an Administrator can delete the transfer queue entry (9).

Commentary

In using the MilramX website to monitor the transfers, it is important to recognize that there are three parallel processes running:

1. The MilramX Website
2. The Launcher
3. The Transfer Function

These are all working asynchronously on the Control database. So sometimes, for example, a user will click on an entry in the transfer queue to see more details only to find that the resultant detail screen is empty of data because the corresponding entry in the transfer queue has been transferred and deleted by the transfer function in between selecting the detail button and viewing the detail screen.

In addition there are often parallel processes, such as BellHawk and an ERP system, updating the source and destination databases asynchronously.

MilramX is a real-time application designed to handle this parallelism. But it is important to view any results displayed by the MilramX website in light of all the parallel processes involved.

