SKF Static Motor Analyzer Software

Surveyor DX
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1 About this guide

This guide uses the following conventions in formatting, and informational devices to help you more clearly identify specific elements and information.

Formatting

Interface items are set in **Initial Caps and Bold**.

Page or window names are set in *italics*.

File names are set in **courier font**.

Information devices

Information requiring special attention is set in the following format and structure:

<table>
<thead>
<tr>
<th>NOTE</th>
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<tbody>
<tr>
<td>Indicates additional information about the related topic that deserves closer attention or provides a tip for using the product.</td>
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<table>
<thead>
<tr>
<th>NOTICE</th>
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<tr>
<td>Indicates information about product usage that can result in difficulty using product if not heeded.</td>
</tr>
</tbody>
</table>
Introduction to the Surveyor DX application

Surveyor DX is a desktop application that provides added value to Baker DX users by uploading Baker DX test data stored on a USB drive for archiving and reporting purposes. Uploaded data is saved in a database on the desktop computer.

Only one database is created and used with each installation. Multiple users of the data would require access to the computer where the database is created. The information in the database is shared by all users and is not locked during use.

NOTICE
The Surveyor DX is not compatible with existing AWA/MTA data; it cannot open existing AWA/MTA data or save data to MTA.

This application does not allow users to apply test parameters to the data nor does it allow the direct addition of pass/fail criteria.

Surveyor DX reports
The Surveyor DX application generates the following types of reports, depending on the source data collected from the tester:

- **RLC**: Resistance, inductance, capacitance, D/Q, impedance.
- **Coil/Armature Bar/Span**: Resistance, inductance, impedance, phase angle graphs.
- **RIC**: Rotor Influence Check graphs, inductance, impedance, phase angle, AC resistance.
- **DC Tests**: Megohm, DA, PI, DC HiPot, Step voltage, DC Graphs.
- **Surge 3 Phase**: Surge waveform, LL and PP EAR.
- **Surge Coil/Armature Bar/Span**: Reference vs. Test EAR bar chart, thumbnails of each coil/bar vs. reference surge waveforms, partial discharge (PD) data bar charts, and PD tables.

Quick view results
The Surveyor DX application provides representative views of printed reports for selected results.

For DC Test and Surge graphs, the application includes a zoom feature and a cursor with x,y readout.
Report formats

Web (html, htm), Web archive (mhtml, mht), MS Word 2003 (doc), 2007, 2010, and 2013 (docx), and Xml (xml)

Languages supported

The application supports English, German, French, Spanish, and Portuguese.

XML report

Surveyor DX can generate an XML report that contains the values of the results. In addition to the DX serial number and date/time stamp for each test result type, the test data includes all scalars and the DC test tables. The data for graphs are also exported and include the Surge graph data and the DC Tests graph data.

Platforms and software supported

The Surveyor DX software works on the following 32-bit and 64-bit platforms:

- Microsoft Windows XP® with service pack 3
- Microsoft Vista®
- Microsoft Windows 7®
- Microsoft Windows 8®

It also works with Internet Explorer 8 (or better) for opening mhtml files and Microsoft Word® 2003/2007/2010/2013 for creating MS Word documents.

Database support

The Surveyor DX software currently works with a Microsoft Access® database. Future revisions are expected to support SQL databases such as SQL Express RT2.

The Surveyor DX database will have a .dxdb extension.

Surveyor DX will only connect to one database. You can choose where the database will be located such as on a local computer or on a network share.

If a company has multiple licenses for Surveyor DX, a merge capability is provided to allow each user to see all the data.
3 Installing the Surveyor DX application

1. Download the setup file from the link provided by the support team.

2. Double-click on the SurveyorDX_Stepup_##.##.##.###.exe file to start the installer program.

3. If you are running Windows Vista or higher, you will need to Click "Yes" to allow the program to make changes to your computer.

4. Select the language you want the application to use in your interface then click on Next arrow to continue.

5. Select the products you want to install from the list displayed. In this case, the current Surveyor DX version.

6. Read the license agreement then click Next arrow to continue if you accept the agreement.

7. Click on the Back arrow to go to the previous page.
8. Click on the Cancel icon (red X) if you do not want to accept the terms of the license. The installation will terminate.

![Surveyor DX installer; read license agreement.](image)

**Figure 3.** Surveyor DX installer; read license agreement.

9. Choose the location where you want to install the application. Use the Browse button to search for and define a custom location, or you can accept the default location provided.

10. Check the box next to Create Shortcut on Desktop to have the installer add an icon to your desktop that is linked to the application. (This box is checked by default.)

![Surveyor DX installer; specify location and shortcut.](image)

**Figure 4.** Surveyor DX installer; specify location and shortcut.

11. Click Next arrow to continue.
12. The installer will proceed and you will see a percent complete indicator as shown below.

![Surveyor DX installer; progress indicator.](image)

Figure 5. Surveyor DX installer; progress indicator.

13. When the installer completes, you will see a message like the one shown below. If you want to review the steps taken during the installation process, click on the View Log button. Otherwise, click on the Finished icon (green check) to exit the installer.

![Surveyor DX installer; installation successful and view log.](image)

Figure 6. Surveyor DX installer; installation successful and view log.

If you checked the **Create Shortcut on Desktop** checkbox (checked by default) during the installation process, you will see an icon on your desktop like the one shown here. You can start the application by clicking on the icon.

If the desktop icon was not requested, the link to the application can be found in the default start up structure. For example, in MS Windows 7® a “Surveyor” folder is available in the **All Programs** menu when you click on the **Start** icon.
Activating the software

When you first start the application, you will be presented with a dialog box like the one shown below.

**NOTE**
This process assumes that the computer on which you installed the software is connected to the internet and that you have a valid sales order number ready.

1. Enter your sales order number and email address in the appropriate fields.
2. Click on the **Activate Now** button.

3. The information will be verified and a dialog box will appear confirming your activation status. You will also receive an email with an activation code, which you can use for re-installation purposes if needed.

Evaluating the software

If you are simply evaluating the software, click on **Continue Evaluation** to button to proceed. The message at the top of dialog informs you how many days remain in your evaluation period.
Other options for activating the software

If the computer on which the software is installed is not connected to the internet, click on the To Activate without internet connection link. That will open a new dialog like the one shown below.

1. Read the contents of the dialog box to determine your situation.

![Image of a dialog box for activating software](image)

Figure 8. Alternatives for activating the software.

2. Ensure that you have your sales order number and the computer ID presented in the dialog. The example ID above shows all Xs, but your will include numbers and letters. Each will be different; they are generated from the computer's characteristics.

3. Contact SKF support as noted to obtain the activation code.

4. Enter the activation code in the appropriate field.

5. Click on the Activate Now button to continue.

6. A dialog box will appear confirming your activation status.
Installing the Surveyor DX application
4 Configuring the Surveyor DX database

When you first use the application, you will see the dialog box shown below asking whether a new database should be created, or whether the software should use an existing database. Click on the appropriate radio button for your application.

![Specifying database to use.](image)

If you click on **Create New Database**, a search dialog will open that you can use to specify the name that you want to give to the database. By default, the file will be located in the application data folder specified by your operating system with the structure shown in the example. It is important to note that this folder is by default set by the operating system to be a hidden folder. You might need to change your folder settings to manually browse to this folder. Change the location if you prefer to use another folder.

![Search dialog for defining database to use.](image)

If you click on **Browse for Existing Database**, a search dialog will open that you can use to locate and specify an existing database.

After you click on **Save** in the dialog, the selected database will appear as the top item in the **Location tree**.

![Database location tree.](image)
Specifying the database location

1. To define or confirm the location of your database, click on the Settings icon found in the Main toolbar.

![Figure 11. Icon used to open Settings dialog box.](image)

2. A dialog box like the one shown below opens to help you confirm or change the database location.

3. Click on the Browse button if you need to change the location of the database you will be using.

![Figure 12. Settings dialog box; Database tab used to define location.](image)

4. Click on OK to return to the main user interface.

**NOTE**
The Apply button is used more for the Select Reports tab in this dialog. You do not need to click on Apply and OK. Clicking on OK saves your changes and returns you to the main user interface.
Merging databases

Merging databases is accomplished by exporting the entire database (or desired portions) to a .dx file then importing the file into another system on which the Surveyor DX application has been installed.

You can use the same methods to select data to export that you use to select results for reporting. This includes all the selection features via Auto-Check and the Settings dialog box.

Then you would right click on the tree to open a menu like the one shown below then click on the Export item to save the selected data to a .dx file. Selecting Export at the database level (this example) exports the entire database (or a subset if you use any of the application’s selection features).

![Exporting data at the database level.](image)

The exported database .dx file is then read by the target database and merged into the existing data just as it would be with any other file import. Duplicate data is omitted during the import, and new or updated data is added to the existing file structure.

Selecting the Export item from a menu below the database level restricts the export to data found at that level and lower.
5 Using the Surveyor DX software

Overview

The graphic below shows the flow of data from the DX tester (via USB thumb drive) to a personal computer or workstation where the Surveyor DX software resides. From there, test results can be viewed and reports can be generated as needed.

Figure 14. Data transfer path from DX through Surveyor DX report generator.

The test data is contained in an XML structured file that uses a .dx extension. When you double-click on a file with a .dx extension, the application automatically opens.

Exporting data from a Baker DX via USB

The data exported from the DX is transferred to the computer where the application resides via a USB drive. These instructions are for completing the export process:

1. To export data to a USB drive, connect an external zip drive, memory stick, or other USB storage test item to the USB port on the front of the DX unit. The USB disk or drive must be formatted with a FAT32 file system.

2. On the Baker DX, select the folder or record to export.

3. Press Export to USB. A pop-up menu allows you to choose export all data, export selected folder (from step 2) or export selected record (from step 2).

4. When the on-screen keyboard comes up, type in a name for the file you want to save and click on Done.

5. The selected data will save to the USB drive.

6. On Baker DX firmware versions older than 1.2, the data will export as an .xml file; on the newer versions, it will export as a .dx file.
Surveyor DX user interface

The graphic below shows the basic elements found in the Surveyor DX user interface.

Figure 15. Surveyor DX user interface descriptions.

The Location tree allows you to select folder contents or results to display. You can display a folder and all of its child items (folders and results) with a single click.

You can select items for report generation by checking the boxes next to a folder or result, or you can use the Auto-check feature found in the Main toolbar.

When you click on an item in the Location tree, the associated elements (child items) for that item are displayed in the pane on the right side of the page called the Quick View. If the item is a test result, it will be displayed in a Quick View pane so that you can quickly glance over the data’s big picture information.

A Results navigation bar is added to the bottom of the Quick View pane to present the test data available for a selected motor (or other tested item) in the Location tree.
The **Main toolbar** is shown in the image below. It contains the controls for basic functions such as importing new data or opening files, generating reports, refreshing the display area, and retrieving help or about information.

![Main toolbar items defined.](image)

**Figure 16.** Main toolbar items defined.

The **Auto-check** control is used to select (check) data for report generation. Another icon opens the **Settings** dialog box, which you use to specify report options. It is also used to define or verify the location for the system database.

Clicking on the **Help and About** icon opens a menu that you can use to access the online help for the application or find out more about the current version installed.

The **About Surveyor DX** menu item also provides information about the current software version, and allows you to check for new updates simply by clicking on the **Check for Updates** button.

![About Surveyor DX dialog box.](image)

**Figure 17.** About Surveyor DX dialog box.
Deactivating software

If you need to install the software on another computer for any reason and you want to use the license for the software installed on a computer that no longer will be used, you must deactivate the software first so that the license can be properly released for re-use.

NOTE

You will need to have internet access for the computer on which the software will be deactivated so the system can recognize the computer ID and release the license. If that computer is not on the internet, call SKF Support directly at 1-800-752-8272.

Click on the De-Activate this Computer link to deactivate the software. You will see a warning dialog like the one shown below letting you know that the software will be deactivated and revert to an evaluation version.

![Warning dialog box](image)

Figure 18. Warning dialog box displayed during software deactivation.

After the software has been deactivated, you can continue to use it as an evaluation copy until the evaluation period expires, or you can uninstall the software using the Windows Control Panel uninstall feature.

You can then install the software on a new machine using the sales order number to get a new activation code.
The Quick View Pane

The Quick View pane provides a number of features to help you view and examine the data presented.

As the example below shows, the information displayed for DC Tests can be hidden if desired by clicking the right mouse button over the legend entry and unchecking the box assigned to the entry.

Figure 19. Quick View pane option for show/hide data.
For DC Test results, the **Quick View** pane includes two cursors that you can use to closely examine the information in the graphs. A black point of interest cursor displays the values of the specific point on which it rests in the graph. The green differences cursor indicates the change/difference from the location of the point of interest (black) cursor to the location of the difference (green) cursor on the graph.

![Quick View pane with DC Tests features: point of interest and difference cursors.](image)

Figure 20. Quick View pane with DC Tests features: point of interest and difference cursors.

To select a cursor, look for a small crosshair on one of the corners of the green or black box, then move your mouse over the crosshair until it changes to a four-way arrow. Click and hold the mouse to drag the cursor to the desired location along the graph line for the measurement highlighted in the legend. The cursor will only drag along the line for the selected measurement.
As you drag the black cursor to new points, the values in the cursor itself change along with those found in the legend to reflect the values at the new points of interest in the graph.

Figure 21. Value in cursor and legend change for each new point of interest.
When you change to a new measurement in the legend, in this case voltage, the cursors will follow the new measurement’s line (blue voltage in this case).

In this example, we examine the differences between two step voltages. Notice that the green differences cursor shows you the differences in X and Y values from its location to the location of the black cursor.

![Diagram showing voltage comparison](image)

Figure 22. Green differences cursor displays differences in X and Y values between its location and that of the black point of interest.
In this example, we show the zoom feature being activated. Click and hold down the right mouse button to draw a zoom box around the area that you want to enlarge. When you release the mouse button, the display will zoom in on your selected area.

Figure 23. Zoom feature helps you enlarge sections for easier viewing.

You can zoom in incrementally if you like to find the best view for your examination. Press the space bar to zoom back out incrementally until you reach full size.

**NOTE**
The zoom feature works the same for all display options in the Quick View pane.
Coil surge test results displayed in the **Quick View** pane provide three viewing options, which are selected using the menu in the top left corner.

In the following example, **All** results are selected. Clicking on **All** shows all the waveforms for every coil tested overlaid in one display.

![Figure 24. Quick View pane coil surge displaying all results.](image)

Reference Vs. Coils

- **Reference/Test EAR [%]**: 0, 13, 74
- **Number of Pulses**: 1, 6, 15
- **Peak Voltage**: 380, 967, 1580
In the following example, the **EAR** (Error Area Ratio) option is selected. All EAR results are displayed, with failing results shown in red.

![Quick View pane coil surge displaying EAR results.](image)

**Figure 25.** Quick View pane coil surge displaying EAR results.
In the following example, the **EAR (Error Area Ratio)** option is selected again. Notice that in this example, we also see **PD Events** and **PD Pulses** as options in the dropdown list. If PD data is available with a selected coil or 3-phase surge test, these options will appear in the dropdown list as shown.

![Diagram showing EAR results with PD options](image)

**Figure 26.** Quick View pane coil surge displaying EAR results with PD options.
In the following example, PD data is available with the coil surge test, and the PD Events option is selected from the dropdown list.

![Figure 27. Quick View pane coil surge displaying PD Events.](image_url)
In the following example, PD data is available with the coil surge test, and the **PD Pulses** option is selected from the dropdown list.

![Quick View pane coil surge displaying PD Pulses.](image)

**Figure 28.** Quick View pane coil surge displaying PD Pulses.
In the next example, the **Thumbnails** option is selected for the coil surge test results. All results are displayed in thumbnail graphics with failing results highlighted by a red box.

Use the scroll bar to the right to move through longer listings.

![Figure 29. Quick View pane coil surge displaying test results with Thumbnail graphics.](image)

Double clicking on an individual thumbnail graphic opens the result in a separate dialog box so you can view the results more closely.
In the following example, PD data is available with the 3-phase surge test, and the PD data is overlaid on the surge waveform. This example shows the summary with the PP EAR graph selected for the bottom section.

Figure 30. Quick View pane 3-phase surge displaying PD overlay with EAR.
Again, the PD data is overlaid on the surge waveform. This example shows the summary with the Houseplot graph selected for the bottom section.

Figure 31. Quick View pane 3-phase surge displaying PD overlay with houseplot.
In the following example, PD data is available with the coil surge test, and the PD data is overlaid on the surge waveform. Clicking on All shows all the waveforms for every coil tested overlaid in one display.

![Quick View pane coil surge displaying all PD data overlaid on graph.](image)

Figure 32. Quick View pane coil surge displaying all PD data overlaid on graph.
In the next example, PD data is available with the coil surge test, and the PD data is overlaid on the surge waveform.

The **Thumbnails** option is selected for the coil surge test results. All results are displayed in thumbnail graphics with failing results highlighted by a red box.

Use the scroll bar to the right to move through longer listings.

![Figure 33. Quick View pane coil surge displaying all PD data with Thumbnails option selected.](image)

Double clicking on an individual thumbnail graphic opens the result in a separate dialog box so you can view the results more closely.
The following example shows PD data collected during a surge three-phase test process, but the data in this view is shown with the surge and PD waveforms unlocked. The PD data is displayed within the rectangular box in the example. The arrow shows where the PD event actually occurred within the time line. A vertical dotted line shows the end of the time range (from zero) in which the PD event occurred.

![Image of PD data and surge waveforms]

Figure 34. Quick View pane displaying PD with surge and PD waveforms unlocked.
The RLC test options include graphical displays for RLZ test results. The example below shows an impedance graph option. RIC test options can be selected using the dropdown list at the top of the display.

Figure 35. RLZ test example showing induction result displayed in a Scatter Plot.

You can also select the type of chart (Bar Chart or Scatter Plot) to display as shown in the example.
The RIC test options also include graphical displays for RIC test results. The example below shows and impedance graph option. RIC test options can be selected using the dropdown list at the top of the display.

Figure 36. RIC impedance test results display.
As with other results displayed in the **Quick View** pane, you can zoom in on a test result to examine details more closely by clicking and holding down the right mouse button to draw a zoom box around the area that you want to enlarge. When you release the mouse button, the display will zoom in on your selected area.

![Zoom and Grab Features Example](image)

**Figure 37.** Using the zoom and grab features to optimize display elements.

You can also move the elements in the display by holding down the CTRL key on your keyboard to display a “grabber hand” as shown in the example above. With the grabber hand activated, slide the element as needed with the **Quick View** pane.

Press the space bar to zoom back out incrementally until you reach full size.

---

**NOTE**

The zoom and grab features work the same for all display options in the **Quick View** pane.
Among the RLC graphical display options for RIC test results is the Orbit Plot, which is shown in the example below. You can use the dropdown list at the top of the display to select impedance, inductance, or phase angle results.

Figure 38. Orbit plot option for RIC test results.
Location tree features

The **Location tree** includes several features to help you manage your test data including standard file/folder management features and a drag-and-drop function.

Folder and results management

When you highlight an item in the **Location tree** then right-click the mouse, you will see a standard set of file/folder management tools listed in a menu. These tools help you create new file folders, rename folders, expand or collapse all items within a folder, delete a file or folder, and display the attributes for the selected file or folder.

![Folder management menus.](image)

The **New** item in the menu allows you to create a new folder or add a new test item type to the selected folder. Adding a new test item essentially creates a new folder with attributes that pertain to the type of test item that was created.

When you add a new folder or test item, a dialog box similar to the one shown below opens so you can assign a name.

![Assigning test item type dialog box.](image)
After you click on **OK**, the new folder or test item is added to the selected folder as shown below.

![Figure 41. Example of new folder and test items added.](image)

If you attempt to delete an item from the **Location tree**, you will see the dialog box shown below warning you about the ramifications of deleting the selected item.

![Figure 42. Warning dialog box displayed when deleting tree items.](image)

If you do not want to remove the associated data, click on **No**. Click **Yes** to remove the file/folder and all related data.
At the database level, the management menu provides you with some features found at other levels and some that are exclusive to this level.

![Database level management menu.](image)

The **New** item in the menu allows you to create a new folder or add a new test item type to the selected folder as it does at other levels. Adding a new test item essentially creates a new folder with attributes that pertain to the type of test item that was created.

The **Export** menu item allows you to save all the database information to a .dx file.

The **Expand All** and **Collapse All** menu items toggle between displaying the folders and their contents in the **Location tree**.

Click on **Restore Deleted Items** to undo deletions that you might have made during the current session. Items that were deleted in previous sessions (the application is closed then re-opened) can also be restored as long as you have not used the **Compact and Repair** feature or imported new data into the database—the software automatically runs **Compact and Repair** when importing new data.

Use the **Compact and Repair** menu item to have the application reduce the space needed to store the database files and repair elements in the saved database.

**NOTICE**

This feature also cleans out all deleted items and permanently removes them from the system.
To identify the location of the current database, click on **Open File Location**. A dialog box opens to show you the current location. This is for reference purposes only; the location cannot be changed from this dialog box.

Clicking on the **Attributes** menu item opens a dialog box similar to those shown for test results. These attributes are not used in any manner for generating reports.

At the test results level, the management menu provides you with only three options. You can delete the selected test result. You can export just the selected test result’s data to a .dx file. You can open the attributes dialog box for the selected test result.

Exporting data at these levels is practical for moving individual files to another system or for sending files to support when troubleshooting issues related to the test result.
Attributes

When you highlight an item in the Location tree then right-click the mouse, you will see a menu that provides access to management features. The last item in that menu is Attributes.

Clicking on the Attributes item opens a dialog box similar to the one shown below (form fields may vary depending on the test item type). The dialog displays the current property information (typically nameplate) assigned to the folder or file.

![Attribute dialog box](image)

Figure 45. Attribute dialog box displaying nameplate information.

When you generate reports, the information that is present in this dialog will be included. You can enter or revise information as needed using this dialog box.

The information that can be added via this method is shown in the graphic. Other information that will also be included in the report comes from the data imported from the DX. This information is not editable, so it does not appear in the attribute dialog box, but it does print on the report. This information includes:

- Tester Type
- Tester SN
- Firmware Version
- Tester Configuration
Test results attributes include a subset of the information found in the parent folder’s Attributes dialog such as **Job Number**, **Tested By**, and **Tested For** fields as shown in the graphic below.

![Attributes dialog](image)

**Figure 46. Test results attributes dialog box.**

If you want to change any of the information in the dialogs, type directly in the fields as required and click on **Apply** to save changes and keep the dialog open.

You can also make changes and click on **OK**. Your changes will still be saved, but the dialog will close and you will return to the main user interface.

The Attributes dialog has a notes feature so you can add comments, special instructions, or other annotation as needed.

![Notes dialog](image)

**Figure 47. Adding notes to attributes.**

To add notes, click on the **Notes** icon found in the top left corner of the dialog then enter your notes in the area provided in the **Notes** dialog box.

All notes are kept in the **Notes** dialog box for future reference. You can add, revise, or delete note contents as needed.
Test items have their own folders in which their test results are stored. Folder attributes are assigned based on test item type. If a test item type has not been assigned to a folder, when you right click on the folder you will see a Convert to item in the menu as shown in the example below. When you expand that menu item, you will see the test item types that can be assigned.

Figure 48. Assigning test item type to a folder.

**NOTE**

Ensure that you assign test item types only to appropriate test item folders to ensure that the attributes features provide the expected data and that they function as expected. Assigning test item types to higher folder levels (such as company name) locks the test item type to all sub-folders and will not allow editing of attribute information at the test item level.
Clicking on an item opens a dialog box like the one shown below. As the example explains, you cannot change the test item type assignment after it has been made, so be sure that you want to assign the selected test item type to the folder before you click on the Yes button.

![Confirmation dialog box for defining test item type.](image)

Figure 49. Confirmation dialog box for defining test item type.

The graphic below shows the test item types and their related icons that appear in the Location tree when assigned.

![Test item types and related icons.](image)

Figure 50. Test item types and related icons.
Drag and drop

You can drag folders or files from one location to another to suit your needs and preferences. The image below shows the basic process for moving items using the drag-and-drop feature.

1. Click and hold down the left mouse button over the item you want to move.
2. Drag the item over the new folder location. The folder will be highlighted.
3. Release the mouse button.
4. The item will appear in the new location. If you would like to sort alphabetically you can click on the Refresh icon in the Main toolbar and the items will be sorted as shown below.
Importing data into the application

Click on the **Import Data** icon found in the top left corner of the **Main toolbar**.

The **Open** file dialog box can be used to open files with either a .dx or .xml extension. You can change which file type to display by using the combo box in the lower right section of the dialog.

![Figure 53. Selecting drive and file location for data to be imported.](image)

When you first use the application, you will see a dialog box asking whether a new database should be created, or whether the software should use an existing database. Click on the appropriate radio button for your application.

NOTE
For more information on selecting the database or changing the database location, refer to “Configuring the Surveyor DX database” found earlier in the guide.
When the target file is loaded, its contents will look something like this in the application interface (after you expand the database root).

![Figure 54. Contents loaded into Surveyor DX.](image)

The application determines where the data should be located based on the folder paths used in the Baker DX. So no matter which option you use to export data from your DX (results only, a single folder, a single folder with children folders, or all data) that data will be saved to the appropriate folder when it is imported into the Surveyor DX database.

Double clicking an item in the Location tree expands the tree for that item and displays the item’s children in the pane on the right side of the page. Double-clicking again collapses the tree, but the selected item’s children are still displayed to the right. You can also click on the plus or minus (+ / -) signs to the left of the folder to expand and collapse the contents.

![Figure 55. Selected folder and displayed contents.](image)
Generating reports

To generate reports, you need to select the data and specify the report options that you want to include in the report.

Selecting data to include in reports

Select data that you want to include in a report by checking the boxes next to the desired item(s) in the Location tree.

You can also select data by using the Auto-check menu as shown below. This menu allows you to select by a range of date/time or by selecting a specific type of test result.

![Figure 56. Using Auto-check to define date/time parameters.](image)

Figure 56. Using Auto-check to define date/time parameters.
If you select **By Date/Time**, the **Select Date/Time** dialog box opens as shown below.

![Figure 57. Date/time selection dialog box.](image)

You can enter information directly in the fields using the format shown, or you can click on the up or down arrows to the right of the time combo boxes to change times.

If you click on the arrows to the right of the date fields, a calendar opens like the one shown below.

![Figure 58. Using the calendar feature to select date.](image)

1. Click on the arrows to the left and right of the month to change the month.
2. Click directly on the date to select the date.
3. Click on **OK** when you are satisfied with your selections.
After you specify the date range, any item falling within the range will have a check in the box next to it and will be included in the report you generate.

The **Auto-check** menu includes other options for selecting test result types. So, for example, if you select **3 Phase Surge** the software will look for test results that have 3-phase surge results and will automatically check the boxes next to those items.

![Figure 59. Using the 3 Phase Surge option to select results.](image)
When folders within the **Location tree** contain test results of the type selected (or fall within the date range selected) the boxes for those folders are colored as shown in the example below to indicate that the folder has children that are checked.

![Colored boxes identify folders containing selected results.](image)

**Figure 60.** Colored boxes identify folders containing selected results.
The **AND** and **OR** features allow you to refine your filter selections. For example, if you wanted DC tests within a certain date range, you would first specify your date range and **Auto-check** would select all results in that date range. Then you would select **AND** then select **DC Tests**. **Auto-check** would then unselect all results in the date range that are not DC Tests.

To remove all checks, simply click on the check box next to the database name at the highest level of the **Location tree**.

![Figure 61. Using the AND/OR selection functions.](image)

**Specifying options to use in the report**

1. To select the options that you want to include in your report, click on the **Settings** icon found in the **Main toolbar**.

![Figure 62. Click on the icon shown to open the setting dialog box.](image)
2. The dialog box shown below opens to help you select the report types you need. It also allows you to add the company logo and name if you like, and it lets you choose options for including attributes and logging reports.

[Diagram of report options]

Figure 63. Selecting report options.

3. Click on the check boxes to select the report options you would like to use.

4. Click on the Select Logo button to open a search dialog to locate the logo you want to use. The software will accept most formats and sizes, but you should be aware that larger files or complex graphics might be harder to view when the software converts to logo to its final size (64 X 64 pixels).

5. If you want to include the company name, check the appropriate box and enter the company name in the related field as you want it to appear in the report.

6. Click on Apply to commit your selections and leave the dialog box open (if you want to continue considering report options).

7. Click on OK to accept your selections and return to the main user interface.
Report options
The information included in report options that you can select using the Settings dialog box are described below. The reports generated for each option include one or more report pages, depending on the data content.

3 Phase RLC
Information prints out much like it does from the DX. It will include unbalances and averages.

Figure 64. Example 3-Phase RLC report.
**RLZ**

The resistance, inductance, and impedance (RLZ) test generates a report like the one shown below (the Use Scatter Plot option was selected for this example.).

![RLZ Test Example](image)

*Figure 65. RLZ test example showing DC Resistance and Inductance results.*
The graphic below shows a segment of the RLZ report displaying impedance and phase angle results.

Figure 66. RLZ test example showing Impedance and Phase Angle results.
**RIC**

The rotor influence check (RIC) test generates a report like the one below. There is no resistance test included in the RIC, but an AC resistance test is included.

As the example shows, the graphs for all three leads are stacked on the same page.

![RIC Test Example](image)

**Figure 67.** RIC test example showing inductance, impedance, and phase angle results.
The RIC report example segment below shows the AC Resistance results and the Orbit diagrams for inductance, impedance, and phase angle.

![RIC report example with AC resistance and Orbit diagrams](image)

Figure 68. RIC report with AC resistance and Orbit diagrams.
**DC Tests**

These results will have temperature-corrected megohms in addition to actual measured value. Results include:

- Megohm/DA/PI— scalar values, graph, and DA/PI table of values for each minute of the test
- Step-Voltage— graph with table of end step values
- DC Comprehensive— All-in-one graph of voltage (displayed when Include Graph option is selected), current and megohm over time

Examples of the DC Tests results are shown below and on the next page.

![DC Test Results](image)

**Figure 69.** Example DC Tests report.
Figure 70. Example DC Tests report.
**Surge 3 Phase**

Results include:

- Summary Graph with all 3 leads and PP EAR graph
- Comparison Report lead 1-2, 2-3, 3-1
- Will have pass/fail set based on the PPEAR limit and LLEAR limit

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**Figure 71.** Example Surge 3 Phase report.
Figure 72. Example Surge 3 Phase report.
Surge Coil/Armature Bar/Span

Results include:

- EAR bar graph
- All waveforms graph
- Thumbnail comparison report of reference wave versus each coil/bar/span under test
- Graphs of each FC and IP against a reference

Figure 73. Example Surge Coil report EAR bar graph.
Figure 74. Example with thumbnail comparisons.
Log Report (High Level Summary)
List of folder/records including test result types

Include Attributes (Folder/Result)
Attributes reported include fields from within the attributes form that have values entered in them.

To display attributes in the generated reports, you must have values entered in one or more fields, the test item’s folder must be converted to a specific test item, and you must ensure that the Include Attributes box is checked in the Settings dialog box.
Selecting report type

When you have made your data and report option selections, you are ready to generate your report.

1. Click on the Generate Report icon in the Main toolbar.
2. The Save As dialog box opens as shown below.

![Figure 77. Selecting location and report type.](image)

3. Specify the location where you want to save the report file.
4. Select the report type that you want to generate using the Save as type dropdown list. The available types include:
   - Microsoft Word Report (*.docx)—Formatted to work directly in MS Word® so you can make additions and edit information that will added to annotate the report. (Requires MS Word® 2003 or later. The extension will be .doc if you have Word 2003 installed.)
   - Web Archive Report (*.mht)—Formatted to be displayed in a web browser. Saved in one file.
   - HTML (*.htm)—Formatted to be displayed in a web browser. Saved in multiple files and can be difficult to manage, but provides more options for advanced users.
   - XML (*.xml)—Formatted in XML to use externally. This type/format is typically used to export data from Surveyor DX to use externally in other programs or applications.
5. Specify a name for the file in the File name field.
6. When you are satisfied with your selections, click on Save to save the file and generate the report.
Example reports

The next few pages present examples of reports that can be generated using Surveyor DX.

**MS Word® Report example**

The graphic below shows the first two pages of an example report generated using the Microsoft Word Report type.

For this example, we used the following options in the Settings dialog:

- RLC—Include RLC (not shown in example graphic)
- DC Tests—Step-Voltage
- Include Logo
- Include Company name (Huge Power Company, Inc.)
- Log Report

![Example MS Word report](image)

Figure 78. MS Word report example.
As the graphic shows, the company name and/or logo are added to the top of each page. Page breaks are added between each page of selected options and content.

A report generated using this option automatically opens MS Word® and displays the report.

You can use all available features and functions in MS Word® to modify report content and add information to the report as needed.

Figure 79. Using MS Word features to format report output.
Web Archive Report example

The following graphics show different parts of a report generated using the Web Archive Report type.

This is the same report generated for the preceding MS Word example; it used the same options, but a different report type.

When this type is selected, the application automatically opens the default browser to display the report.

Figure 80. MHT format report example.

NOTE

The .mht file format requires a plug-in to be able to display in Firefox or Google Chrome®. If no plug-ins are present, Windows® will open the file using Internet Explorer®.
The contents of this report format can be edited or modified using MS Word or standard HTML editors.

Figure 81. MHT report type example viewed in MS Word.
Report examples with PD data

Coil and 3 Phase surge waveforms will have PD data overlaid on them if there is PD data collected during testing.

In the example below, we see a Surge 3-Phase Summary with PD data added to the report. The summary includes a data table, overlaid PD data in the surge graph, and a house plot at the bottom of the report.

Figure 82. Surge 3-phase summary report with PD data.
In the example below, we see a Surge Coil Summary with PD data added to the report. The summary includes a data table and bar graphs representing the PD events and pulses recorded during testing.

Figure 83. Surge coil summary report with PD data.
The coil surge PD table section is shown in the next example. This section is added to the coil reports when PD data is available. It shows the peak voltages along with the inception and extinction voltages for each coil tested in the process.

Figure 84. Coil surge PD table section.
In the example below, we see the sensitivity values used during 3-phase surge testing. These values are reported for both coil and 3-phase surge testing.

Figure 85. Three-phase surge testing PD sensitivity values.
In the example below, we see the 3-Phase PD Graphs section included with surge test results when PD data is available. This section includes a data table detailing the peak voltages along with the inception and extinction voltages for each test lead. Graphic representations of the results are also provided for each lead.

![Figure 86. Three-phase surge testing PD graphs section.](image)
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The Power of Knowledge Engineering

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