Genetix

Rearraying with Stackers

Application Guide

www.genetix.com

08MAN1093.A0
Effective Date: 11-Feb-10

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What is Rearraying?

The objective of rearraying is to **REDISTRIBUTE** collected samples into **NEW** well plates. That is, to take user-selected samples from wells on source well plates and deposit them into wells on a destination well plate as shown below.

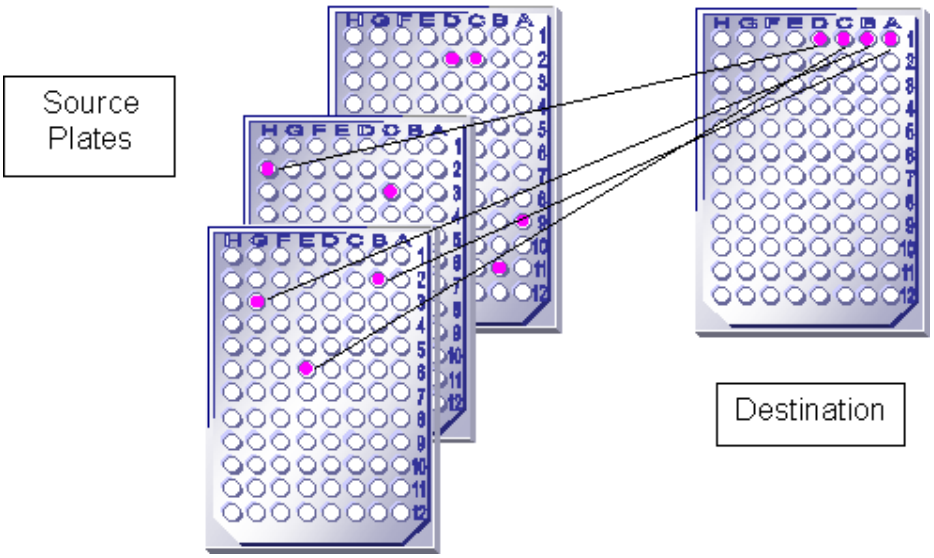


Figure 1: The Principle of Rearraying

Each cassette can accommodate up to 70 well plates, if more destination or source plates are required to complete a rearraying sequence, you will be prompted at the relevant time to replace the well plates.

Rearraying with Stackers is possible on **QPix2 XT** and **QPExpression**.

Preparing for Rearraying

System preparation

Rearraying requires the following robot accessories:

- Picking head

Before using the robot for Rearraying:

- Check that the workbed area (including stacker lanes) is clean and free from debris. The working volume of the machine should also be UV sterilized before setting up the bed for any routine, (see **General Maintenance** section in the relevant Robot Manual).
- Ensure that the silicon tube is correctly connected to the inlet pipe on the wash bath and to the outlet pipe from the replenishment bottle to the wash bath holder.
- Check the level of ethanol in the replenishment bottle.

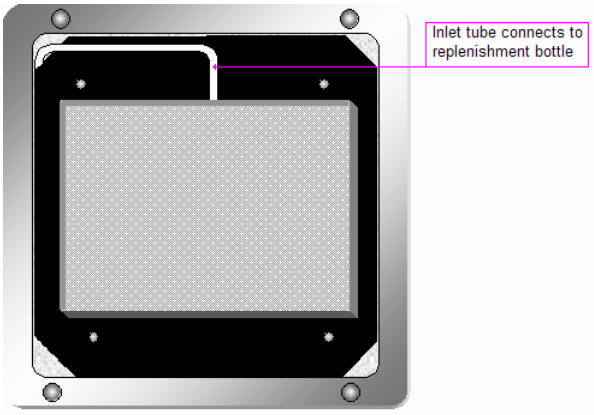
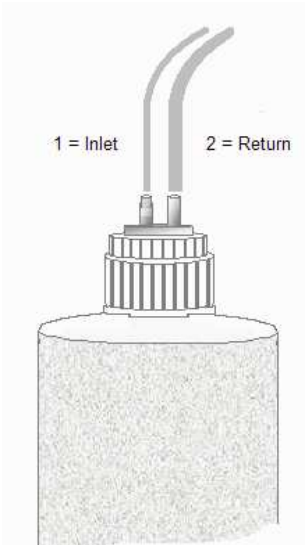


Figure 2: Wash Bath Connections



Important
Ensure that bottle cap is screwed on tightly

The Inlet tube from the wash bath is fed through the robot bed and exits from underneath the robot. The Return tube is fitted underneath the wash bath and also exits from underneath the robot. Ensure that both of the tubes are correctly fitted to the replenishment bottle

Note: The Return tube has a larger diameter than the Inlet tube

Figure 3: Wash Bath and Replenishment Bottle Connections

Fitting the Head

If the robot has been used previously for any other application, the head may need to be changed. The head must be removed and replaced with the correct head (see **General Maintenance** section in the relevant Robot Manual).

Loading Well Plates

Loading Plates into Cassettes

Each cassette can accommodate up to 70 well plates. Pre-load each cassette *off* the machine. Make sure that the plates are loaded so that well A1 is positioned front-right.

Check that the plates are correctly aligned in the cassettes to ensure smooth operation as plates are fed on to the bed.

Note: All plates must be loaded into cassettes with the lids on.

Loading Cassettes onto the Stackers

Important Note: Do not load any cassettes on to the stackers while the power is off as this will cause damage to the robot and plates, which may render your warranty invalid.

Load the cassette of plates into the right-side housing of the stacker. Make sure that the cassette is loaded so that the plates are correctly aligned with well A1 positioned to the front-right. Turn the locking knob clockwise to lock in the cassette.

Load an empty cassette into the left-side housing of the stacker to collect the returned plates. Make sure the locking knob is fully depressed into the locked position.

When all cassettes are inserted, press **each** stacker reset button (located on the end of each stacker). This will ensure that plates are correctly positioned for the run.

Defining Well Data

Note: Well data can either be "Source Data Only" or "Source **and** Destination Data".

Define Source Data Only

"Source Data Only" can be defined in one of two ways:

- Importing a Source text file

or

- Selecting wells on a plate representation

Importing a Source Text File

A data file defining the selection of source sample wells can be created *outside* the Rearraying module. This can be done using any software that produces output in text format e.g. Windows® Notepad or Microsoft® Excel®.

Note: If the data file is created using an application other than QSoft, ensure that the file is saved as a **tab delimited text** file. It may have the extension TXT or IMP.

The data file can then be imported into the rearraying module at run time. The "Files of Type" list box option may need to be changed to "All Files (*.*)" in order to locate the file.

Rearraying Import File Format (Source only)

The Rearraying Import File is made up of a list of keywords, well references and plate numbers. All keywords should be uppercase and suffixed with a colon and a space (i.e. ": "). The default import file extension is IMP, however, any ASCII file can be read.

For each plate to be rearrayed, there must be a **PLATE** keyword followed by a list of well references. The import or export file specification is as follows:

Keywords	Description
PLATE	Required – Source plate number to be rearrayed. The plate numbers must be contiguous.
BARCODE	Optional - The barcode on the plate to be checked when the plate is loaded.
COMMENT	Optional - any comments for/about this plate.
Figure 4: **An Example Import File**	PLATE: 1 BARCODE: 12345 COMMENT: Some Comments A3 B3 B9 C1 C5 D5 E7 F5 F11 G9 PLATE: 2 B3 B7 B9 PLATE: 3 COMMENT: Some notes about this plate B2 C3 D4 E5

To import the file when the Rearraying software is running, select the Source tab and click the Source Data button. The following screen is displayed:

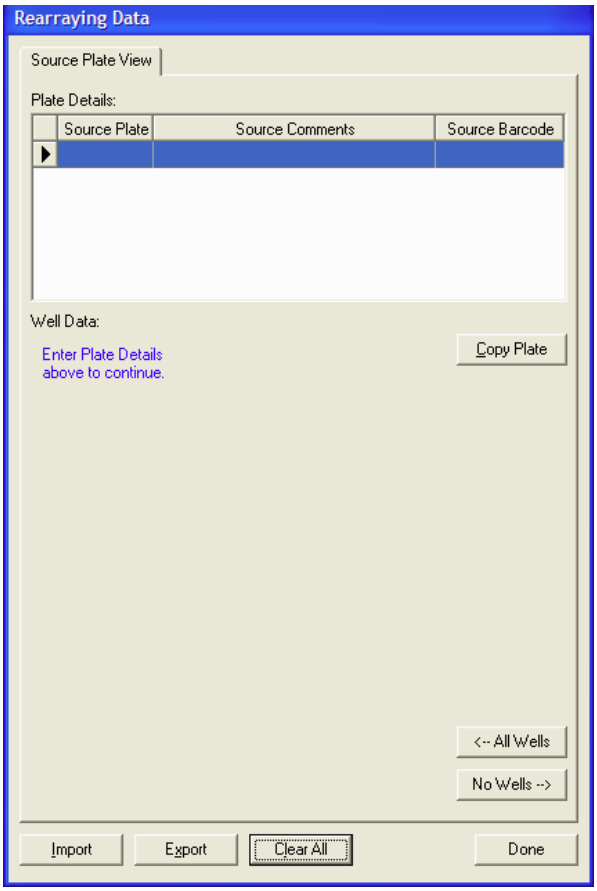


Figure 5: Rearraying Data Selection Dialog

Click the **Import** button.

If there is rearraying data already defined for the current routine, the following screen will appear:

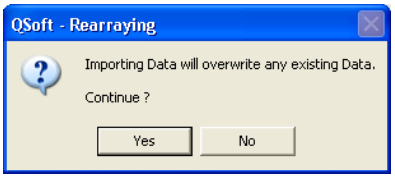


Figure 6: Import Data Message

Click **Yes** to display the **Import ReArraying Data** dialog:

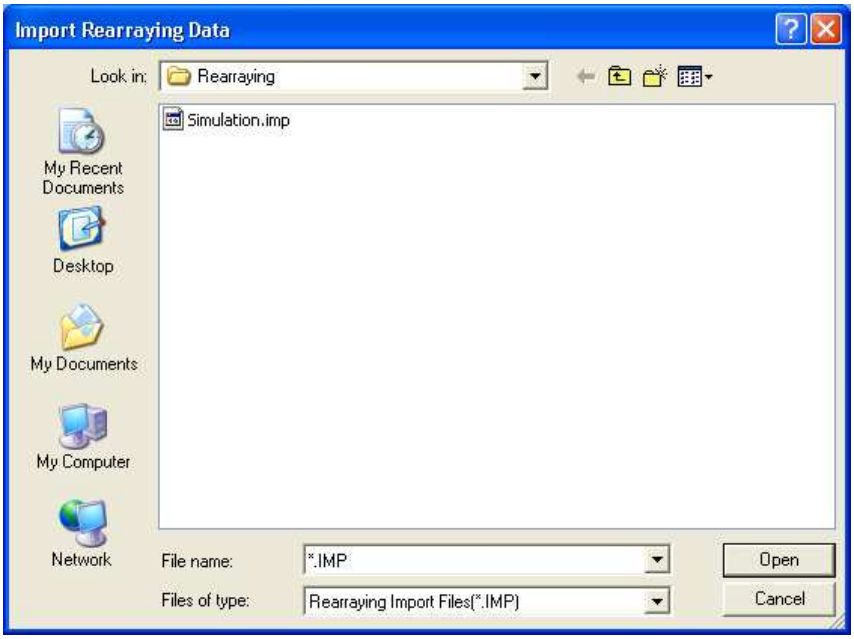


Figure 7: Import Rearraying Data

This is a standard Windows *File Open* dialog and is used to locate a prepared source data file.

Highlight the filename and Click on **Open**.

This will import all the information into the Rearraying Data Input screen. It is then possible to check the data for each plate: by clicking the plate number in the Plate Details list, every imported plate will be shown and the chosen wells are highlighted in red.

Selecting Wells on a Plate Representation

When the Rearraying software is running, select the Source tab and click the Source Data button. The following window will appear:

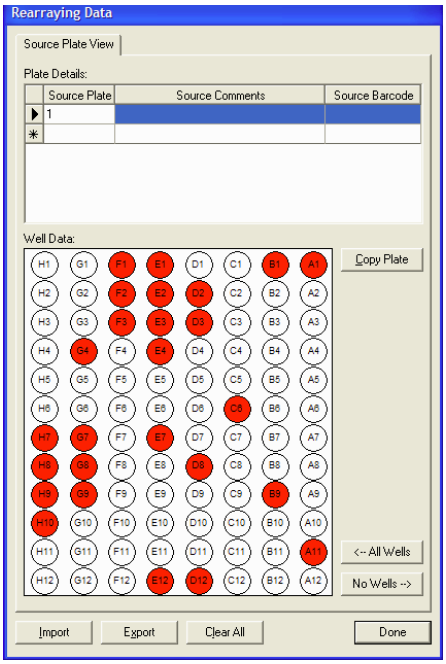


Figure 8: Rearraying Data Plate Representation

Enter the plate number (and optional plate barcode and any comments) for the plate to be rearrayed from. The data entry screen for this plate will then appear on screen.

To view the wells better, you can expand the "Rearraying Data" window by dragging one of its corners. Individual wells can then be selected/deselected by clicking on them. Selected wells are displayed in red.

Having chosen the required wells for the first plate, click the next blank row of the **Plate Details** section and the second plate can then be set up. Continue until all required plates have been entered.

Recording Barcodes

QPix2 XT and **QPExpression** have a barcode scanner fitted to the actuator, which allows barcodes to be read automatically. The barcode must be positioned on the edge of the wellplate nearest to well A1 and as high as possible towards the face of the well plate.

Barcode reading is fully controlled by QSoft applications. Barcodes are recorded to the log file for the source and destination plates.

Setting Barcoding options is described in detail in the **Barcodes** section on Page 19.

The Rearraying Run

Overview

Double click on the **QSoft** Rearraying Icon on the desktop. The application splash screen will appear.

A prompt will appear asking for a new routine to be created or to load a previously saved routine, any existing routines will be listed in the lower window.

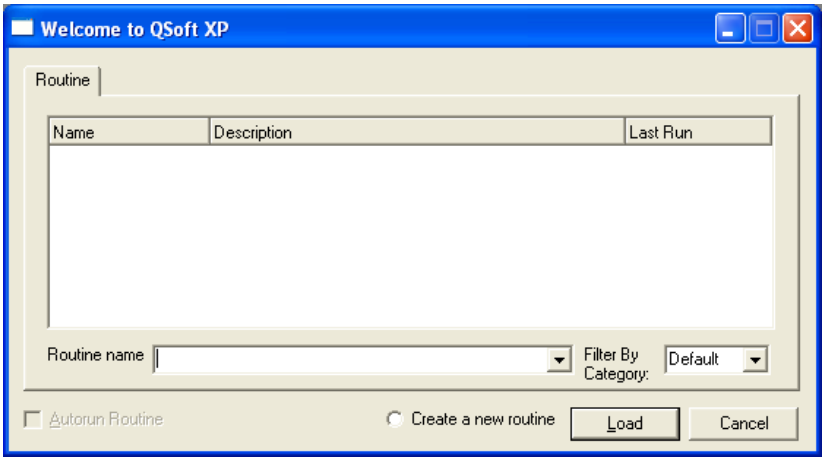


Figure 9: Welcome Prompt

Create a New Routine

Select this option then click OK. The default routine settings will be loaded, the routine can be edited then saved it if required.

Load an Existing Routine

Previously saved routines are listed here. Select this option then highlight the required routine name. Click OK to start the application with the routine settings loaded.

Autorun Routine

If this box is checked and OK is clicked the selected routine is started automatically.

Filter by category

Previously saved routines can be filtered by the category added when the routine was created.

Sign On

If the **Show at Start-up** box has been checked, the **Sign On** screen will be displayed.

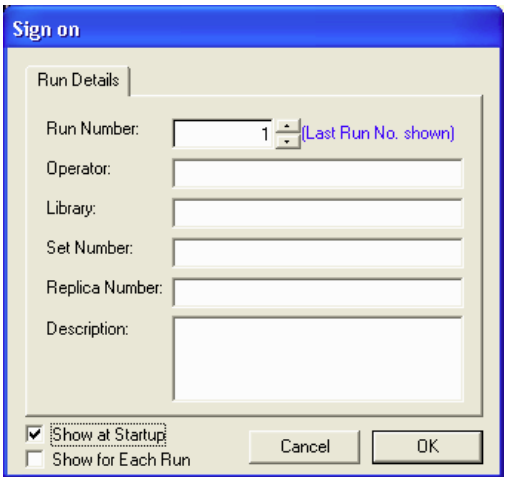


Figure 10: Sign on Dialog

Complete the Sign On screen and then click OK. The Rearraying Welcome screen will be displayed.

The Menu and Toolbar Options

Refer to **Appendix A** of this manual for details of these. More detailed information about the use of these can be found in the relevant Robot Manual.

Rearraying Setup

The Rearraying setup screen is split into tabbed dialogs. Each tab contains instructions to assist setting up the routine.

Select each tab in turn from left to right and fill in appropriate fields or select required options.

Routine

Use the text boxes to enter information about the routine being created.

Head

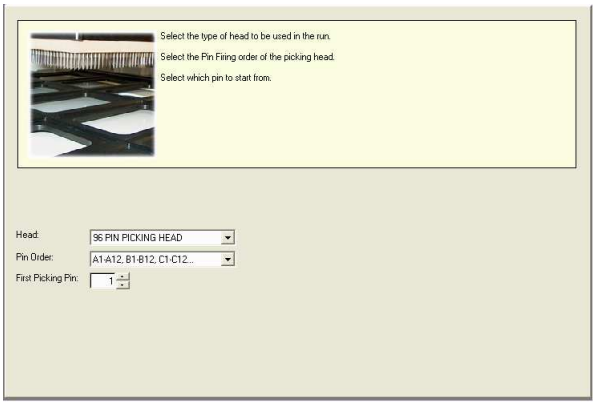


Figure 11: Head tab

Head – Allows the option to choose between the different heads available. Currently there is only 1 Head option for rearraying: 96-Pin Picking Head.

Pin Order – This option allows the order in which the pins in the Picking Head will fire to be chosen. The options are:

A1-H1, H2-A2… (snaking)

A1-A12, B12-B1… (snaking)

A1-H1, A2-H2, A3-H3…

A1-A12, B1-B12, C1-C12

First Picking Pin – Allows the starting pin to be specified. If the number of wells to be rearrayed from 1 well plate is less 96 then **First Picking Pin** shows which will be the first pin used to rearray from the next well plate.

Source

Source Settings tab

Figure 12: Source Settings tab

Source Plate - This field allows the type of source plate that is to be rearrayed from to be defined. These plates will be located in the container specified above.

Note: It is essential that the correct type of microplate be selected. Severe damage to the picking pins can result if incorrectly set.

Stir – This allows the source to be stirred prior to inking. The stir option moves the pin back and forth then side to side within a known region as defined by the following plate properties.

- WellDiameter – Well diameter (microns)
- StirAreaPC – percentage area of the well to stir in (ensure WellDiameter is correct)
- NoStirs – how many times to stir

These properties can be found by selecting the plate from the list in the configuration.

Control Data Options

- Use Defined Pins – This option allows pins to be used for control data to be specified.
- Use Defined Wells – If using a 384-well plate, defining **pins** to leave blank would mean that **4** wells would be left blank, therefore this option will allow you to specify which **wells** to use as control data.

Disable Stackers – Disable the source stacker. Note: Applicable to 2 lane robots only. Note: If using barcodes and the lane is disabled then the barcodes must be assigned in the Source Data dialog.

Source Data - Click on this to open the Rearraying Data dialog (see Page10).

Copy - Will copy the selected wells to another plate – a prompt to enter a new plate number to copy to will appear.

<--All Wells - Will select all wells on current plate.

No Wells --> - Clears all selected wells on current plate.

Import – Imports predefined source data from a text file.

Export – Allows the plate configuration data in a text file to be saved. The file is automatically given an extension .exp. The file format conforms to the same standards as import data files and can be viewed using text editing software such as Windows Notepad.

Clear All – Clears all information related to all plates.

Done – Click this button when satisfied with the data.

Prior to carrying out a Rearraying run, information relating to the wells that are to be rearrayed must be entered. The methods for doing this are described in detail in the **Defining Well Data** section on page 7.

Control Data tab

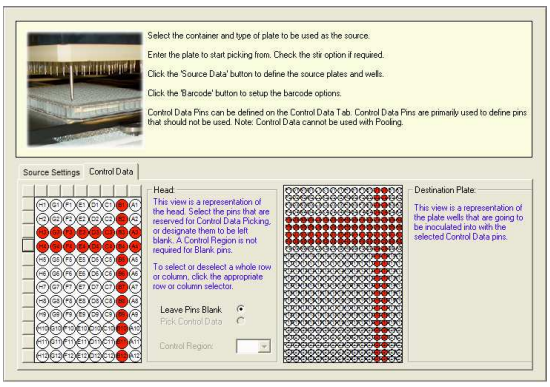


Figure 13: Control Data tab

Head

This diagram is a representation of the head with pin locations labeled. Click to select/deselect pins to be left blank.

Destination Plate

This diagram represents the selected destination plate, as pins to leave blank are selected, the corresponding plate wells are highlighted in red.

Leave Pins Blank

This is the default option in Rearraying.

Pick Control Data

This is currently not available in Rearraying.

Control Region

This works in conjunction with the **Pick Control Data** option and is not currently available in Rearraying.

Destination

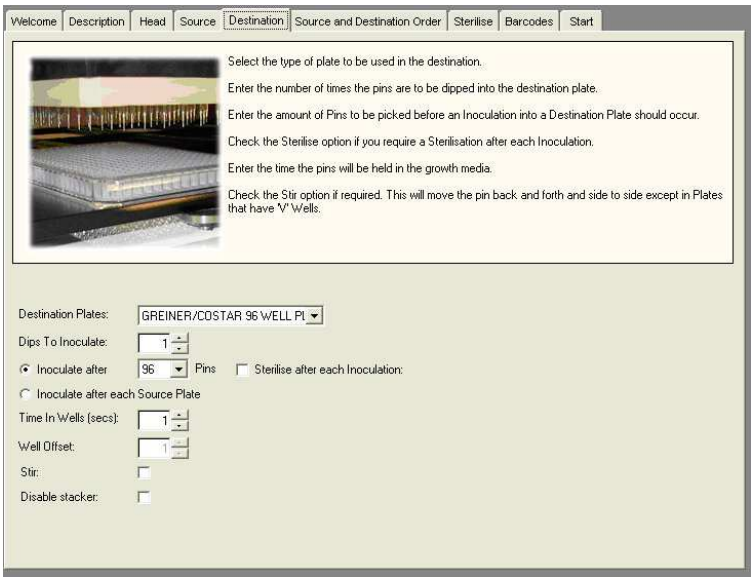


Figure 14: Destination tab

Destination Plates – This field allows the type of plates that are to be used as destination to be selected. These plates will be located in the container specified on the Source and Destination tab. There are several options available, these will vary depending on which robot you are using. If the plate type required is not in the list, it may be added by an authorized user. (See the "Configuration" section in the relevant Robot Manual).

Dips to Inoculate – In order to control the inoculation of the Destination plates, choose the number of dips that the Picking Head will make into the well plates. This setting would normally be in the range of 1 to 3.

Inoculate After – Set the number of pins to be used before each deposit.

Sterilize After Each Inoculation – Check this box if sterilizing the head after every deposit is required.

Time in Wells (secs) – Varies the time that the Picking pins are held in the Growth media in the well plates in seconds. This parameter is used in conjunction with the number of Dips to Inoculate.

Well Offset – When 384-well plates are used, the well of each quadrant to deposit into can be specified. Acceptable values are 1,2,3 or 4, the relevant well name is displayed alongside the well offset icon. The well offset can also be selected by clicking the appropriate square on the icon.

Stir – This allows the source to be stirred prior to inking. The stir option moves the pins back and forth then side to side within a known region as defined by the following plate properties.

- WellDiameter – Well diameter (microns)
- StirAreaPC – percentage area of the well to stir in (ensure WellDiameter is correct)
- NoStirs – how many times to stir

These properties can be found by selecting the plate from the list in the **Configuration**.

Disable Stackers – Disable the destination stacker.

Note: Applicable to 2 lane robots only.

Source and Destination Order

This allows the stacker options to be selected and the locations for source and destination order to be defined.

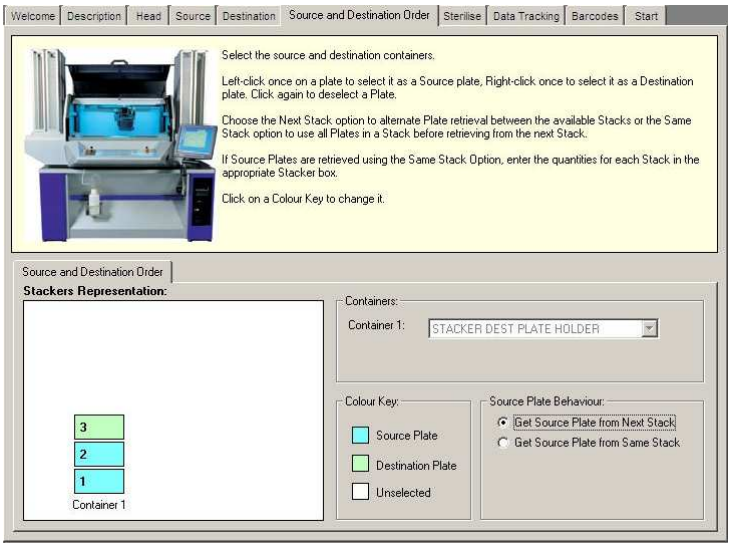


Figure 15: Source and Destination Order tab

Stackers Representation

The left-hand side of this screen shows a representation of the stacker lanes (containers) on the robot. Any lane can be defined as a source or destination stacker. Source and destination locations are defined by left-clicking (source) or right-clicking (destination) on the boxes that represent the lanes.

Containers

There is only one container on QPix2 XT and QP Expression.

Color Key

This indicates the current color selections for source, destination and unselected plate locations.

The color scheme can be changed if required by clicking on the key itself. A dialog appears that

allows new colors from the palette to be chosen or custom colors to be created.

Behavior

Get Plates from Next Stack – When this option is selected, one Source Plate will be retrieved from each Stacker in turn until all Source plates are exhausted or the run finishes. This is the traditional behavior for Source Plate retrieval.

Get Plates from Same Stack – When this option is selected, all Source Plates will be retrieved from a single Source Stacker before the next Source Stacker is used. It is necessary when using this option to indicate how many plates there are in each Source Stacker. This can be done by entering the number of plates in the box that appears on the representation of each Source Stacker (in the diagram on the left) when this option is selected.

Shuffle Source Data When Plate is out of Sequence – Using this option, it is possible to shuffle the Source Data depending on which Source Plate is retrieved from the Stacker. If Source Data for plates 1 to 4 is ordered 1,2,3,4 but the Plates are retrieved from the Stacker in order 4,3,2,1 the Source Data will be rearranged so that the correct wells are still rearrayed from the correct Source Plates. Each plate must have a unique Barcode that must also be entered in the Plates Source Data, any plate that is retrieved that does not appear in the Source Data will be returned unused to the Stacker. When using this option the source to destination well mapping cannot be predicted in advance, but it will be recorded in the log file after the run has completed.

Sterilize

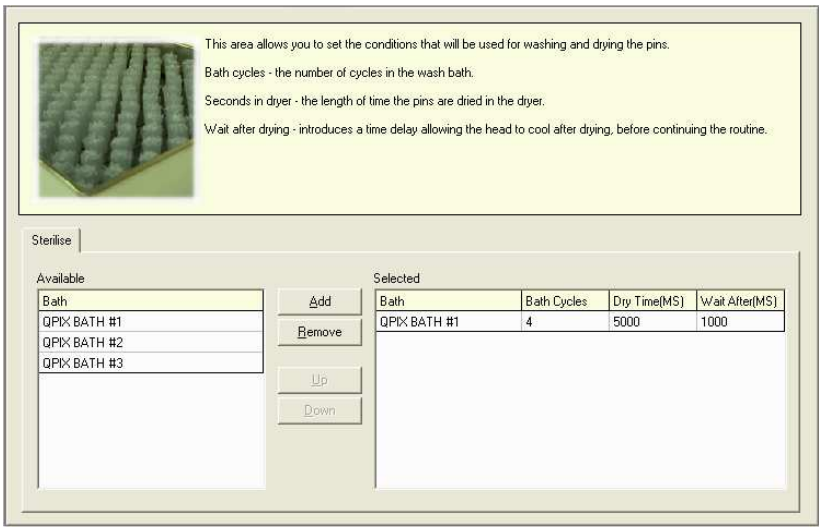


Figure 16: Sterilize tab

Available

This frame lists the available wash baths.

Selected

This frame displays the selected wash bath and allows the parameters to be changed.

The Add button includes the highlighted wash bath in the list. To alter the values, click on the relevant field and either type in a new value or use the up-down arrows to increment or decrement the value.

Bath Cycles – The number of cycles in the wash bath. Usually set to 3 or 4.

Dry Time – The length of time the pins are dried in the dryer. If the number of bath cycles is set to zero this box is disabled.

Wait After (drying) - A time delay (in milliseconds) can be introduced to allow the head to cool

after drying.

If the robot uses a halogen dryer, QSoft automatically adds to this wait time in order to allow enough time for the pins to cool properly.

This additional wait time is based on the following calculation:

- 3 Seconds + (1.5 x Dry Time)

Thus even if Wait Time was set to 0 and Dry Time was set to 5000 ms, the head would remain in the dryer for 10.5 seconds after drying.

Barcodes

Figure 17: Barcodes tab

Important Note:

The thickness of some barcode labels can affect the fit of the lid so that it becomes too tight to remove the lid. (Only applies to robots that have Stacker Units and/or Lid Lift mechanisms).

This problem does not arise with Genetix plates as they have been designed with special ribs on the lid which do not obstruct the barcode label.

To enable barcodes to be recorded, the appropriate options must be set in the Barcodes setup dialog. Select the Enable Logging option on the Source and/or Destination tabs of the Barcodes dialog.

Barcodes can be input either directly from the keyboard or using the in-line barcode reader.

Enable Logging

Check this box to enable barcode reading.

QSoft will automatically generate a unique key in the barcode field for any plate that is used during a run and the logs will display these keys in the barcode field. The 'Enable Logging' barcode reading options will overwrite this key. The keys are generated based on the current date and time and in the format UID-YYMMDDHHNNSSss-X where ss is milliseconds and YY is a two character ASCII representation of the year.

Input Method – Choose Manual if scaning barcodes with a hand held barcode reader is required or to input barcodes at the keyboard. Automatic barcode reading is possible if the robot has a barcode reader installed. If automatic barcode reading is required contact Genetix Ltd for a license.

The following options are enabled when Automatic barcode reading is selected.

Behavior Options

This section determines how QSoft will behave in the specified circumstances.

Barcode Not Found

Set required behavior if a barcode is not present.

- Manual will produce a prompt and will wait for a barcode to be input (either via the keyboard or using a hand held barcode scanner).
- Automatic causes QSoft to generate a unique barcode based on the system date and time.

Validate

Check this box to enable barcode validation.

Barcode Not Validated

- Manual will pause allowing the order of the plates being processed to be verified before continuing the run.
- Automatic, in the event of an invalid barcode the run will continue automatically replacing the expected barcode with the read barcode. These actions will be recorded in the log.

Note: If barcode validation fails a set of options will be displayed:

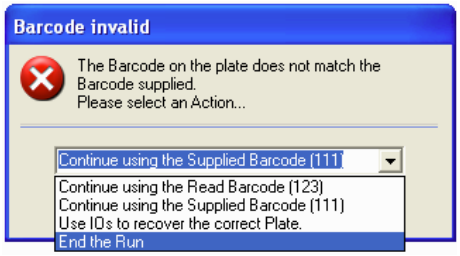


Figure 18: Invalid Barcode Dialog

Add – Creates a new row for entry of the next barcode

Remove – Deletes the highlighted entry

Import– Prompts for the name of the text file that contains the validation barcodes

Export – Creates a text file of the current list

Clear All – Removes all entries from the list

Disable Barcoding for source or destination

If Datatracking is selected, Barcoding is automatically enabled. Barcoding for a given container can be disabled – for example if barcoding the source bioassay trays is not required – by changing the **BarcodeReaderType** property this can be achieved. Do this as follows:

- Highlight the container in the **Hardware Configuration** tab
- Click the **Properties** button
- Select **BarcodeReaderType** and click the **Edit** button
- Enter **None-AutoGenerate** and click **OK**

Validate Barcodes Before Run

Barcodes of plates in a stacker can be validated against a barcode validation list.

Note: This option is only applicable if using barcoding and specifically if validate barcodes has been selected.

The plates must be loaded into the cassette in **reverse** order so that when the operation is complete, the plates in the receiving cassette are in the correct order. This facility will feed out each plate in a cassette and compare the barcode to the one in the validation list. After cycling through the cassette(s), if any barcodes do not match the sequence in the validation list, an error message will be displayed:

Figure 19: Barcode Order Error Message

The log file (whose name is given in the error message text) will show which barcodes were read and and which were expected. The plates in the cassette must be re-ordered so that the barcodes are in the correct order before the run can commence.

This option for Source and/or Destination plates can be set as follows:

- Open the Options menu and select Script Options:

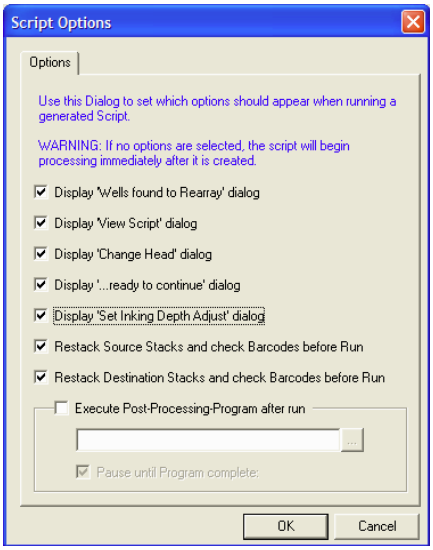


Figure 20: Script Options Dialog

- Check/uncheck "Restack Source Stacks and check Barcodes before Run" as required
- Check/uncheck "Restack Destination Stacks and check Barcodes before Run" as required

Start

Having set all of the variables, save the routine by clicking the Save or Save As button on the toolbar.

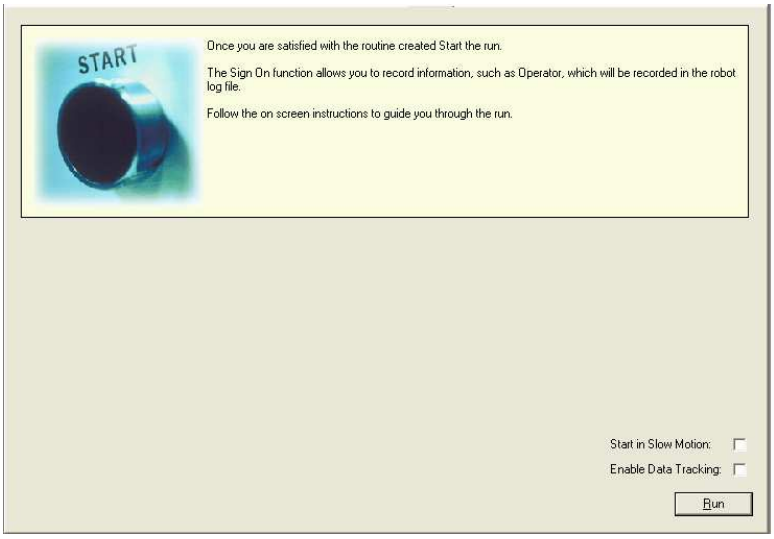


Figure 21: Start tab

Start in Slow Motion – The robot will run at a slower speed for diagnostic purposes.

Enable Data Tracking

Selecting this option will generate a Data Tracking XML file, which can then be imported into the Data Tracking database.

This is only applicable if barcoding options have been set for both source and destination plates.

The data tracking file is stored in the following location:

C:\Program Files\Genetix\QPix\Logs\Datatracking

To view the xml file, double-click the filename in Windows Explorer.

For more information on Data Tracking, please refer to the **QSoft Data Tracking Manual**.

Run – Click this button to start the routine.

Running a Rearraying Routine

Note: The screens that will appear during the run are determined by the selections made in the Script Options dialog (Options menu – Script Options).

Once all the parameters have been set and plates have been loaded, the Rearraying Routine can begin.

Click the **Run** button on the Start tab.

The following screen appears:

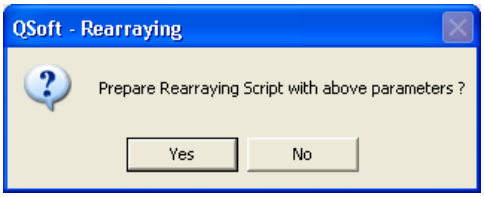


Figure 22: Prepare Script

Click **Yes** to continue **No** to cancel.

The following screen will appear if continuing, which displays the total number of wells to rearray.

Figure 23: Wells Found

Click OK. And the following screen will appear.

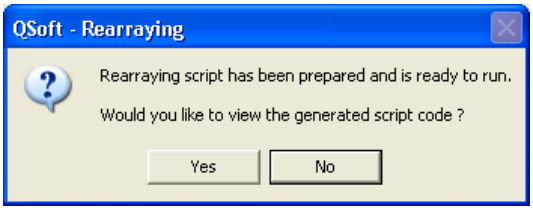


Figure 24: View Script

To view the script code click on **Yes. O**therwise click **No**.

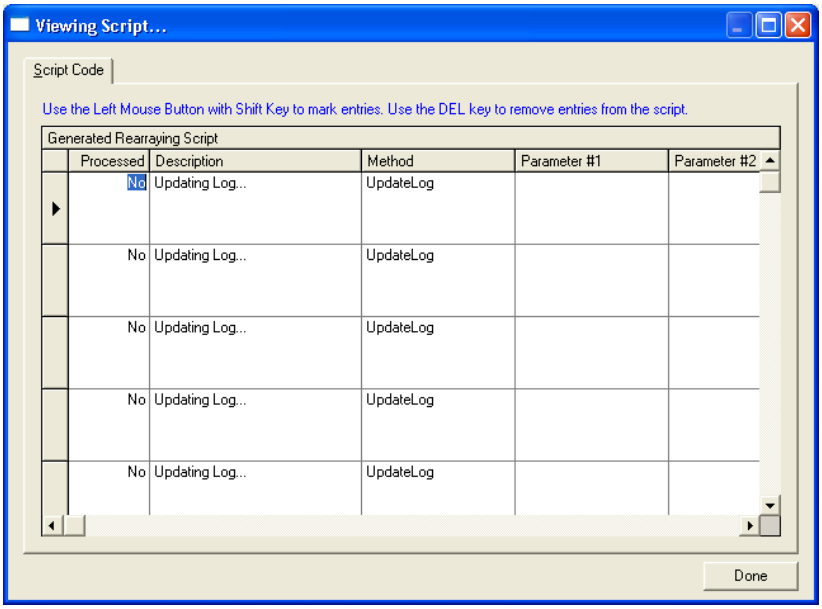


Figure 25: Example Script Code

Click on **Done** to continue. The screen will now prompt for the correct head to be fitted to the robot.

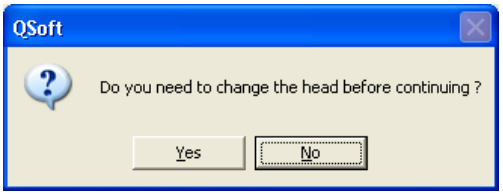


Figure 26: Change Head

Remember that for a rearraying run the Picking Head must be fitted.

Once this has been checked click on **Yes** to continue. The following screen will now appear.

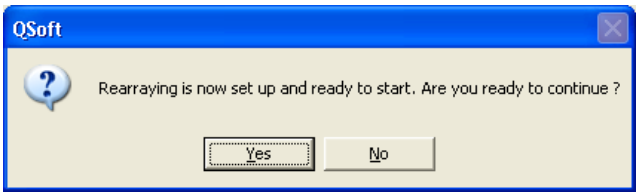


Figure 27: Script Set Up and Ready

This screen now says that Rearraying is ready to start. To commence the run click **Yes.** To abort click **No**.

During the run the progress screen will be displayed:

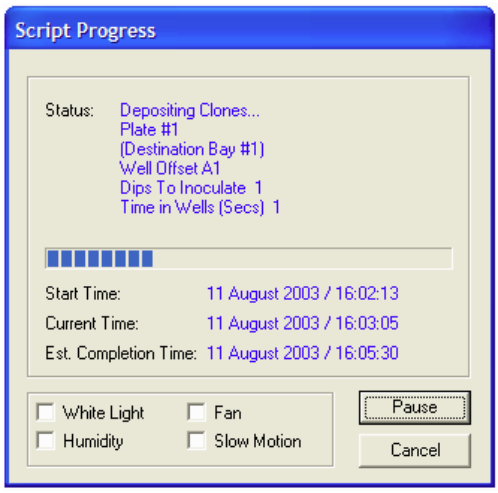


Figure 28: Script Progress

This screen displays the status of the robot, the start time of the run, current time and expected time of completion.

If at any time the run needs to be stopped, the **Pause** button can be clicked.

When the run has finished, the following screen will appear.

Figure 29: Script Complete

Click **OK**. A prompt will ask if settings are to be carried over.

Figure 30: Carry Over Pin and Well Settings

This screen will allow the last well and pin setting to be remembered, so that more data can be loaded and a further run can be carried out, utilizing any pins on the head that have not been used and any destination plates that have not been filled.

At the start of the next run a prompt will appear asking about using Pin and Well settings that have been carried over.

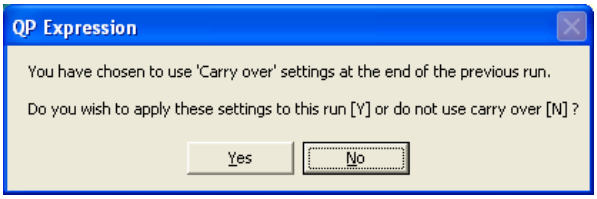


Figure 31: Applying Carry Over Pin and Well Settings

Glossary of Terms

Array
Nylon filter or slide on which the clones are immobilized or array of DNA/protein spots on a glass slide.

Arrayed
Distribution of colonies or samples into known positions from 96 or 384 well plates.

Bioassay Tray (QTray)
22x22 cm clear plastic tray from which colonies/phage are picked.

Bioassay Tray Holder
Perspex holder fitted to the robot bed for holding two Bioassay trays in place whilst carrying out a Picking routine.

Datum Point
A series of X, Y, Z co-ordinates that define a set position on the Robot bed.

Destination Plate Holders
Holders for microplates located on the bed of the robot. The number of Plate Holders available depends on which robot is being used.

Expanding
Converting 1 x 384 well plate into 4 x 96 well plates etc.

Gridding head
Head used for gridding and replicating. Available in 96 pin or 384 pin formats, either sprung or gravity.

I/O
Inputs / Outputs.

Picking Tray
See Bioassay Tray Holder.

Process (Data Tracking)
A routine performed on the data or an import from a file in QSoft Library Manager format.

QSoft Library Manager
This is the predecessor of QSoft Data Tracking.

QSoft.DLL
ActiveX software component housing all the functionality of robot software.

Rearraying
Redistribution of selected colonies into new plates performed with picking head.

Receptacle
Container used in Data Tracking - such as wellplate, bioassay tray, slide or filter.

Script
Listing of all moves needed to complete a routine.

X Drive
Axis running from right to left on QPix2XT and QP Expresion.

XML

Extensible Markup Language. A simple text format derived from SGML Originally designed to meet the challenges of large-scale electronic publishing, XML is also used in the exchange of a wide variety of data on the Web.

Y Drive

Axis running from back to front on QPix2XT and QP Expresion.

Z Drive

Axis running vertically on the Robot bed.

Appendix A

Description of Toolbar and Menu Items

Toolbar or Menu Item	Name	Description	Applies to
	Add Sample to Rearraying Checkout	Add the highlighted sample(s) from the currently selected plate to the Rearraying checkout.	Data Tracking
	Align	Align camera to pin	Picking Excision Excellerate Rearraying
	Calibrate	Calibrate the camera	Picking Excision Excellerate Rearraying
	Change head	Moves the actuator into an accessible position to allow you to change the head	All
	Chiller	Turns the chiller on or off	Robot Specific
	Clear Rearraying Checkout	Will clear all samples from the rearraying checkout.	Data Tracking
	Configuration	Displays the robot configuration dialog which gives you access to all the hardware settings, datum point settings and database facilities	All
	Configure Messaging Server	Messaging Server provides a means for you to remotely monitor your robot. For example: if a robot run is interrupted for any reason, one or more contacts can be notified thus eliminating the need for constant supervision of your robot. Click this button to set messaging server preferences. For detailed information about setting up Messaging Server see Appendix A of this manual.	All
	Create Rearraying file	Write the contents of the Rearraying checkout to a text file.	Data Tracking
	Diagnostics	Displays an animated representation of the robot bed layout for diagnostics purposes or for use when running the software in simulation mode. Click **Stay on Top** to keep the dialog visible while the application is running.	All
	Exit	Exits the application	All
	Fan	Turns the fan on or off	Robot Specific
	Humidity	Turns the humidity system on or off	Robot Specific
	Import Custom Properties	Import properties to use in searches to identify samples of interest	Data Tracking
	Import Process file	Import a Data Tracking process file	Data Tracking

Toolbar or Menu Item	Name	Description	Applies to
	IO's	Displays the robot Inputs and Outputs to allow you to manually control hardware components	All
	Logs	Displays the QSoft Logs dialog which gives you access to the Text, XML and DataTracking log files. Highlight the log file name and click Open to view it.	All
	Park head	Parks the head in the wash bath	All
	Pin fire test	Displays a dialog whilst continuously firing all pins in the head. The purpose of the Pin Firing Test is to check, by sound, that each pin is firing correctly. **Continuous Test** – When checked will continuously fire pins until it is either unchecked or the Cancel button is selected. **Control Valve** – When checked, slows down the pin retraction. This is useful for first time use or for demonstration purposes to allow you to observe the mechanical actions of the pins. **Cancel** – Ends the Pin Firing test.	Picking Excision Excellerate Rearraying
	Remove Sample from Rearraying Checkout	This will remove selected samples from the rearraying checkout.	Data Tracking
	Reset toolbars	You can rearrange the buttons on the toolbar if necessary, this option will set them back to the default order.	All
	Routine close	Closes the current routine	All
	Routine delete	Deletes the specified routine	All
	Routine Export	Permits you to save routines as XML files in a user-defined location. This enables the transfer of routines between robots.	All
	Routine Import	Allows externally created routines to be used.	All
	Routine new	Create a new routine	All
	Routine open	Opens a previously saved routine	All
	Save	Saves the current routine	All
	Save as …	Saves the current routine with a new name	All
	Script options	Allows you to select which script options to display during the application run	All
	Select Database	Displays the login dialog to allow you to connect to a different database or login as a different user.	Data Tracking
	Set pin height	Provides the facility for setting the picking height	Robot Specific

Toolbar or Menu Item	Name	Description	Applies to
	Sign on	Displays the Sign on dialog to allow you to enter specific information about the current run	All
	Switch User	Displays the Login prompt. There are currently 3 levels of user, permissions are as follows: **Operator** Load routines Run routines **Creator** Create routines Load routines Run routines Save routines Save other user's routines with a new name **Admin** No restrictions on use	All
	System info	Displays information about your computer system	All
	Test Image	Displays the test image window so that you can set criteria for picking colonies	Robot Specific
	UV light	Turns the UV light on or off	Robot Specific
	Vacuum	Turns the vacuum on or off	Robot Specific
	White light	Turns the white light on or off	All

Appendix B

GTX Messaging Server

Messaging Server provides a means for the robot to be remotely monitored. So that if a robot run is interrupted for any reason, one or more contacts can be notified thus eliminating the need for constant supervision of the robot.

In order to use Messaging Serverr, one or more contacts need to be allocated and ensure that at least one of those contacts is enabled before the run starts.

Once QSoft has started to process the script, Messaging Server will notify the contact(s) whenever the software requires a response. For example any of the standard message boxes that appear during the run and also “Timeout” messages that are displayed when a problem occurs.

The messaging server currently supports dial-up (without voice) and email notification.

Dial-Up Settings

The dial up facility is implemented through the use of a Hayes compatible modem installed in the robot PC. A phone line is also required. Upon receiving a message, the modem will dial the appropriate number, and ring it for a predefined period of time. If the receiving contact's number is a mobile phone, a phone book entry can be made for the robot. Then when the robot rings the number, the caller-id facility will display to the operator which number is called.

Email Settings

The email facility requires that a MAPI compliant mail application (such as Microsoft Outlook® Express) has been configured on the robot PC.

The steps for configuring Outlook Express are as follows:

- Set up the email account that is required to send mail with. If unsure how to do this then look in the Outlook Express help or contact the system administrator.
- Change the security settings to allow the messaging server to automatically send an email unattended.
- Open the Tools menu, then select Options

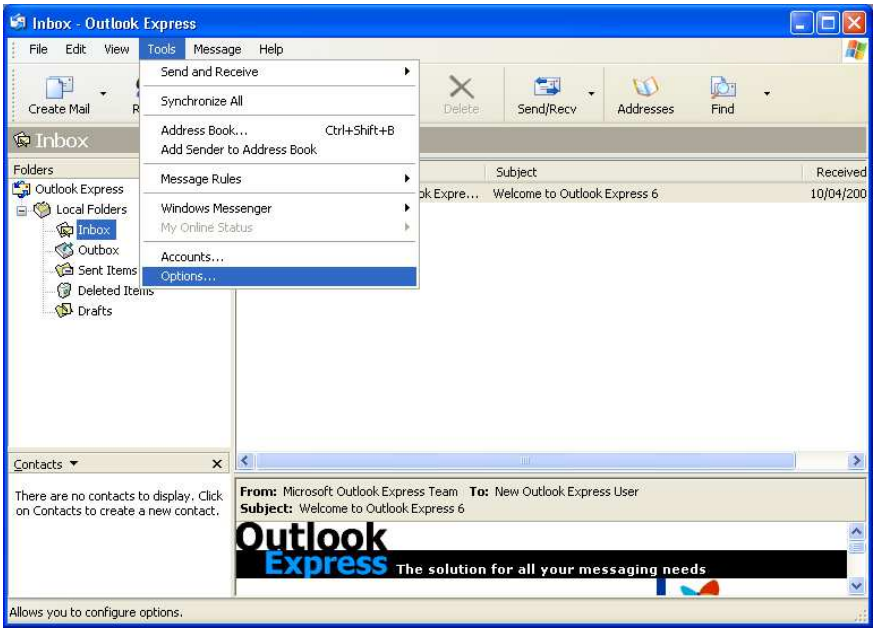


Figure 32: Outlook Express Tools Menu

Uncheck the option that says:

'Warn me when other applications try to send mail as me'

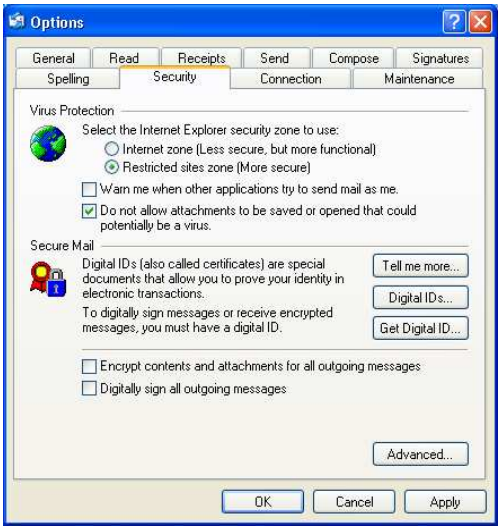


Figure 33: Outlook Express Security Settings

Click **OK**.

Configure Messaging Server

Click the **Configure Messaging Server** button on the toolbar.

The following screen will be displayed

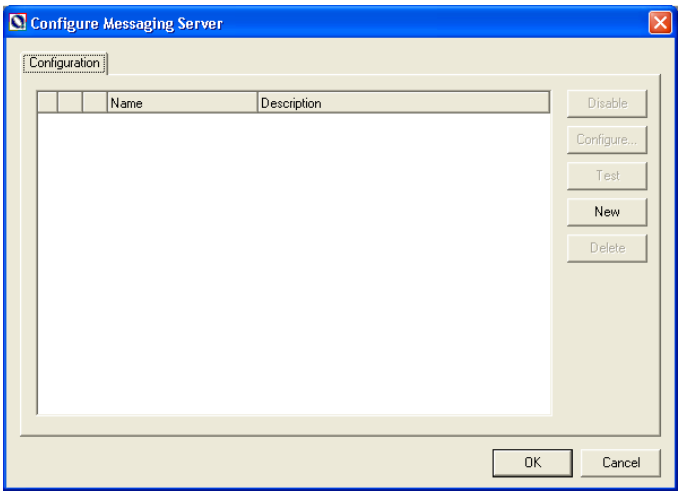


Figure 34: Messaging Server Configuration

Click the **New** button to add a new contact.

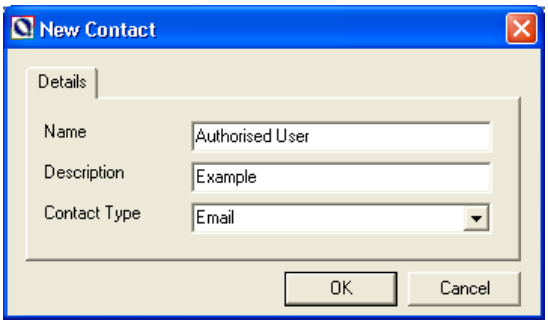


Figure 35: New Contact

All the parameters here are required.

Name

Type in a name for the contact.

Description

Type in any descriptive text.

Contact Type

Select the required option from the drop-down list.

Click OK when the required details have been entered. The following dialog is displayed.

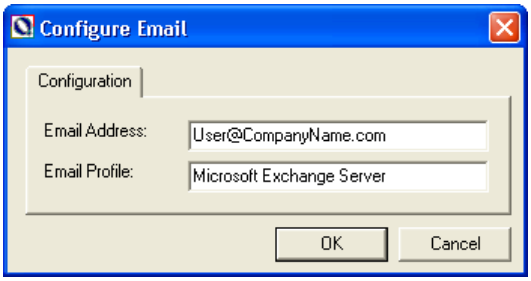


Figure 36: Configure Email

Email Address

Enter the contact's valid email address.

Email Profile

If there is no specific profile set up (such as Microsoft Exchange Server) then enter the name of the registered user of the copy of Windows that is installed on the robot PC. To identify the registered user, locate System Properties in Windows Control Panel:

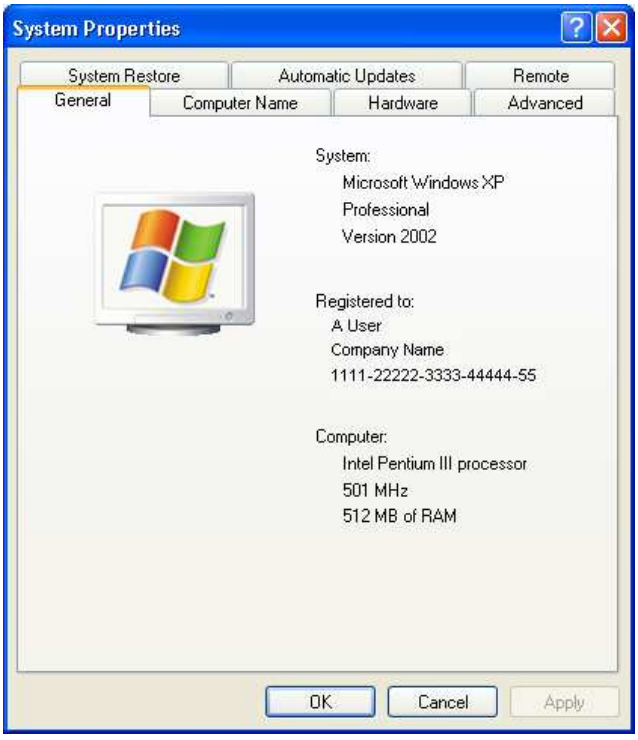


Figure 37: Windows System Properties

Click **OK** to store these settings.

The Configuration screen will show the details of the contact that has just been added.

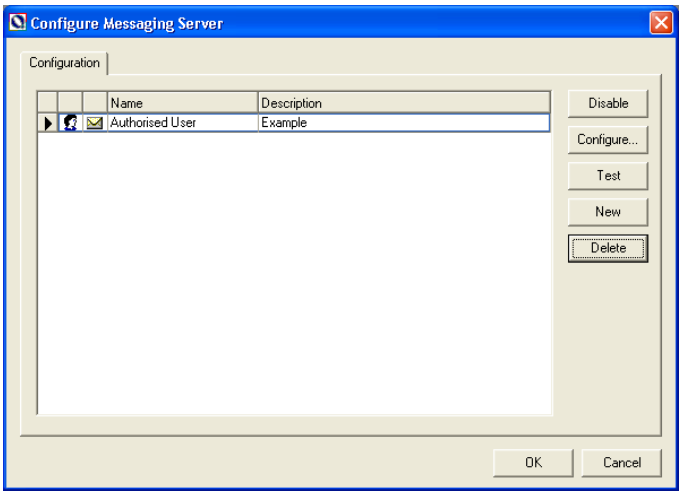


Figure 38: Contact Details in Configuration Screen

Disable

This allows the selected (highlighted) contact to be disabled. The button's state will change to say **Enable** when a contact with **Disabled** status is highlighted. Operators can be enabled or disabled on a run-by-run basis.

Configure

Allows the configuration settings of the selected contact to be changed.

Test

Use this to check that the email and/or dial-up settings work as expected.

New

Allows a new contact to be added and their settings to be configured.

Delete

Will delete the highlighted contact.

Setting the Delay Time

By default the delay time is set in QSoft to 10 minutes. This is the time that will elapse before either a mail message is sent or the dial-up will be activated. If necessary, change the delay time as follows:

Click the **Configuration** button on the toolbar.

In the **Hardware** tab select the robot name.

Select the property named **MessagingSendingDelayMinutes.**

Click **Edit** to change the value.

Index

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