

# BBL Crystal™ MIND

(Microbiology Interactive Database)

## and BBL Crystal AutoReader



# User's Guide



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# Technical Support

For technical support in the U.S., please call toll-free at 1-800-638-8663.

For technical support outside the U.S., please visit the BD Web site at:

<http://www.bd.com/support/contact>

# System Configuration

For optimal performance, it is recommended that the system configuration consist of an MS-DOS compatible computer, Pentium 90 Microprocessor with at least 16 MB RAM (32MB of RAM is preferred).

The minimal system requirements are:

- MS-DOS compatible computer, Intel 486 Microprocessor
- 16 MB RAM
- Microsoft Windows (Win95, Win98, Win NT 4.0, Win2000, or WinXP)
- CD-ROM/CDRW drive
- Microsoft mouse or a mouse with a Microsoft mouse compatible driver
- Microsoft ODBC drivers Version 2.00 (16 bit).
- A keyboard with a numeric keypad.

# Installation of BBL Crystal™ MIND

Determine if you are installing from the BD website or from CD. Go to the correct section below to find the appropriate instructions. Follow the instructions in that section, then continue the installation in the section named “↓ For all.”

## Installing from the BD website:

Note that the instructions below may vary slightly depending upon the version of Windows you are running.

- Go to the BD website with software downloads at: [www.bd.com/ds/technicalCenter/software.asp](http://www.bd.com/ds/technicalCenter/software.asp).
- Click on the “Crystal MIND” link to register your software; or if your software is already registered use the “enter it here” link.
- Once your registration has been validated, a new page appears for downloading the Crystal MIND software. To download, click on the “Crystal MIND” download link.
- The **File Download - Security Warning** window will be displayed. Click “Run” to continue.
- The **Internet Explorer - Security Warning** window is now displayed. Click “Run” to continue.
- Continue below at the ↓ symbol.

## Installing from CD:

- To install from CD, insert the CD into the CD-ROM or CDRW drive.
- Double-click the “My Computer” icon on the desktop.
- Double-click the icon for the CD-ROM/CDRW drive. (Depending on the OS version, the icon may be labelled “CD Drive,” “CD-RW Drive,” Compact Disc X:,” etc.)
- Double-click the “MIND” folder.
- Double-click the “SETUP.EXE” icon.
- Continue below at the ↓ symbol.

## ↓ For all

- For a *new installation*, a message is displayed asking you to install the application. For an *upgrade*, a message is displayed asking you to update the existing application.
- Click the “OK” button to install the Crystal MIND Software.
- A message is displayed asking if you plan to connect a BBL Crystal AutoReader. If you plan to connect to an AutoReader, select “Auto Crystal.” You are then asked to which serial communications port it will be attached. If you do not know the port at this time, select *Com Port 1*. You can change this setting after installation (See **Section 11.0 - Configuration**). If you are not connecting to an AutoReader, select “Manual Crystal.”
- After selection, click “OK” to continue.
- For Windows 2000 (only), a message appears regarding the amount of memory in your system. You can disregard this message and simply click the “OK” button.

- The program files are then copied to your hard disk.
- The **End Crystal installation** screen is displayed. Click the “OK” button.
- A program group is created during the installation called **BBL Crystal MIND**.

# Installation of ODBC Database Driver

**You do NOT have to install the Access 2.00 ODBC drivers if you had a previous version of BBL Crystal MIND installed OR if your PC is a U.S. BD laptop.**

Determine if you are installing from the BD website or from CD. Go to the correct section below to find the appropriate instructions. Follow the instructions in that section, then continue the installation in the section named “↓ For all.”

## **Installing from the BD website:**

Note that the instructions below may vary slightly depending upon the version of Windows you are running.

- Click the “ODBC Installation” link on the BD website. (On the site after your registration has been validated.) The “File Download” window will be displayed. Click “Open” to access the installation.
- Click the “Install” icon in the WinZip window to start the installation of the ODBC. If this icon is not visible, locate the “setup.exe” file and double-click on the file name.
- The **WinZip Caution** window is displayed. Click “Yes” to continue.
- The **Install** window is now displayed. Click “OK” to continue.
- The **Open File-Security Warning** window is now displayed. Click “Run” to continue.
- Continue below at the ↓ symbol.

## **Installing from CD (Windows 95/98/NT4.0/2000/XP):**

- To install from CD, insert the CD into the CD-ROM or CDRW drive (if not already inserted).
- Double-click the “My Computer” icon on the desktop.
- Double-click the icon for the CD-ROM/CDRW drive. (Depending on the OS version, the icon may be labelled “CD Drive,” “CD-RW Drive,” “Compact Disc X:,” etc.)
- Double-click the “ODBC” folder.
- Double-click the “SETUP.EXE” icon.
- Continue below at the ↓ symbol.

## ↓ For all

- The **Microsoft ODBC Setup Welcome** screen is displayed. Click the “Continue” button.
- The **Install Drivers** screen is displayed. Select **Microsoft Access Driver (\*.mdb)** from the list, then click the “OK” button.
- The files are then copied to your computer.
- The **Data Sources** screen is displayed. Click the “Add” button.
- The **Add Data Source** screen is displayed. Select **Microsoft Access Driver (\*.mdb)** then click the “OK” button.

**Note:** Make sure to select the data source listed above, do not select any data source with “(32 bit)” in the name.

- The **ODBC Microsoft Access 2.0 Setup** screen is displayed. In the **Data Source Name** field, type the following command as it appears below:

BBL Crystal Glue

- Click the “Select” button in the Database section of the window.
- The **Select Database** screen is displayed. In the **Database Name** field, type the following:  
C : \ CRYSTAL \ GLUE . MDB
- Click the “OK” button.
- The **ODBC Microsoft Access 2.0 Setup** screen is redisplayed. In the **System Database** area, click the “Database” radio button, then click the “System database” button.
- The **Select System Database** screen is displayed. In the **Database Name** field, type the following:

C : \ CRYSTAL \ SYSTEM . MDA

- Click the “OK” button.
- The **ODBC Microsoft Access 2.0 Setup** screen is redisplayed. Click the “OK” button.
- The **Data Sources** screen is displayed with the data source that you just added. You will now need to add another data source. Click the “Add” button.
- The **Add Data Source** screen is displayed. Select **Microsoft Access Driver (\*.mdb)** then Click the “OK” button.

**Note:** Make sure to select the data source listed above, do not select any data source with “(32 bit)” in the name.

- The **ODBC Microsoft Access 2.0 Setup** screen is displayed. In the **Data Source Name** field, type the following text as it appears below:

BBL Crystal CORE Id

- Click the “Select” button in the Database section of the window.
- The **Select Database** screen is displayed. In the **Database Name** field, type the following:  
C : \ CRYSTAL \ CORE \_ID . MDB
- Click the “OK” button.
- The **ODBC Microsoft Access 2.0 Setup** screen is displayed. In the **System Database** area, click the “Database” radio button, then click the “System database” button.

- The **Select System Database** screen is displayed. In the **Database Name** field, type the following:  
C : \ CRYSTAL \ SYSTEM . MDA
- Click the “OK” button.
- The **ODBC Microsoft Access 2.0 Setup** screen is displayed. Click the “OK” button.
- The **Data Sources** screen is displayed with two lines corresponding to ‘BBL Crystal CORE Id’ and ‘BBL Crystal Glue.’ Click the “Close” button.
- The **Microsoft ODBC Setup** screen is displayed with the message set up succeeded! Click the “OK” button.

# Troubleshooting

The following describes problems that can occur during the operation of the BBL Crystal™ MIND software. If you need further assistance, please call your BD Technical Services Representative (See Technical Support section at the beginning of this manual).

Message Index	Message Text and/or Resolution
Error: Shadow Application Error during installation of the Crystal MIND software.	An alternate installation method for the Crystal MIND software needs to be executed.  Click the "Alternate Install" link on the Crystal MIND website or run the "setup.exe" program in the "AlternateInstall\MIND" folder on the CD to install the Crystal MIND software.
Error: Some panels are not displaying on the Review screen	The Crystal MIND software was designed to only show a default of the last 30 days-worth of panels. This value can be increased. See Section 11.2 - Data Review Period.
Error: Device Unavailable	The reader may not be turned on or is not connected to the correct com port. Switch on the power on the back panel of the reader. Verify the connection between the com port and the serial cable. The proper com port may not be specified in the Crystal MIND configuration file. Refer to the online FAQ document (FAQ #14) on how to determine the correct com port setting. Refer to <b>Section 11.0 - Configuration</b> on how to change the com port setting in the Crystal MIND configuration file. The computer may need to be rebooted after the initial configuration of the AutoReader.
Error: Data is not being printed out in the Recapitulative Report	The "Short Date" setup for your computer must have a 4-digit year format. Refer to the system help for your computer on how to change this setting or call BD for assistance.  The date range of this report requires a 4-digit year to be entered. For example, you must enter "11/13/2002" instead of "11/13/02."
7	An unexpected error has occurred in the BBLCrystal MIND Application. The following information is important in determining the cause of this error.  PLEASE CONTACT BD FOR ASSISTANCE.
14	There are too many records to display in the list.  The list of displayed records will be TRUNCATED.

15	There are invalid characters in the entered data. Only standard alphanumeric characters are allowed. You may not use the " or the   characters.
20	Cannot add, modify or switch to another panel without all the information entered.
21	The profile number is not complete.
22	The number of equivocal reactions is limited. Maximum:
23	The panel cannot be completed.
25	The Database is LOCKED exclusively by another application. The BBL Crystal can not be executed at this time.  Please try again later.
26	<p>An Error occurred while launching the Batch Identification program.</p> <p>This error can occur when clicking on BATCH ID or the ID button. The ID Engine has returned an error to Crystal MIND. Exit Crystal MIND before proceeding with the possible resolutions.</p> <p>Verify that ODBC has been setup correctly. Refer to the document <b>How to Verify ODBC Drivers</b> on the BD website. Try running Crystal MIND again. If the error still persists, proceed below to the next possible resolution.</p> <p>Run the Repair_Compress Database Utility in the Crystal MIND Program Group (Start&gt;Programs&gt;Crystal Mind&gt;Repair Compress DB). Try running Crystal MIND again. If the error still persists, proceed below to the next possible resolution.</p> <p>Using Windows Explorer or File Manager, copy the following database files from c:\crystal\database to c:\crystal:</p> <p>Taxonomy.mdb Core_id.mdb Glue.mdb</p> <p>Try running Crystal MIND again. If the error still persists, please CONTACT BD FOR ASSISTANCE.</p>
72	<p>The database of the ID engine is corrupt, the application will terminate.</p> <p>This error can occur when clicking on Batch ID or the ID button, or upon startup of the Crystal MIND application. The ID Engine has returned an error to Crystal MIND.</p> <p>Follow resolution above for error 26.</p>

75	<p>An invalid Date was entered.</p> <p>Use the “short date” format configured in your Windows control panel for Date Format. You must use a “/” to separate month, day and year.</p>
76	<p>The FROM Date must be before the TO Date.</p>
79	<p>A Failure has occurred while attempting to open the AutoReader Drawer.</p>
80	<p>A Failure has occurred while attempting to close the AutoReader Drawer.</p>
81	<p>A timeout has occurred waiting for the AutoReader to respond.</p> <p>The reader may not be turned on or is not connected to the correct com port. Switch on the power on the back panel of the reader. Verify the connection between the com port and the serial cable. The proper com port may not be specified in the Crystal MIND configuration file. Refer to the online FAQ document (FAQ #14) on how to determine the correct com port setting. Refer to <b>Section 11.0 - Configuration</b> on how to change the com port setting in the Crystal MIND configuration file. The computer may need to be rebooted after the initial configuration of the AutoReader.</p>
83	<p>The panel readings received from the AutoReader were corrupted. Please re-scan the panel.</p> <p>This message is displayed when the readings were corrupted when sent from the AutoReader to the Crystal MIND PC. Re-scanning the panel should correct the problem.</p>
88	<p>The Crystal AutoReader is currently in WARM-UP mode. This process takes approximately 10 minutes from the time the AutoReader is powered on. The amount of time remaining before the AutoReader is available for use is listed below.</p>
91	<p>The Reference Test has FAILED.</p> <p>At the end of the message will be information that will indicate why the Reference Test failed.</p> <p>A “Visible Failure” message prior to a set of numbers indicates the White lamp failed and will need replacing.</p> <p>A “UV Ref Values” message prior to a set of numbers indicates the UV lamp failed and will need replacing.</p> <p>If either lamp has been replaced recently and is still giving an error message, the Crystal MIND error log can be sent to BD for evaluation.</p> <p>PLEASE CONTACT BD FOR ASSISTANCE.</p>
94	<p>Offline results must be entered prior to scanning an ENF panel.</p>
95	<p>The UV lamps are stabilizing. Please try again in:</p>

103	<p>A failure has occurred while accessing the error log file. The message will not be saved to the log file.</p> <p>PLEASE CONTACT BD FOR ASSISTANCE.</p>
106	<p>An error has occurred while attempting to print the message. Message will not be printed.</p> <p>PLEASE CONTACT BD FOR ASSISTANCE.</p>
107	<p>A failure has occurred while displaying an error message: The following is the previous error message:</p>
228	<p>You have entered in an incorrect password for user:</p>
229	<p>You typed in two different new passwords.</p>
231	<p>The password you entered is invalid.</p>
232	<p>The User Name you entered does not exist.</p>
234	<p>You can not delete the currently logged in user.</p>
237	<p>You must enter both a first and last name.</p>
239	<p>The USER NAME entered matches a pre-existing user. USER NAMES must be unique.</p>
244	<p>You can not have just spaces for a Password!</p>
293	<p>Reset Password to Last &amp;Name.</p>
294	<p>Initial Password set to Last &amp;Name.</p>
602	<p>Insufficient memory to run the Identification.</p>
611	<p>Unidentified Error.</p>
612	<p>Could not connect to the data source.</p>
613	<p>The data source is not compatible with this application.</p>
616	<p>Failed QC.</p>
10007	<p>The UV bulb on the reader has FAILED and must be replaced by a Becton Dickinson Service Representative. Panels can not be read by the Crystal AutoReader until the bulb has been replaced.</p> <p>This message occurs when the Source Monitor readings from reading a regular panel are out of range. The UV bulb needs to be replaced.</p> <p>PLEASE CONTACT BD FOR ASSISTANCE.</p>

<p>10008</p>	<p>The UV control well has readings out of range. Possible causes for this panel error are the following:</p> <ol style="list-style-type: none"> <li>1. Laboratory temperature outside range of 64.4 - 89.6 degrees Farenheit.</li> <li>2. A bubble in the control well (Location - 4A)</li> <li>3. The UV bulb on the reader has FAILED.</li> </ol> <p>This message occurs when the UV Control well on the panel has a value outside an acceptable range. Verify that the laboratory temperature is within the required range of 64.4 - 89.6 degrees Farenheit. Verify that there are no bubbles in the control well (location 4A) of the panel.</p> <p>If any of the problems above exist, a new panel must be used. If the error persists, the UV bulb may need to be replaced.</p> <p>PLEASE CONTACT BD FOR ASSISTANCE.</p>
<p>10009</p>	<p>The UV Control well has readings that are almost out of range. Please check the control well (Location - 4A) for bubbles. The UV bulb on the reader may need to be replaced by a Becton Dickinson Service Representative. Your results from your reader are VALID, but you must contact BD for assistance.</p> <p>This message occurs when the Source Monitor readings from reading a regular panel are almost out of range.</p> <p>The UV bulb needs to be replaced.</p> <p>PLEASE CONTACT BD FOR ASSISTANCE.</p>
<p>10010</p>	<p>The white bulb on the reader needs to be replaced by a Becton Dickinson Service Representative.</p> <p>This message occurs when the readings from a regular panel do not have enough variability.</p> <p>The white bulb needs to be replaced.</p> <p>PLEASE CONTACT BD FOR ASSISTANCE.</p>
<p>10011</p>	<p>Read the REZ reaction manually and enter the result.</p> <p>Blue to Purple = NEGATIVE result</p> <p>Bright Pink = POSITIVE result</p>

# 1.0 BBL Crystal™ AutoReader

The Crystal MIND Software can be used with a BBL Crystal AutoReader. The AutoReader allows automatic reading of panels instead of manually reading the panels with a BBL Crystal PanelViewer (See **Section 4.6** for details).

If you do not have an attached BBL Crystal AutoReader, then proceed to **Section 2.0**, otherwise continue reading below.

## CAUTION

Protection provided by this instrument may be impaired if the equipment is used in a manner not consistent with instructions in this manual.

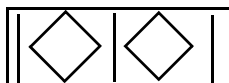
## 1.1 Setup

### 1.1.1 Connecting the Power Cable

The BBL Crystal AutoReader requires a power cable to be connected. The power cable connects from the back of the AutoReader to the wall outlet.

### 1.1.2 Connecting the Serial Communications Cable

The serial cable connects from the back of the AutoReader to the PC that contains the BBL Crystal MIND software. Connect the larger (25-pin) end of the provided serial cable to the back of the AutoReader in the port labeled "DATA" and connect the other end (9-pin) to the serial/com port on the back of your PC. The serial port is labeled as follows:





For laptops or computers that do not have a serial port, a USB to serial converter cable is needed (not supplied with the AutoReader.) Plug the USB end of the converter cable into a USB slot on the PC and the serial end of the converter into the 9-pin end of the AutoReader cable. Plug the other end of the AutoReader cable (25-pin) into the back of the reader.

The BBL Crystal MIND software communicates with the AutoReader using the serial/com port selected during installation. If this setting needs to be changed, see *section 11 - Configuration* for details on how to change the setting. Note: If there is only one serial/com port on the back of your PC, then it is “Com Port 1.”

### 1.1.3 Power switch

The power switch is located on the back panel of the Reader.

| = Power ON      O = Power OFF

### 1.1.4 Upgrade

If the BBL Crystal AutoReader is being replaced, you must shut down the Crystal MIND software application prior to installing the new reader. Once the new reader is connected, restart the Crystal MIND application.

## 1.2 Warmup Cycle

When powered on, the reader will turn on its internal lamps and begin a “Warmup” cycle that takes 10 minutes to complete.

If an attempt is made to open the drawer (by entering the Data Entry Screen), an error message will be displayed indicating that the reader is warming up. The message will indicate the number of minutes and seconds remaining before the warmup cycle is complete.

If you attempt to scan/read a panel during this warm-up cycle, an error message will be displayed indicating that the reader is warming up. The message will indicate the number of minutes and seconds remaining before the warmup cycle is complete.

## 1.3 Automatic Lamp Shutdown

The reader will automatically turn off all internal lamps after 1 hour of inactivity. The purpose of the “shutdown” is to increase the lifetime of the internal lamps. If the reader is in the “shutdown” mode, any attempts to open the drawer of the reader or to scan a panel, will transition the reader into the Warmup mode. As stated above, the Warmup mode will take 10 minutes to complete.

## 1.4 Panel Orientation

Proper placement of the Crystal panel into the BBL Crystal AutoReader is essential for correct organism identification. The label on the Crystal panel should be facing down and pointing towards the front of the drawer. There will be a label on the inside of the drawer indicating where the label of the panel should be placed. The panel label should be directly touching the indicator on the inside of the drawer.

## 1.5 Exiting the Data Entry Screen

It is highly recommended to exit the Data Entry Screen when not reading panels. The drawer of the reader remains open while in the Data Entry Screen. This results in the lamps cooling down, which could effect organism identification.

## 1.6 Reference Panel Testing

A Reference Panel has been provided with your BBL Crystal AutoReader. The Reference panel is used to determine that the AutoReader is properly calibrated. It is recommended that you scan a Reference Panel at least once per month. The Reference Panel should be kept in a protective sleeve such as the one in which the panel was shipped. See section 10.0 for details.

## 1.7 Reader Maintenance

### 1.7.1 Cleaning the Diffuser Filter

The Diffuser Filter is the white glass plate on the bottom of the AutoReader drawer. This filter will need to be cleaned periodically to insure accurate panel readings. Prior to cleaning the filter, you *MUST* power off the AutoReader and unplug it from the wall. You can clean it with either a lint-free cloth or lens paper moistened with water or commercial lens cleaning solution.

### 1.7.2 Cleaning the Exterior Surfaces of the Reader

The external surfaces may be wiped clean with a soft cloth or sponge moistened with water and/or mild detergent. If desired, the outer surfaces can be wiped with a 10:1 dilution of household bleach in water. In all cases, care should be exercised to prevent liquid from entering the AutoReader.

### 1.7.3 Bulb Replacement

The AutoReader contains two internal lamps, a white light bulb and a UV light bulb. Should either bulb burnout, please call U.S. BD Technical Services to have the AutoReader replaced with a working reader. Lamp replacement should only be performed by qualified personnel, as replacing the lamp without subsequent re-calibration of the reader can cause the system to report inaccurate test results.

**NOTE**

Do not attempt to open the reader and replace the bulbs. Call BD for assistance.

## 1.8 Removing a Jammed Panel

If a panel should get jammed in the AutoReader, turn off the power to the reader and remove the panel. Turn the power back on and re-scan the panel. Note: After turning the power back on, the Reader must go through its 10 minute Warmup cycle.

**CAUTION**

Do not attempt to remove a panel with the power on.

## 1.9 Biohazard Warning – Infectious Materials

Inoculated panels may contain viable pathogenic organisms cultured from the initial specimen. Panels should be handled and disposed of in a manner consistent with regulations and procedures proscribed by local health authorities. Use of gloves is recommended.

## 1.10 Electrical Requirements

<b>Input Voltage</b>	<b>100 - 240 VAC, single phase</b>
<b>Input Current</b>	<b>0.37 A</b>
<b>Input Line Frequency</b>	<b>50/60 Hz</b>

## 1.11 Environmental Requirements

Fluorogenic area

<b>Non Operating Storage</b>	
Temperature	-17.8°C - 65.0°C
Humidity	10% – 90% relative humidity (non-condensing)
<b>Operating Conditions</b>	
Temperature	18°C - 30°C Microbiological efficacy may be compromised above 40° C.
Humidity	15% – 90% relative humidity (non-condensing)
Locations	Level surface, no direct sunlight, no direct heat. Typical laboratory lighting (up to 150 foot-candles).
Altitude	0 – 2,000 M
Installation Category II and Pollution Degree 2 as per IEC 664	



# 2.0 Introduction to BBL Crystal™ MIND

The BBL Crystal MIND System for Microbial Identification is designed to identify clinically significant human pathogens. The purpose of this software is to provide the identification of the unknown organism run in a panel by mathematically interpreting the BBL Crystal profile number and off-line test results and evaluating the result against the organisms contained in the appropriate BBL Crystal™ database.

By providing the interpretative component of the BBL Crystal ID System in this manner, the user has access to the proper interpretation of all BBL Crystal profile numbers. The user has full access to the calculated parameters used in the ID process.

Additionally, a differentiation database is included to assist in resolving those pairs of organisms that occasionally can not be differentiated on the basis of the profile and off-line tests alone.

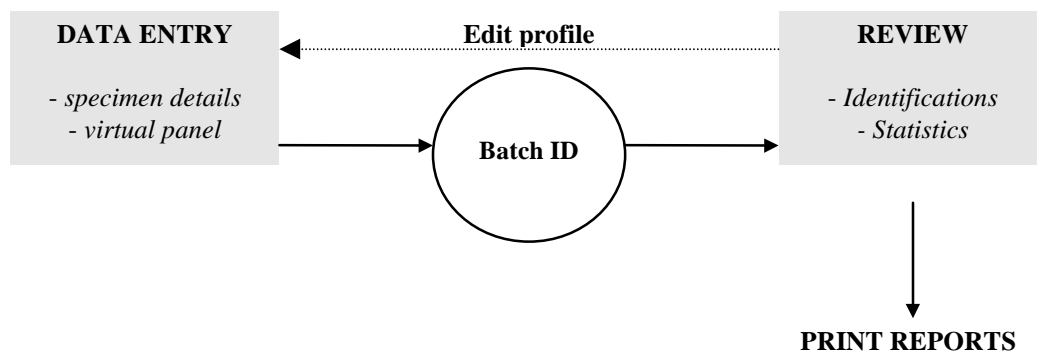
## 2.1 BBL Crystal™ MIND Overview

This application is designed to support the BBL Crystal E/NF, Anaerobe, Gram Positive, Rapid Gram Positive, and N/H Identification panels.

The following features are included to optimize the workflow and ease of use:

- Context panel image makes the product more user friendly.
- Keyboard and Mouse Data Entry modes: 2 modes for adaptability.
- Equivocal reaction reading management for more flexibility.
- Batch Identification mode for increased productivity.
- Result review easier to access.
- Reports printed for archive.
- Password security for protection of the panel information.
- Long term storage of information in a database.

## 2.2 Workflow



There are two workflow paths that you can follow. You can use one or the other or a combination of both. One of the workflows requires the use of a BBL Crystal™ AutoReader and the other requires a BBL Crystal™ PanelViewer.

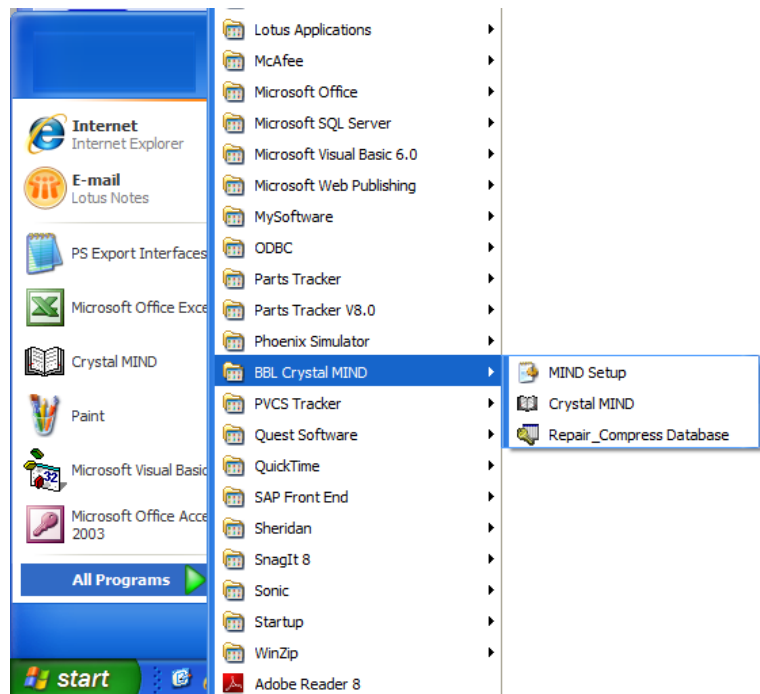
The following is an overview of the steps required to enter and identify a crystal panel.

- 1 If you have an attached BBL Crystal™ AutoReader, scan the panel using the AutoReader. The results are automatically displayed on the **Data Entry** screen in the virtual panel. Skip to Step 3.
- 2 If you have a manual BBL Crystal™ PanelViewer, read the reactions of the panel using the PanelViewer and record the reactions in the virtual panel on the **Data Entry** screen.
- 3 Launch Batch Identification System (more than one panel can be identified at the same time).
- 4 Review results (organism identifications, statistics, special messages) through the **Review** screen. An EDIT function allows correction of potential errors while reviewing the Id(s) suggested by the system.
- 5 Reports can be generated and printed.

# 3.0 Getting Started

## 3.1 Introduction

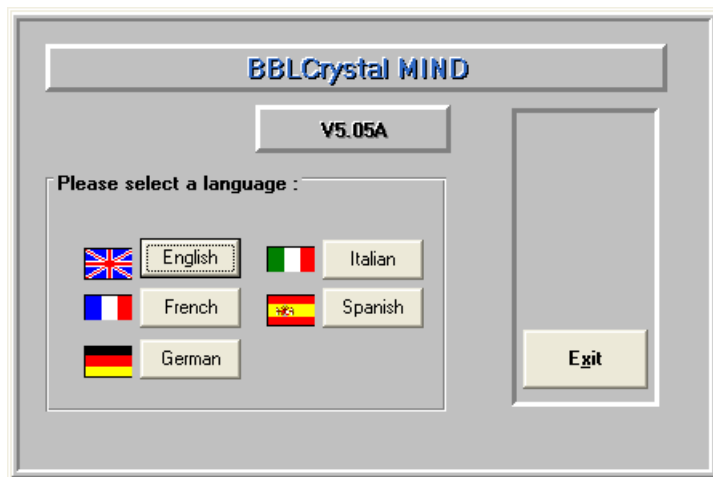
After the installation of BBL Crystal™ MIND, a new program group *BBL Crystal MIND* is created.



The *MIND Setup* option allows you to configure the default Data Entry Mode (Keyboard or Mouse), configure the number of days worth of data to keep current in your worklist and the serial communications port setup for the AutoReader. (See **Section 11 – CONFIGURATION** for details)

## 3.2 Selecting a Language

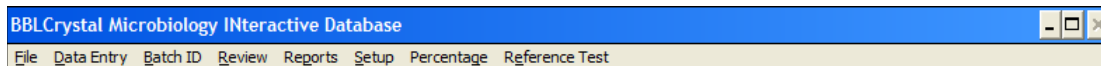
When you launch the BBL Crystal™ MIND application, a screen is displayed that allows you to select the language in which you want to work. This window is displayed only the first time that the application is run.



Do not change the operating language of the application once it has been selected. Doing so will result in the database containing results in multiple languages.

## 3.3 Main Menu

The Main program contains the following menus and submenus:



### File

#### Exit

**Data Entry** (Displays a Screen to enter panel reactions)

**Batch ID** (Launches the ID system to identify organisms on the panels)

**Review** (Displays a Screen to review panel ID results)

**Reports** (Sends specified report to the printer)

#### Specimens reports

#### Recapitulative report

**SetUp** (Adds / Edits system users and passwords)

**Change Password**

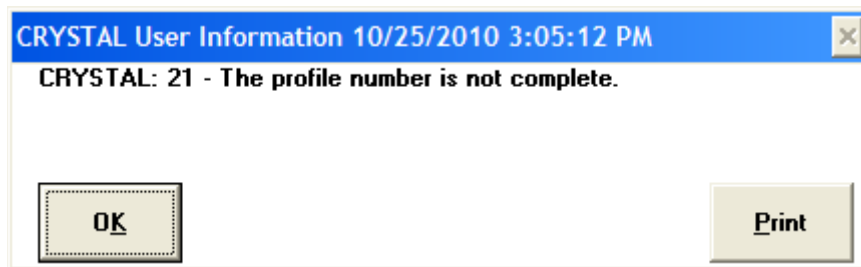
**Account Password**

**Percentage** (Displays a Screen containing the percent charts for all panels)

**Reference Test** (Displays a Screen to allow running a Reference Panel Test)

## 3.4 Error Messages

When an error message is displayed on the screen, you can print the message by clicking the "Print" button.



If an error message occurs for which you need assistance, please print the error message so that a BD Technical Services representative can better assist you.

The **Troubleshooting** section provides a complete listing of error messages.

## 3.5 Security

### 3.5.1 Default User Name and Password

Security is available in the BBLCrystal MIND application. The security consists of a username and password that you enter when launching the application. When the product is installed, the default USERNAME is "BBL Crystal" and the default PASSWORD is "BBL."

### 3.5.2 Changing the Password

Once the application is installed and running, you can change the password. To change the password, you must select the **Setup/Change Password** menu.

Once the **Change Password** screen is displayed, you must:

- Enter the current password in the Old Password field.
- Enter the new password in the New Password field.
- Enter once again the new password in the New Password Verification field.

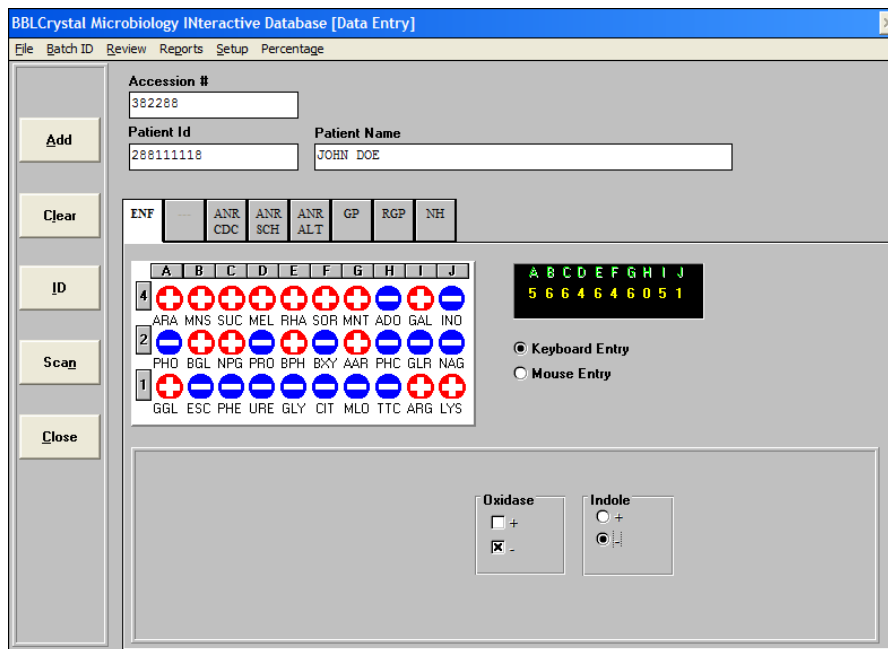
(See section 8.0 - SET UP for more details)



# 4.0 Data Entry

## 4.1 Introduction

To enter a new panel, select the **Data Entry** menu. This displays the **Data Entry** screen. The **Data Entry** screen allows you to enter up to seven different panels for an Accession. Each panel must be a different panel type. If you have a BBL Crystal AutoReader attached to your PC, a “Scan” button appears on the screen and the drawer of the AutoReader automatically opens. Once the panel is scanned, the biochemical reactions are automatically displayed on the screen. If you have setup to read your panels manually, the “Scan” button does not appear on the screen and you have to manually enter the biochemical reactions of the panel after reading the reactions via a BBL Crystal PanelViewer.



## 4.2 Data Entry Overview

To enter results for a panel, follow these steps:

- Enter the Accession Number.
- Enter an optional Patient Id and Patient Name.
- Select a Panel Type.
- Enter the biochemical reactions of the panel or place the panel in a BBL Crystal AutoReader and click the “Scan” button.
- Enter any required offline test results.
- Click the “ADD” button.
- To calculate an organism ID and review the ID results for all the newly entered panels: click the “ID” button, then go to the **Review** screen.

### NOTE

For detailed information on how to perform the above steps, proceed with the following sections.

## 4.3 Mandatory / Optional Fields

- When the screen is displayed, the focus is on the **Accession Number** field. You must enter data in this field to save a panel, as it is mandatory. The information is not saved if this field is empty.
- There is the option of entering the **Patient Id** and **Patient Name**, but these two fields are not mandatory. If you enter a Patient Id, you do not have to enter a Patient Name. If you enter a Patient Name, you must enter a Patient Id. If the patient already exists in the database, when the Patient Id is entered and “Enter” is pressed, the Patient Name is automatically displayed in the corresponding field. When the Patient Name is entered, a search of the database is not performed for an existing patient, so the Patient Id must be entered manually.
- All biochemicals of the selected panel must be filled with a positive or negative reaction. The information is not saved if the panel is not complete.
- The associated offline test results must be entered as well. The information is not saved if offline test results are not entered.

## 4.4 Entering Multiple Panels for a Single Accession

You have the option to add multiple different panels for the same accession number. Enter the Accession Number and optionally, Patient Id and Name. Select one panel type and complete it by entering all the biochemical reactions. Enter the associated offline test results. Click on another panel type and then complete it. The general information (Accession Number, Patient Id or/and Name) are still displayed on the screen. Follow this process for the different panels for this accession number.

You can always return to a panel already entered for this accession number (prior to saving), by clicking on the desired panel type and the results will be displayed on the screen.

#### NOTE

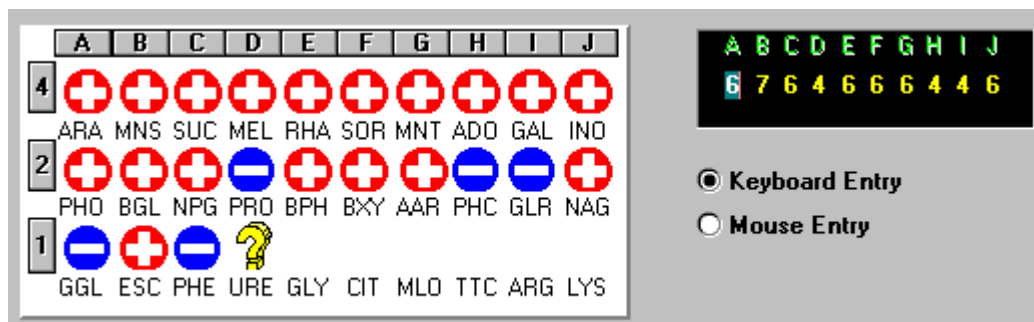
You cannot switch from the current panel to another one if the current panel is not entirely completed. This means the virtual panel and the offline test results have to be completed. A message is displayed on the screen if switching is attempted prior to completing the current panel.

## 4.5 Virtual Panel

The **Virtual Panel** is the graphic display in the middle of the screen that shows the biochemical layout of the selected panel marked by columns **A** through **J** and rows **4**, **2** and **1**. When the virtual panel is initially displayed, all biochemical reactions are blank. Positive and negative reactions are filled in the positions of the virtual panel through various methods which are described in subsequent sections.

### 4.5.1 Interaction of Virtual Panel and Profile Field

The **profile field** and the **virtual panel** are interactive. When a position of the virtual panel is filled, the corresponding number is automatically added in the profile field, and vice versa: when a figure is added in the profile field, the corresponding sign appears in the virtual panel.



### 4.5.2 Selecting a Panel Type

The virtual panel allows the selection of up to seven different panel types.

ENF	BBL Crystal Enteric/NF
ANR/CDC	BBL Crystal Anaerobe from CDC Blood Agar
ANR/SCH	BBL Crystal Anaerobe from Schaedler
ANR/ALT	BBL Crystal Anaerobe from Alternate Blood Agars
GP	BBL Crystal Gram Positive
RGP	BBL Crystal Rapid Gram Positive
NH	BBL Crystal Neisseria/Haemophilus

To select a panel type, click on the panel abbreviation. To select a panel type using the keyboard, place focus on the panel type section, use the left and right arrow keys to highlight the desired panel and press “Enter.”

### 4.5.3 Fluorescent Panel Layouts

There are two basic types of panels, Fluorescent and non-Fluorescent panels. The fluorescent panels have a grey circle on the 1<sup>st</sup> row/1<sup>st</sup> column (4A) of the virtual panel (FCT = Fluorescent ConTrol). This position cannot be filled with a sign.

The fluorescent panels are broken into two areas, the Chromogenic area and the Fluorogenic area. The Chromogenic area is shaded in orange with the column numbers in red. The Fluorogenic area is white with the column numbers in black.

Fluorogenic area                      Chromogenic area

	A	B	C	D	E	F	G	H	I	J
4	●									
FCT	FAM	FBM	FGA	FME	FPH	DIS	AGA	AGL	AFU	
2										
FAR	FSE	FGL	FPY	FCE	FLE	FUR	NPG	NAG	BGL	
1										
FHI	FIS	FAL	FLY	FXY	FSC	PYO	PHD	PRO	ALA	

## 4.6 Methods for Entering Panel Reactions

There are four methods of entering positive/negative reactions of the biochemicals on a panel. The following paragraphs describe each of the methods. *Note that the first method is only available if you have a BBL Crystal AutoReader attached to your PC.*

### 4.6.1 Automatic Reaction Entry

If you have an attached BBL Crystal AutoReader, place the panel in the AutoReader, select the appropriate panel type on the screen, and click the “Scan” button. The panel is scanned and the positive and negative reactions are automatically displayed in the virtual panel on the **Data Entry** screen. You must enter the offline results manually.

The following three sections describe the remaining three methods of reaction entry. Note: Any of the following methods can be used to modify the reactions received from the Reader.

### 4.6.2 Profile Field Entry

If you are manually reading panels, you have the option of entering the panel results by directly entering the profile number in the Profile Number field. As the profile number is entered, the panel reactions are automatically filled in the virtual panel.

After the selection of a panel type, the focus is on the first position (A) of the profile field. Using the keypad, enter the first number of the profile. Focus automatically moves to the next position (B) in the profile number field. Continue until all positions have been entered.

To move to a position in the profile number without typing a number, press the “Tab” key to move forward and press “Shift” + “Tab” to move backward within the profile number field.

### 4.6.3 Keyboard Entry

If you are manually reading panels, you have the option of entering the panel results using the “+” and “-” keys on your keypad. To enter results using this method, you must select the “Keyboard” radio button. This option is the default method when the **Data Entry** screen is entered. To change the default option, see **Section 11.0 – CONFIGURATION**. When the “Keyboard” option is selected, you cannot use the mouse to enter panel reactions in the virtual panel.

#### NOTE

If you have a laptop, you may need to press the “NumLock” key to enable the keypad. The “+” and “-” keys on the keypad are the same keys as “P” and “:” for the standard keyboard.



Once you have selected the Panel Type of the panel to be entered and the Accession Number has already been entered, focus is moved to the first position of the **Profile Number** field and a question mark (?) is displayed on the virtual panel. The position of the (?) depends upon the selected panel and is described below.

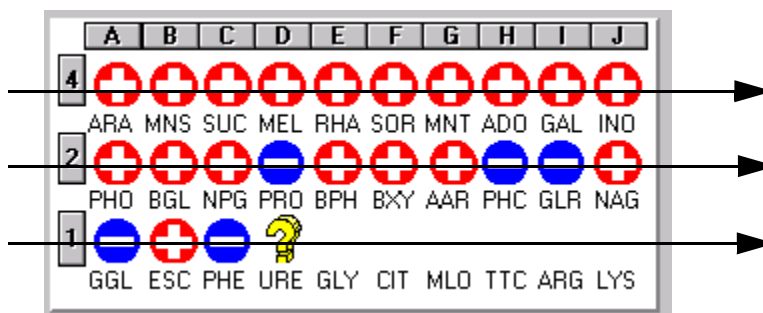
If the accession has not been filled, the focus moves to the **Accession Number** field after the Panel Type has been selected since the **Accession Field** must be entered. If this occurs, enter the Accession Number and press “Tab” or “Enter” until focus is on the first position of the profile number field.

#### 4.6.3.1 Entry Order

The order in which the panel positions are traversed as biochemical reactions are entered, is dependent upon whether the panel is a fluorescent or non-fluorescent panel.

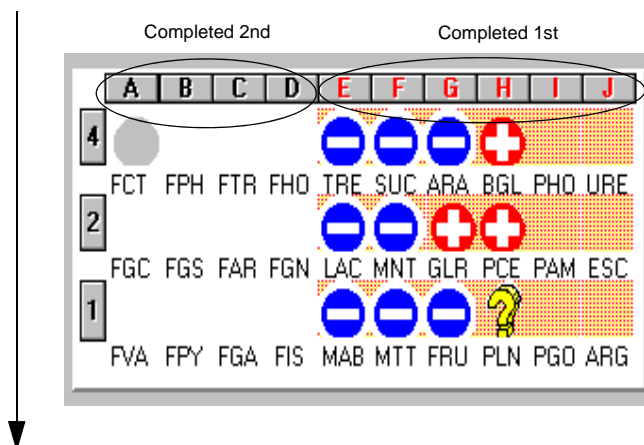
##### Non-Fluorescent Panels

The focus moves from left to right and from top to bottom as you enter each biochemical reaction on the virtual panel.



## Fluorescent Panels

The focus moves from top to bottom and left to right. The Chromogenic area is completed first, and then the Fluorogenic area is completed.



### 4.6.3.2 Modify Entered Reaction

There are two methods of modifying a reaction that has been entered: using the “Backspace” key or switching to Mouse mode and using the mouse.

#### “Backspace” Key

The “Backspace” key allows you to modify the previous reaction. The focus goes back to the last position entered and erases it. This method is best used when you make a mistake on the last entered reaction.

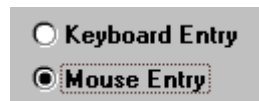
#### Using the Mouse

You must select the **Mouse Entry** option to enable the mouse. Clicking on the result with the mouse makes the reaction change to the opposite value (positive becomes negative and negative becomes positive).

To complete the panel reactions using the keyboard, you must select the **Keyboard Entry** option again. The focus is placed after the last biochemical entered.

### 4.6.4 Mouse Reaction Entry

If you are manually reading panels, you have the option of entering the panel results with the mouse. Using the mouse to enter biochemical reactions in the virtual panel offers greater flexibility over using the keyboard. In order to enter panel reactions using the mouse, the **Mouse Entry** option must be selected. The **Keyboard Entry** option is the default method when the **Data Entry** screen is entered. To change the default option, see **Section 11.0 – CONFIGURATION**.



You are not required to enter the reactions in any particular order when using the mouse. Just place the mouse over the panel position to enter and click the left mouse button once to enter a positive result and twice to enter a negative result.

#### 4.6.4.1 Completing a Row or Column

An entire row can be completed at the same time by clicking on the row indicator (4, 2 or 1). An entire column can be completed at the same time by clicking on the column indicator (A, B, C,...).

Column indicators

	A	B	C	D	E	F	G	H	I	J
Row indicators 4	+	+	+	+	+	+	+	+	+	+
	ARA	MNS	SUC	MEL	RHA	SOR	MNT	ADO	GAL	IND
2	+	+	+	-	+	+	+	-	-	+
	PHO	BGL	NPG	PRO	BPH	BXY	AAR	PHC	GLR	NAG
1	-	+	-	?						
	GGL	ESC	PHE	URE	GLY	CIT	MLO	TTC	ARG	LYS

The following paragraphs describe various ways to complete the column or row.

- If the row or column is completely empty, clicking on the row or column indicator will complete that row or column with “+” signs.
- If the row or column contains all “+” signs, then clicking on the row or column indicator will complete that row or column with “-” signs.
- If the row or column contains all “-” signs, then clicking on the row or column indicator will complete that row or column with “+” signs.
- If the row or column contains some “+” signs and some “-” signs, then clicking on the row or column indicator will complete that row or column with all “+” signs (converting all “-” and empty positions to “+”).

#### 4.6.4.2 Completing Entire Panel – Complete Panel Button

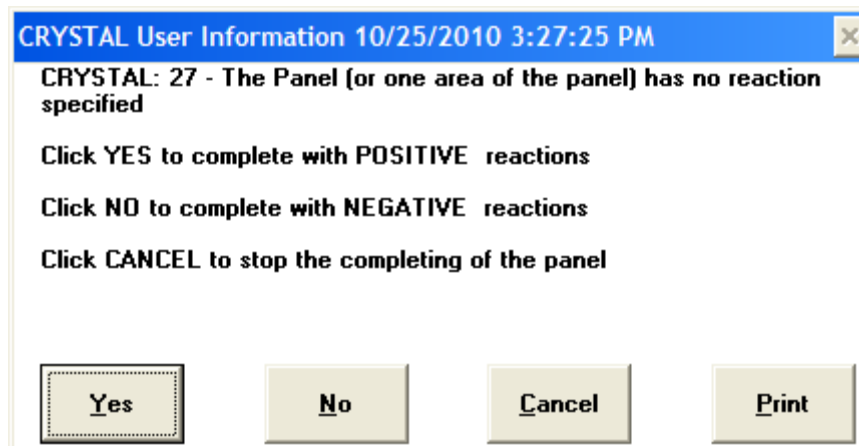
When the **Mouse Entry** option is selected, a “Complete Panel” button is displayed that allows the entire panel to be completed at the same time.



The panel is completed differently depending upon the panel nature: Non-Fluorescent or Fluorescent. The following paragraphs describe various ways to complete the entire panel based on the panel nature when the “Complete Panel” button is clicked.

##### Non-Fluorescent Panel

If the entire panel is empty, the following message is displayed.



Clicking the “Yes” button fills all the positions with “+.” Clicking the “No” button fills all the positions with “-.”

- If the panel contains some “+” signs and the rest of the positions are empty, all of the empty positions are filled with “-” signs. The opposite is true as well. If the panel contains some “-” signs and the rest of the positions are empty, all of the empty positions are filled with “+” signs.
- If the panel contains some “+” signs and some “-” signs, an error message is displayed indicating that the panel cannot be completed using the “Complete Panel” button.

#### Fluorescent Panel

Fluorescent panels contain two areas (Fluorogenic or Chromogenic). Each area is completed independently of the other. Each area uses the same rules as described for Non-Fluorescent panels.

- If an area is empty, then a message asking how to complete that area is displayed. Pressing the “Yes” button fills all the positions with “+.” Pressing the “No” button fills all the positions with “-.”
- If an area contains some “+” signs and the rest of the positions of that area are empty, all of the empty positions will be filled with “-.” The opposite is true as well. If an area contains some “-” signs and the rest of the positions of that area are empty, all of the empty positions will be filled with “+” signs.
- If an area contains some “+” signs and some “-” signs, an error message will be displayed indicating that the panel can not be completed using the “Complete Panel” button.

## 4.7 Marking Equivocal Reactions

If you are unsure if a biochemical reaction is positive or negative, the biochemical can be marked as *equivocal*. You must still give the biochemical a positive or negative result, but it can be marked so that it is visually apparent that the reaction is questionable.

To mark a biochemical as equivocal, first enter the positive or negative result and then click once on the biochemical test name abbreviation. The biochemical test name becomes yellow and highlighted in red. If you are entering reactions using the **Keyboard Entry** mode, press “Control” + “+” or “-” while entering the test reactions.

	A	B	C	D	E	F	G	H	I	J
4	⊖	⊖	⊖	⊖	⊕	⊕	⊕	⊕	⊕	⊕
	ARA	MNS	SUC	MEL	RHA	SOR	MNT	ADO	GAL	IND
2	⊕	⊕	⊕	⊖	⊖	⊕	⊖	⊕	⊕	⊕
	PHO	BGL	NPG	PRO	BPH	BXY	AAR	PHC	GLR	NAG
1	⊕	⊖	⊕	⊕	⊕	⊕	⊕	⊕	⊖	⊕
	GGL	ESC	PHE	URE	GLY	CIT	MLO	TTC	ARG	LYS

To remove an equivocal mark, click on the biochemical test and the red highlighting is removed.

The Profile Number in the **Profile** field is not effected by the equivocal reactions. The Profile Number is calculated normally using the positive and negative reactions.

#### NOTE

A maximum of three equivocal reactions is allowed in the virtual panel.

## 4.8 Offline Results Entry

Offline results must be entered in order to save the panel.

To enter a result for a given offline test, click on the result to the left of the box. A cross is displayed on the box corresponding to this result. This must be done for each offline test.

To enter results for offline tests without using a mouse: after completing the virtual panel with “+” and “-” keys, focus is on the first position of the offline result. The Arrow Keys allow you to switch to the different results for a given offline test. “Tab” and “Enter” allow you to switch to another offline test.

<b>Gram</b> <input type="checkbox"/> + Bacilli <input type="checkbox"/> + Cocci <input type="checkbox"/> - Bacilli <input type="checkbox"/> - Cocci	<b>Indole</b> <input type="checkbox"/> + <input type="checkbox"/> -	<b>Catalase</b> <input type="checkbox"/> + <input type="checkbox"/> -
---	---	---

Some offline tests are radio buttons instead of checkboxes. Use the same rules described above to enter the results.

**NOTE**

Some panel types may require the entry of offline results prior to scanning a panel.

## 4.9 Saving an Accession

Clicking the “Add” button or pressing “Alt” + “A”, saves an Accession and all of its panels to the Crystal MIND Database.

Before saving an accession, all the mandatory fields must be completed for each panel (accession number, panel reactions, offline results). If one of the mandatory fields is not complete when the “Add” button is clicked, an error message is displayed and the information is not saved.

When the “Add” button is clicked, the ...Please wait... message is displayed on the screen. You must wait until the end of the process to continue to work.

The screen is cleared when the save is complete and the focus is placed on **Accession Number** field.

**NOTE**

If the same accession number is saved to the database at different times, the panels of the accession number will not be associated. Since they were entered at different times, they are considered to be two different accession numbers.

## 4.10 “Clear” Button

If the “Clear” button is clicked, it clears the screen. A message is displayed asking you to confirm the clear. If you click the “OK” button, the screen is cleared, including all panels entered for the current Accession Number. You will lose any unsaved data. If you click the “Cancel” button, the screen is not cleared and the **Data Entry** screen is re-displayed.

The focus is then in the **Accession Number** field. The Reaction Entry mode (Keyboard or Mouse) remains the same.

## 4.11 “Close” Button

If the “Close” button is clicked, the **Data Entry** screen is closed and the Main BBLCrystal MIND screen is displayed.

If there is unsaved data on the screen, a message is displayed indicating that there is unsaved data on the screen. If you click the “Yes” button, the Main screen is displayed and all data on the screen is lost. If you click the “No” button, the data remains on the screen and the **Data Entry** screen is re-displayed.

## 4.12 “ID” Button

By clicking the “ID” button, the Organism Identification process is started.

It launches the Batch ID process to obtain identifications, statistics and special messages of all the panels that have not passed through the Batch ID process. (see the next section – Batch ID, for details) .

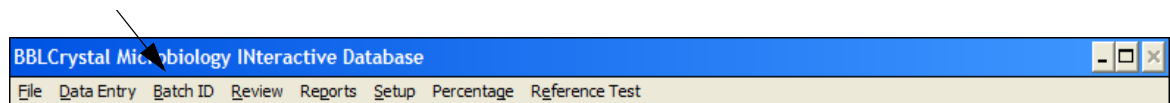


# 5.0 Batch ID

## 5.1 Introduction

The Batch ID process launches the ID Engine to obtain organism identifications, statistics and special messages of the panels entered through the **Data Entry** screen that have not been passed through the Batch ID process. This operation has to be initiated after adding panels in the **Data Entry** screen in order to view Panel ID Results.

The Batch ID process is active from any screen menu (**Main**, **Data Entry** and **Review** screens)



or from the "ID" button on the **Data Entry** screen.



- In the **Data Entry** screen, several panels for a given accession can be entered. One or more panels for different accession numbers can also be entered. At any point in time, the Batch Id process can be launched. The Batch Id process does not have to be launched after each Accession Save since the Batch ID process will launch the ID Engine for all panels that have not been identified.
- When the Batch ID process is launched a message is displayed on the screen. You must wait until the end of the process to continue to work.





# 6.0 Review

## 6.1 Introduction

The **Review** Screen displays the panel results that were generated by the Batch ID Process. The screen is divided in 2 main sections:

- At the top of the screen, all the panels that have not been printed and have been *Batch Id* processed are displayed in a scrollable worklist.
- The remaining portion of the screen contains the results of the panel selected in the worklist. The results include: Identifications with statistics (Biotype Validity and Confidence factor), statistics and/or message notes.

When the user enters in this screen, the focus is on the first line of the worklist if there is at least one panel displayed.

The screenshot shows the BBL Crystal Microbiology Interactive Database [Review] window. The main area displays a table with the following data:

Panel	Profile	Patient Name	Accession Number
ENF	4424644061	C JOHNSON	827532
ENF	5664646051	H FREEMAN	827444
ENF	4765273153	J DELL	284737
ENF	6765677557	R BOOKMAN	546732
ENF	3411310300	S REYNOLDS	537272
ENF	5761673455	T SMITH	827218

Below the table, there is a checkbox for "Display the Profiles already Printed" and a "List Sorted by" section with radio buttons for "Patient Name" (selected) and "Accession Number".

The "Current Record" section shows the following information:

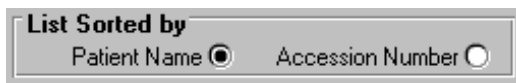
Rank	Organism	Biotype Validity	Confidence
[1]	Klebsiella pneumoniae ssp pneumoniae	1039	.4758
[2]	Serratia rubidaea	211	.2425
[3]	Enterobacter cloacae	660	.2055

Below the current record, there are sections for "Statistics" and "Message". The "Statistics" section states: "The Crystal ID Report is based on these statistics. Choosing an organism of the basis of these statistics is not recommended." The "Message" section states: "The Crystal ID system reports these choices. Supplemental testing is recommended."

At the bottom, the "BBL Crystal Enteric/NF 4.0" section shows the "Profile" field with the value "6765677557" and "Oxidase" and "Indole" test results.

## 6.2 Worklist

The worklist displays all the panels that have not been printed and have passed through the Batch Id process. By default, the worklist is sorted by patient name. You have the option of changing the default sorting of patient name to accession number by clicking the corresponding radio button below the worklist.



The worklist displays the following information:

- The panel abbreviation
- An asterisk if a panel has equivocal results
- The profile number
- The patient name (if it exists)
- The accession number

Panel	Profile	Patient Name	Accession Number
ENF	5664646051	H FREEMAN	827444
ENF	4765273153	J DELL	284737
ENF	5664646051	JOHN DOE	382288
ENF	6765677557	R BOOKMAN	546732
ENF	3411310300	S REYNOLDS	537272
ENF	5761673455	T SMITH	827218

Display the Profiles already Printed

List Sorted by  
 Patient Name  Accession Number

If you would like to view panels that have already been printed, you must check the box, **Display the Profiles already Printed**, which is located below the worklist. Panels that have not been printed are removed from the list when this checkbox is checked.

The worklist displays by default, the panels of the last 30 days. You may change this period in the Crystal.ini file, and replace the 30 by the desired number of days (See **Section 11.0 – CONFIGURATION** for details).

### 6.3 Selecting a Panel in the Worklist

To select a panel in the worklist, use the up and down arrow keys or click the desired panel. Selecting a panel highlights the entire panel line in the worklist.

Each time a panel line is highlighted, the results of the selected panel are automatically displayed on the bottom portion of the screen.

### 6.4 Organism Identification Results

The bottom portion of the screen displays the organism identification (up to three organisms), the Biotype Validity, Confidence Value and Special Messages.

#### 6.4.1 Organism Pushbuttons

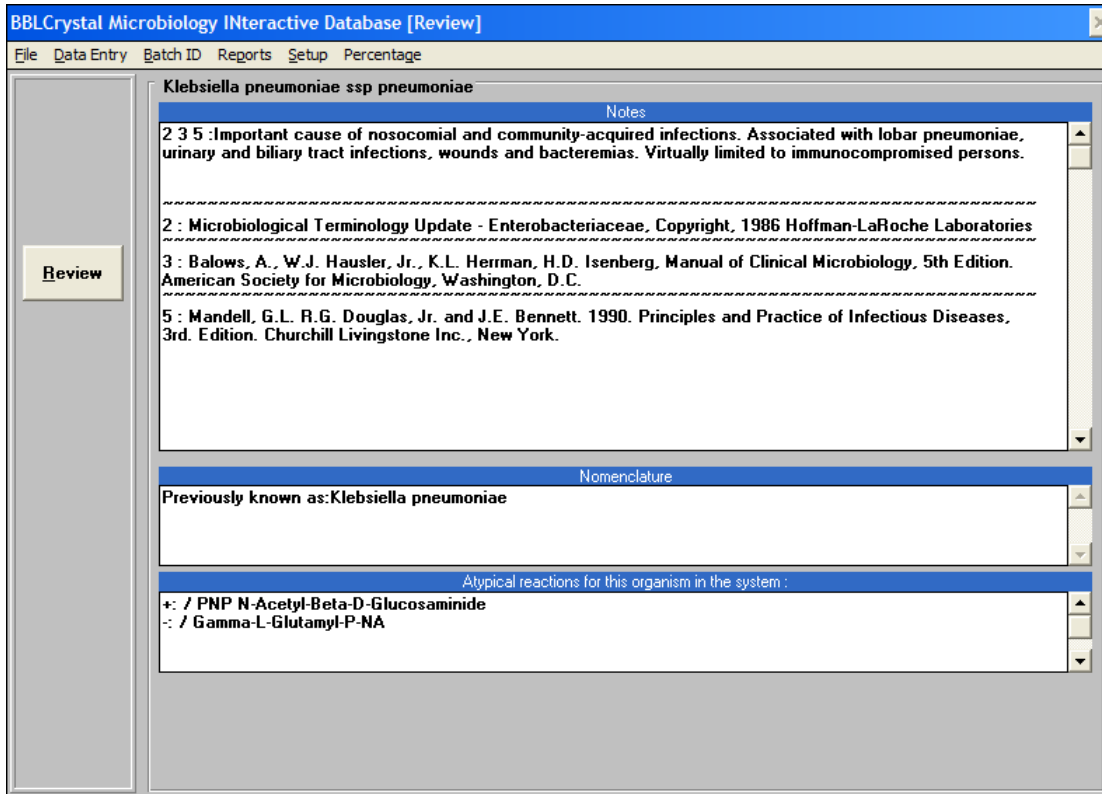
[1] <i>Klebsiella pneumoniae</i> ssp <i>pneumoniae</i>	Biotype Validity	Confidence
[2] <i>Serratia rubidaea</i>	1039	.4758
[3] <i>Enterobacter cloacae</i>	211	.2425
	660	.2055

Each organism name acts as a button. When you click one of the buttons or enter the number displayed between [square brackets], a screen is displayed containing additional information about the identification. The following section describes the content of this screen.

#### 6.4.2 Organism Information Screen

The following is a description of the screen that is displayed when an organism button is clicked.

- The first section contains Notes about the organism. There are reference numbers displayed at the beginning of the Notes. The reference numbers (2 3 5) refer to the bibliography displayed at the end of the list. In the example, the reference numbers are 2, 3 and 5. At the end of the list, the 3 bibliographies are specified.



- If the organism nomenclature has changed, the next section displays the previous nomenclature. The nomenclature displayed on the Review screen is the new one. The previous nomenclature is displayed on the Organism Information screen.
- If there are atypical results for some of the biochemical tests, the next section, named “Atypical reactions for this organism in the system” is displayed. It contains all the biochemical tests for which there are atypical results, and the obtained results (+ or -).
- To return to the Review screen, click the “Review” button.

### 6.4.3 Previous Nomenclature

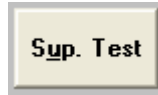
If an organism pushbutton is surrounded in red, it indicates that the organism nomenclature has changed since the previous version of BBL Crystal MIND.

[1] *Weeksella virosa*/*Bergeyella zoohelcum*

The nomenclature displayed on the **Review** screen is the new one. The previous nomenclature is displayed on the **Organism Information** Screen.

## 6.5 Supplemental Testing

Clicking the “Sup Test” button displays the **Differentiation Database** screen where the organisms identified for the current panel are displayed with their expected behavior on additional supplemental testing. The numbers displayed on this screen represent the percent positive.



Organism Name	VP	MO	CB	GE	DN	MR	OR
<i>Enterobacter cloacae</i>	99	95	99	1	1	5	96
<i>Klebsiella pneumoniae</i> ssp <i>pneumoniae</i>	98	1	98	1	1	10	1
<i>Serratia rubidaea</i>	99	85	94	90	99	20	1

**Description of the Test Codes and Results**

42 : Growth at 42 degrees Celsius  
 CB : Cellobiose  
 DN : DNase  
 GE : Gelatin  
 HS : H2S  
 MO : Motility  
 MR : Methyl Red  
 NI : Nitrate  
 OR : Ornithine

All Organisms      <<>>      Close

You can choose to display all tests or only the meaningful tests, (i.e. the tests for which there are clear pos/neg results for the bacteria under consideration) by clicking the following button.



You can obtain supplementary test information even if the current panel did not produce an identification. In this case, the supplementary tests are displayed for all organisms.

A Please Wait message is displayed on the screen while waiting for the supplementary tests screen to display the results.

You can obtain more test results with all the organisms by checking the **All Organisms** check box.

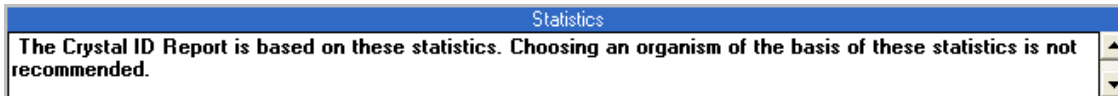
The meaning of each biochemical test and each result is displayed at the bottom of the screen, in a table **Description of the test Codes and Results**. It is sorted in alphabetical order.

The “Close” button returns you to the **Review** Screen.

## 6.6 Statistics and Message Notes

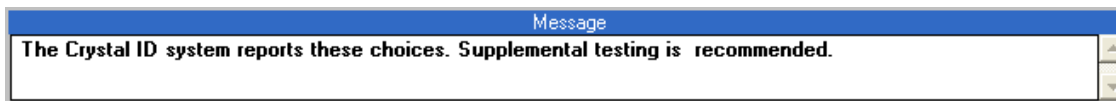
Below the **Organism Results** section, additional information is displayed. Up to two additional sections can be displayed based on the identification results (Statistics, Message or Error section).

The **Statistics** section gives comments about the reliability of the confidence value.



The confidence value is the degree of certainty for that identification. A value of 1.0 would indicate 100% certainty. The statistic, Biotype Validity, is a measure of the “nearness of fit” between your result and a hypothetical “best fit” profile number. The larger the value, the worse the agreement between your profile and the profile for the listed organism or group. The direct use of these statistics to report identifications is not part of the BBL CRYSTAL Identification System. Values are displayed for information only. Relatively close values should be considered equivalent (1000 is approximately as meaningful as 5000, for example).

The **Message** section gives comments about the final results. Some organisms display additional information about the organism(s) in the Message box.



The *Error* section is displayed instead of the *Message* section, if a value higher than 3 has been entered as the first digit of a fluorescent panel profile number. The section is displayed in red indicating that the panel can not be calculated.



## 6.7 Edit/Modify a Panel Profile

It is possible to correct potential errors while reviewing the Identification(s) suggested by the system.

### NOTE

The Edit feature is not available if the desired panel has one or more equivocal results. The equivocal results must be resolved before the Edit feature is enabled. See Section 6.8 for information on resolving equivocal results.

To edit a panel, click the “Edit” button and the **Data Entry** screen is displayed with the selected panel on the screen.

You may now modify the biochemical reactions and the offline tests of the current panel. At this time, you may also enter equivocal results. Only the selected panel from the **Review** Screen can be modified. The associated panels can only be modified by selecting each panel individually in the **Review** Screen and then clicking the “Edit” button.

When you have made all the changes, click the “Modify” button to save the panel. The Batch Id process is automatically re-launched and will give new identifications, and Statistics for the given panel.

To review the new identification results for the modified panel, you must select the **Review** menu item at the top of the screen to return to the **Review** screen. Now you must re-select the desired panel in the worklist.

## 6.8 Resolving Equivocal Results

The panels that have equivocal results are indicated in the worklist by an asterisk (\*) after the panel abbreviation.

Panel	Profile	Patient Name	Accession Number
ENF	5664646051	H FREEMAN	827444
ENF	4765273153	J DELL	284737
ENF *	5664646051	JOHN DOE	382288
ENF	6765677557	R BOOKMAN	546732
ENF	3411310300	S REYNOLDS	537272
ENF	5761673455	T SMITH	827218

When a panel with equivocal reactions is highlighted in the worklist, the attached results are displayed in the organism section (just like panels without equivocal results).

The screenshot shows the BBLCrystal Microbiology Interactive Database [Review] window. At the top, there is a menu bar with options: File, Data Entry, Batch ID, Reports, Setup, Percentage. Below the menu is a worklist table with columns: Panel, Profile, Patient Name, and Accession Number. The table contains six rows, with the third row (ENF \* 5664646051 JOHN DOE 382288) highlighted in yellow. To the left of the table are several buttons: Print, Delete, Sup. Test, (\*) Others, Resolve, Modify, and Close. Below the table, there is a checkbox for "Display the Profiles already Printed" and a "List Sorted by" section with radio buttons for "Patient Name" (selected) and "Accession Number". The "Current Record" section displays the organism name "[1] Citrobacter freundii" in a box. To the right of this box are two input fields: "Biotype Validity" with the value "627" and "Confidence" with the value ".9941". Below these is a "Statistics" section with a text box containing "The Crystal ID Report is based on these statistics." At the bottom, there is a section for "BBL Crystal Enteric/NF 4.0" with input fields for "Profile" (5664646051), "Oxidase" (-), and "Indole" (-).

When a panel with equivocal results is selected in the worklist, two additional buttons appear at the left of the screen: “(\*) Others” and “Resolve.” Their use is described in the sections that follow.

## 6.8.1 (\*) Others

The “(\*) Others” button allows you to display the current profile and the other possible profiles based on selecting the opposite reaction for each of the equivocal biochemicals. When you click the button, the current worklist is cleared and is replaced with all the possible profile numbers for the current panel.

All the possibilities have an “\*” (asterisk) following the panel abbreviation except for the current profile.

Panel	Profile	
ENF	5664646051	
ENF *	5624646051	
ENF *	5664646251	
ENF *	5624646251	

# of combinations based on the # of equivocal biochemicals:

- 1 equivocal biochemical ⇒ 2 different combinations
- 2 equivocal biochemicals ⇒ 4 different combinations
- 3 equivocal biochemicals ⇒ 8 different combinations

As you select each profile in the list, the Organism identification results for that profile appear. The next step is to select a profile for this panel or to cancel the operation. The following describes the three buttons that are available.

“Resolve” – Resolves the panel by selecting the highlighted profile as the final result for the panel. The new results are saved to the database and all equivocal marks are removed from the panel.

“Cancel” – Returns to the previous **Review** screen with all the original panels displayed in the worklist. The panel remains unchanged and still has equivocal results.

“Sup Test” – Displays supplemental testing results.

## 6.8.2 Resolve

If you choose the original profile (the one displayed in the initial worklist), you have to highlight the panel line and press the “Resolve” button to resolve the equivocal biochemicals. The “(\*) Others” and “Resolve” buttons are removed from the screen once the highlighted panel has been resolved. The asterisk after the panel abbreviation for this panel in the worklist is also removed.

## 6.9 Deleting a Panel

If the “Delete” button is clicked, a message is displayed on the screen asking to confirm the delete. If you answer Yes, the selected panel is deleted from the database.

A panel can be deleted with or without equivocal test results.

If all panels attached to an accession number are deleted, the accession number is deleted from the database. If all accession numbers attached to a patient are deleted, the patient is deleted from the database.

## 6.10 Close

If the “Close” button is clicked, the **Review** screen is closed and the main **BBL Crystal MIND** screen is displayed.

# 7.0 Reports

## 7.1 Specimen Report

The Specimen Report contains panel results for all panels associated to the accession (that were entered at the same time) or for a single panel. Each panel of the specimen is printed on a separate page.

### NOTE

Once a panel has been printed it is removed from the Worklist on the **Review** Screen. Make sure that the printer is turned on and has paper prior to printing a Specimen Report. If the printer is turned off, out of paper or some other technical difficulty has occurred, the panel(s) are still assumed to be printed and will be removed from the Worklist. To be able to re-print the panel, you must check the **Display the Profiles already Printed** check box.

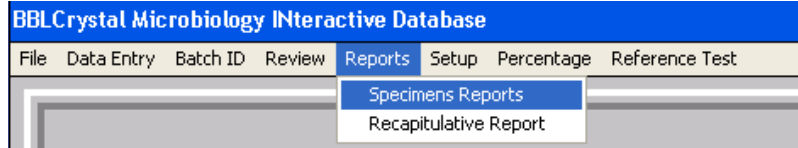
This displays all the panels in the database that have already been printed

Display the Profiles already Printed

The Specimen Report can be generated two ways: from the **Reports** Menu or through the “Print” button on the **Review** screen. The two printing methods are described below.

### 7.1.1 Printing from the Reports Menu

To print the Specimen Report through the **Reports** Menu, click on **Reports** and then click on **Specimen Report**. This prints all specimens that have passed through the Batch ID process and have not yet been printed.



### 7.1.2 Printing from Review screen

To print the Specimen Report through the **Review** Screen, select a panel in the worklist and then click the "Print" button. *Only* the selected panel is printed. Note that panels related to the selected panel are not printed, (as when printing from the **Reports** menu), only the selected panel prints.

### 7.1.3 Example Report

**BBLCrystal MIND - Specimen Report**  
 1/5/2004 16:03:46

---

Accession # : 82357  
 Patient Id : 235  
 Patient Name : JOHN DOE

---

Profile : 1671000131 *BBL Crystal Gram Positive 4.0*  
 Gram : + Cocci

---

<b>Streptococcus pneumoniae</b>	<b>Streptococcus mitis group</b>	
Biotype : 6	Biotype : 8	Biotype :
Confidence Factor : 0.5189	Confidence Factor : 0.3505	Confidence Factor :

The Streptococcus mitis group includes:  
 Streptococcus mitis and Streptococcus oralis.

---

**Statistics :** The Crystal ID Report is based on these statistics. Choosing an organism of the basis of these statistics is not recommended.  
**Message Report :** The Crystal ID system reports these choices. Supplemental testing is recommended.

STRPNE	C	a	-	?	?	-	?	+	?	?	?	-	?	?	-	?	?	?	S	?	?	?	?	?	+	?	+	?	?	+	-	?	?	+	?	?	-	-	
STRMITGR	C	?	-	?	?	-	?	-	?	-	?	?	?	-	?	?	S	?	?	?	?	?	?	?	-	?	?	?	-	?	?	?	?	?	?	?	-	?	?
Results																																							

**Final Id :**

**Atypical Reaction :**

STRPNE	FCT	FGC	FVA	FPH	FGS	FPY	FTR	FAR	FGA	FHO	FGN	FIS	TRE	LAC	MAB	SUC	INT	MTT	ARA	GLR	FRU	BGL	PCE	PLN	PHO	PAM	PGO	URE	ESC	ARG							
STRMITGR																																					

The report provides the following data:

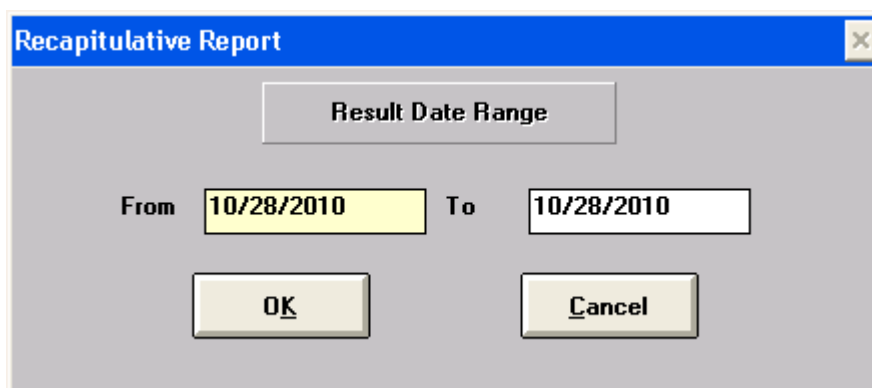
- A Report Header with the current date and Report title.
- A Specimen Header containing the Accession number, Patient Id and Patient Name.
- A Panel Results Section containing the Profile number, Panel Type, Offline Test Results, Organism Id(s) with corresponding Biotype and Confidence factor, and messages.
- If there is more than one identified organism, then supplemental test information is given for each of the identified organisms to help you choose a supplemental test to determine a final identification for the panel. An area is provided that enables you to record the results of any supplemental tests that you may have run, as well as an area to record the Final ID.
- An Atypical Reaction section which displays the expected reaction for biochemicals that deviated from the expected reaction.

## 7.2 Recapitulative Report

The Recapitulative Report is a summary of all the panels that received organism results within a specified date range. A specimen that has not passed through the Batch ID process does not have any of its panels included in the Recapitulative Report.

The report is printed by selecting the **Report** menu from the **Main** menu and then selecting **Recapitulative Report**. Once you select the report, you are prompted for a start and end date. The date range defaults to the current day. Click the "OK" button and the report is sent to the printer.

Refer to the **Troubleshooting** section of this manual if the report does not print.



The image shows a dialog box titled "Recapitulative Report" with a close button (X) in the top right corner. The dialog box has a light gray background. At the top, there is a label "Result Date Range" in a gray box. Below this, there are two input fields: "From" and "To". The "From" field contains the date "10/28/2010" and the "To" field also contains "10/28/2010". Below the input fields, there are two buttons: "OK" and "Cancel".

## 7.2.1 Example Report

<b>BBLCrystal MIND - Recapitulative Report</b>							
		1/5/2004		→		1/5/2004	
1/5/2004 10:55:42							
Accession # :	Patient Name :	Profile :	Gram :	Indole :	Oxidase :	Catalase :	Organism :
101	QC PANEL	7777777777 <b>ENF</b>		-	-		
82372	JOHN DOE	6765677557 <b>ENF</b>		-	-		KLEPNP SERRUB ENTCLO
83726	JOHN DOE	0665553503 <b>GP</b>	+ Cocci				STRAGA (!)
* 85662	JANE DOE	0732000170 <b>GP</b>	+ Bacilli				ACTPYO

(!) Please review panel results in Review Screen for Special "Message" information.

The report provides the following data:

- A header with the report title, the selected date range and the current date.
- For each profile:

Accession number

Patient name

Profile and panel name

Offline Test results (Oxydase, Indole, ...)

Identifications with the corresponding Confidence factor and Biotype. An exclamation mark ( ! ) indicates that there is an associated Message Taxon that can be viewed in the Specimen Report or **Review** display.

# 8.0 Set Up

## 8.1 Introduction

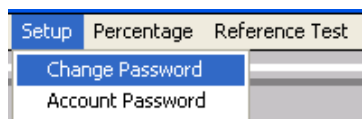
The **Setup** Menu enables you to add/modify user accounts in the system and modify the passwords of existing user accounts. To run the BBL Crystal MIND application, you must have a user account defined in the system.

The default user account is the following:

**Username:** BBL Crystal

**Password:** BBL

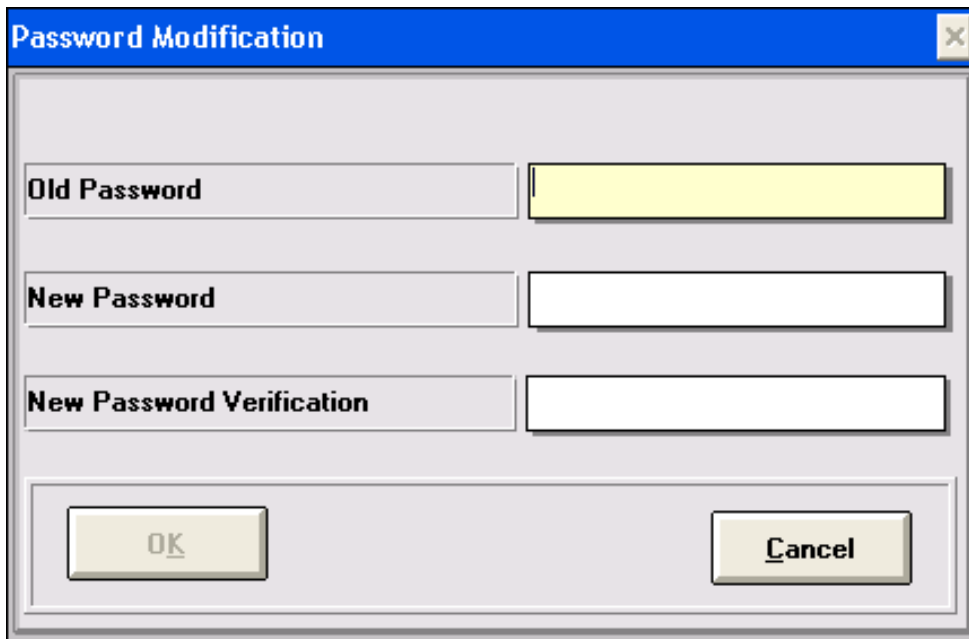
There are two levels of account security: Technologist and Administrator. If you are logged into the system under an account that has a Technologist security level, then you do not have access to the **Account Password** menu item.



## 8.2 Change Password

This menu is accessible for all users and enables you to change your password for the current account that you are logged under.

To change your password, you need to enter your current password in the first field (**Old Password**). In the second field (**New Password**), enter the new password. In the third field (**New Password Validation**) you must once again enter your new password, for confirmation.



The image shows a dialog box titled "Password Modification" with a close button (X) in the top right corner. The dialog box contains three input fields stacked vertically. The first field is labeled "Old Password" and has a yellow background. The second field is labeled "New Password" and has a white background. The third field is labeled "New Password Verification" and has a white background. At the bottom of the dialog box, there are two buttons: "OK" on the left and "Cancel" on the right. The "OK" button is currently disabled (grayed out).

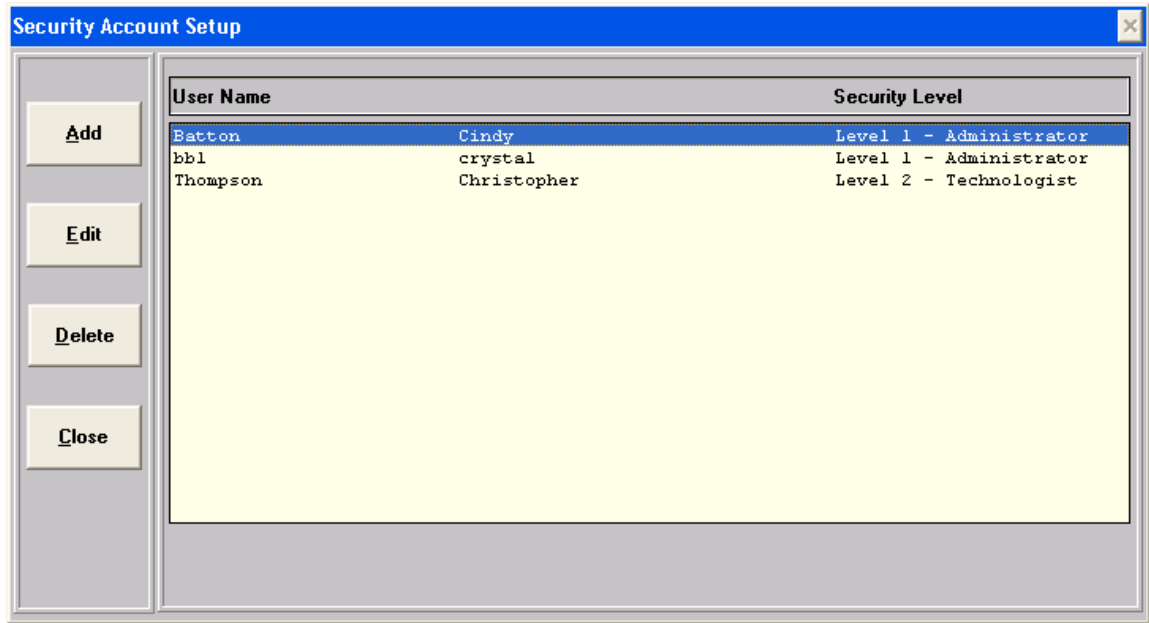
When you access the screen, the "OK" button is disabled. It becomes active once you have completed all three fields. You can cancel your changes by clicking the "Cancel" button.

When the "OK" button is clicked: If the old password is not correct or if the new password is not the same as the New Password Verification, an error message is displayed and the change does not take place.

## 8.3 Account Password

This submenu is accessed by clicking on the **Setup** menu and then clicking **Account Password**. It is only accessible for a user with an Administrator security level. It may be used to Add, Edit, or Delete user accounts.

When entering this screen, the list of all users with their respective security level (Administrator or Technologist) is displayed.



### 8.3.1 Adding a New User Account

To add a new user, click the “Add” button. A window is displayed where you need to enter the Last AND First name of the new user. Enter up to 24 alphanumeric characters in the **Last** name and up to 25 characters for the **First** name.

The screenshot shows a dialog box for adding a new user. It features a 'User Name' section with two text input fields: 'Last' (highlighted in yellow) and 'First'. To the right is a 'Security Level' section with two radio buttons: 'Level 1 (Administrator)' and 'Level 2 (Technologist)'. Below these is a checked checkbox labeled 'Initial Password set to Last Name'. On the left side of the dialog are 'Save' and 'Cancel' buttons.

You must choose the user's security level by clicking the **Level 1 (Administrator)** or **Level 2 (Technologist)** radio button.

Click the “Save” button to add the new user to the database. If all fields are not completed, an error message is displayed informing that the save cannot take place.

If you wish to cancel the addition of the new user, click the “Cancel” button and the **Main** screen is displayed.

#### NOTE

Each username **MUST** be unique. If not, an error message is displayed.

### 8.3.2 Modifying a User Account

You must first select a user account in the list on the Account Password screen. Now click the "Edit" button to display the account information for the selected user.

This screen functions as described in Section 8.3.1 for adding a new user account.

If the user of the account that is being modified has forgotten his/her password, click the check box, **Reset Password to Last Name** to reset the password to the user's last name. When the user logs in the next time, they can change the password through the **Change Password** option.

### 8.3.3 Deleting a User Account

To delete a user account, you must first select a user account in the list on the Account Password screen. Now click the "Delete" button.

A message is displayed asking you to confirm or cancel the deletion of the selected user.

**NOTE**

It is impossible to delete the current logged on user. An error message is displayed if this is attempted.

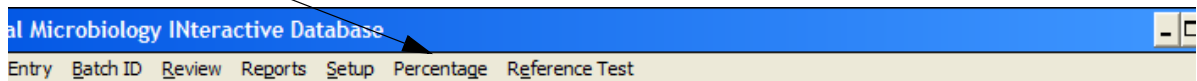


# 9.0 Percent Chart

## 9.1 Introduction

The Percent Chart is a *display only* informational chart that lists the percentages of each biochemical for each organism. The numbers displayed in the chart represent the percentage of strains positive for the tested biochemical in the BBL Crystal Database.

The menu option to display the Percent Chart is available in any screen.



ENF	ANR CDC	ANR SCH	ANR ALT	GP	RGP	NH												
Organism Name	ARA	PHD	GGL	MNS	BGL	ESC	SUC	NPG	PHE	MEL	PRO	URE	RH/					
Acinetobacter baumannii	58	4	16	99	1	1	4	1	4	95	1	37	25	▲				
Acinetobacter lwoffii	1	1	1	1	1	1	1	1	1	4	1	31	1					
Aeromonas caviae	75	8	89	28	81	58	97	99	11	1	99	92	1					
Aeromonas hydrophila	49	44	79	86	81	72	86	99	11	4	99	81	11					
Aeromonas sobria	4	64	72	99	12	1	96	99	16	1	99	88	1					
Aeromonas veronii	20	20	60	80	60	60	99	99	60	1	99	80	1					
Agrobacterium tumefaciens	1	8	1	1	92	99	1	31	1	1	8	99	1					
Cedecea davisae	35	18	41	99	99	99	99	82	1	1	1	41	1					
Cedecea lapagei	14	29	71	99	99	99	14	93	1	57	1	64	14					
Cedecea neteri	1	20	40	99	99	99	99	99	1	1	1	20	1					
Chromobacterium violaceum	1	99	80	1	1	10	1	1	10	1	10	90	1					
Pseudomonas luteola	1	55	1	1	99	99	1	99	1	55	36	99	36					
Citrobacter amalonaticus	99	4	67	99	25	13	4	99	1	8	4	38	99					
Citrobacter koseri	99	3	89	99	8	4	41	96	1	1	1	40	99					
Citrobacter freundii	99	7	90	99	9	2	57	99	1	72	1	31	99					
Edwardsiella hoshinae	9	1	1	99	1	1	99	1	1	1	99	1	1					
Edwardsiella tarda	1	56	1	99	6	1	1	1	1	1	99	38	1					
Enterobacter aerogenes	97	29	95	99	97	99	98	85	1	96	1	2	98					
Pantoea agglomerans	89	42	68	97	89	76	82	84	11	53	3	26	89					
Enterobacter asburiae	99	7	80	99	99	87	99	99	1	13	1	40	13					
Enterobacter cloacae	98	60	91	99	41	40	99	99	1	79	7	43	88					
Enterobacter gergoviae	94	59	88	99	99	99	99	94	12	71	47	99	99					
Enterobacter sakazakii	99	63	84	99	84	89	99	99	5	53	26	37	89					
Enterobacter cancerogenus	99	94	65	99	82	76	18	99	12	18	6	59	99					
Escherichia coli	99	9	56	99	5	7	48	99	1	82	32	1	94					
Escherichia coli serotype O111	99	1	1	99	1	1	99	99	1	60	1	40	99					
Escherichia coli serotype O157	99	1	1	99	7	1	86	96	1	99	1	1	99					
Escherichia coli AD	89	1	1	99	1	1	11	56	1	56	11	44	33					
Escherichia fergusonii	69	19	31	99	19	6	13	99	1	6	1	38	75	▼				

Close

# 10.0 Reference Test

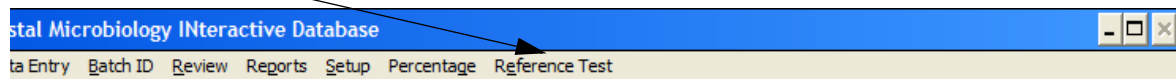
## 10.1 Introduction

### NOTE

This section only applies if you have an attached BBL Crystal AutoReader.

To insure that the AutoReader is correctly calibrated, you must periodically read a Reference Panel in the AutoReader. The Reference Panel is provided with the purchase of your BBL Crystal AutoReader. Scanning the Reference Panel in the AutoReader provides either a Pass or Fail status.

To scan the Reference Panel, select the **Reference Test** menu item from either the **Main Menu**, **Data Entry Menu** or the **Review Menu**.



The AutoReader drawer automatically opens and a screen is displayed instructing you to place the Reference Panel in the AutoReader. Once you have placed the panel in the AutoReader, click the "Scan" button to initiate the scanning process. When the scan of the panel is complete, a message appears that indicates the success or failure of the Reference Panel Test. Regardless of the test status, you can remove the panel from the AutoReader and then click the "Close" button to exit the screen. Upon exiting, the AutoReader drawer automatically closes and you are returned to the **Main Screen**.

If the Reference Panel passed the test, you can continue to use your AutoReader. If the Reference Panel failed the test, you must contact BD Technical Service for assistance.

**NOTE**

Do not continue using the AutoReader if the reference panel test failed.  
Please contact BD Technical Service.

# 11.0 Configuration

## 11.1 Introduction

The system has three configuration options that can be modified via the “MIND Setup” icon in the “BBL Crystal MIND” program group.

### NOTE

When modifying a configuration option, you must first exit the BBL Crystal MIND application. Make your modifications then restart the application.

The three available configuration options are the following:

- Data Review Period
- Panel Reaction Entry – Mouse vs. Keyboard
- Communications Port for BBL Crystal AutoReader

## 11.2 Data Review Period

The panel data stored in the database is never deleted. You do have the option however, to limit the number of panels that are displayed in the **Review** Screen (when the checkbox “Display the Panels already Printed” is checked). To limit the number of panels that are displayed, you can set a parameter that indicates the number of days prior to the current date to keep active.

The default period is 30 days. This number can be changed to any number of days that you desire. Note, however, if this number is too large, the Worklist in the **Review** screen may be truncated. You will be notified if the list is truncated. If this parameter is set to 0, the data displayed in the worklist is the data for the current day only. If the parameter is set to 1, the data displayed is the data of yesterday and today.

To modify the default setting, exit the BBL Crystal MIND application and double-click on the “MIND Setup” icon. This automatically opens the configuration file “crystal.ini” in a text editor. Perform the following steps:

- 1 Use your arrows keys to move to the section [Setup].
- 2 Under the [Setup] section is the configuration setting “Periode.”
- 3 Place your cursor at the end of the “Periode” line.
- 4 Change the default number (30) to the desired number.
- 5 If this is the only configuration option that you want to change, then follow the steps below, otherwise proceed to the appropriate section in this manual to modify another configuration option.
- 6 Click the **File** Menu and select **Save**.
- 7 Click the **File** Menu again and select **Exit**.

## 11.3 Panel Reaction Entry

When entering positive/negative reactions in the virtual panel on the **Data Entry** screen, you have two options of data entry: Keyboard or Mouse. The default option when the **Data Entry** screen is entered, is Keyboard. You can change the setting while in the **Data Entry** screen by clicking the appropriate radio button. Each time the **Data Entry** screen is entered, the default setting of Keyboard is always selected.

To modify the default setting to Mouse, exit the BBL Crystal MIND application and click on the “MIND Setup” icon. This automatically opens the configuration file “crystal.ini” in a text editor. Perform the following steps:

- 1 Use your arrows keys to move to the section [Setup].
- 2 Under the [Setup] section is the configuration setting “Keyboard.”
- 3 Place your cursor at the end of the “Keyboard” line.
- 4 Change the default setting of “False” to “True.”
- 5 If this is the only configuration option that you want to change, then follow the steps below, otherwise proceed to the appropriate section in this manual to modify another configuration option.
- 6 Click on the **File** Menu and select **Save**.
- 7 Click on the **File** Menu again and select **Exit**.

## 11.4 Communications Port Configuration

You have the option of modifying the communications port setting that was setup during the installation of the BBL Crystal MIND application. You have the following options:

- Changing the com port of a connected AutoReader: Change existing com port setting to a new com port number.
- Disconnecting an AutoReader: Change existing com port setting to "0."
- Connecting a new AutoReader: Change com port setting of "0" to appropriate com port number.

To modify the communications port setting, exit the BBL Crystal MIND application and double-click the "MIND Setup" icon. This automatically opens the configuration file "crystal.ini" in a text editor. Perform the following steps:

- 1 Use your arrows keys to move to the end of the file, to the section [Communications].
- 2 Under the [Communications] section is the configuration setting "CommPort."
- 3 Place your cursor at the end of the "CommPort" line.
- 4 Change the current com port number to the appropriate number based on one of the three options above.
- 5 If this is the only configuration option that you want to change, then follow the steps below, otherwise proceed to the appropriate section in this manual to modify another configuration option.
- 6 Click on the **File** Menu and select **Save**.
- 7 Click on the **File** Menu again and select **Exit**.



# 12.0 Working with the Keyboard

## 12.1 Global Rules

The BBL Crystal MIND application can be operated via just the use of the Keyboard. There are global keyboard rules which apply to all screens:

### **To activate a column menu**

There is one underlined letter in the menu option. Use “Alt” + “X” (where X is the underlined letter) to view the column menu.

### **To activate an option in the column menu**

There is one underlined letter for each option under the menu. Press the “X” (where X is the underlined letter) to activate the option.

### **To activate a pushbutton :**

There is one underlined letter in the name of the push button. Use “Alt” + “X” (where X is the underlined letter) to activate the button.

### **To check a check box**

When the focus is on the label of the required check box, press the spacebar to select the check box. An “X” appears in the box. To uncheck it, press the spacebar again.

### **To move through the fields**

Use “Tab” to move forward from field to field.

Use “Shift” + “Tab” to move backwards from field to field.

**To select a radio button (Keyboard/Mouse, Indole, etc)**

Use "Tab" to go to the desired field.

Use the up and down arrow keys to select the desired radio button.

**To move through the push buttons**

When the focus is on a pushbutton, use the up and down arrow keys to highlight the desired pushbutton.

Press "Enter" to activate it.

You can also use "Alt" + "X" to access the button directly.

**To move through items in a scrollable list (Review worklist, User Accounts list, etc)**

Use the up and down arrow keys to go through the list. The selected line is highlighted.