



Neurotechnology Research Systems

# User's Guide

Version 2.0 October 2006

## MAP System **PLX Utilities**



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MAP System

# **PLX Utilities**

User's Guide

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# Publication History

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## October 2006

This is the first edition of a separate manual for PLX Utilities. Previous releases have been part of the Plexon *RASPUTIN Software User's Guide*.



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# About This Document

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This user's guide describes Plexon PLX Utilities. The Adobe\* Portable Document Format (PDF) file for this document is the source for both the printed and the online versions of this document. When viewed online in Adobe Reader\*, the PDF file contains links to information in this document and links to information on the internet. See “[Document Conventions](#)” on page viii.

**About Adobe Reader:** Adobe® Reader® 6.0 is free software that lets you view and print PDF files on a variety of hardware and operating system platforms. For optimum viewing and printing of this document, you must have Reader 6.0 installed on your computer. If you are viewing this document online on a computer connected to the internet, to download the latest version of Adobe Reader click the Get Adobe Reader button to go to:  
<http://www.adobe.com/products/acrobat/readermain.html>



**Note:** If you do not have access to a computer connected to the internet, contact Plexon for assistance with Adobe Reader.

## Applicability of this document

This document applies to Version 2.0 of the PLX Utilities.

## How this document is organized

This book is organized into sections that cover the following topics:

- This is the first element in a bulleted list of things that might be important in the layout of stuff.
- This is the last element in a bulleted list of things that might be important in the layout of stuff.

## Indication of trademarks in this document

The asterisk after the first use of a name indicates a trademarked item. The inside back cover acknowledges all trademarked items.


## Related documents








See the latest versions of the following publications for more information on the PLX Utilities:

- Technical Manual, Version 0.0, XYZ Corp.
- Plexon <relatedProduct> User's Guide
- Other important manual

## Document Conventions

The consistent use of typographic conventions in Plexon documentation helps you locate and interpret information easily. The following guidelines present some of the specific typographic conventions used by Plexon.

Item	Convention	Example
Plexon programs	Title caps	Sort Client Server Recorder
Abbreviations, acronyms, and initialisms	All uppercase	DAQ PCA
Links within the document (online only)	Blue text	...see <a href="#">“Opening, Scanning, and Repairing Files”</a> on page 3.
Links to the internet	Underlined blue text	<a href="#">“MAP System Circuit Diagram”</a>
Links to flowcharts or diagrams	Chart icon	
Code samples or machine output	Monospaced font	Myfile.ddt C:\Program Files\Plexon Inc\Recorder
Command-line commands and options (switches)	All lowercase, bold	<b>copy</b> command <b>/a</b> option
Commands on menus and buttons	Bold, usually with title caps	<b>Start DAQ</b> <b>Apply</b>
Data formats	All uppercase	PLX DDT

Item	Convention	Example
Device names	All uppercase	MAP NI DAQ
Dialog box options	Bold; capitalization follows the interface	Click the <b>Generate file name and start recording immediately</b> check box
Dialog box titles	Bold; title caps	<b>Options</b> dialog box <b>Import/Export Setup</b> dialog box
File names	Case sensitive	MyChannelOne.plx
New terms or emphasis	Italic or quotation marks	Plexon software consists of both <i>server</i> and <i>client</i> components. You “must” close the window before you exit.
Toolbar button names	Title caps (sometimes followed by button icon); bold	Click <b>Option</b> . The <b>Start DAQ</b> (  ) button ...
Cautions and Warnings		 <b>CAUTION</b> <b>Changing Card Selections</b> If you change card selections you must restart for the changes to take effect. Otherwise, unpredictable results can occur.
		 <b>CAUTION</b> <b>Electrostatic Discharge</b> These devices can be damaged by improper handling. Use appropriate electrostatic discharge (ESD) procedures when handling these devices.
Hints or Tips		 <b>HINT</b> <b>Too many channels?</b> All 64 channels are displayed by default. You can choose a display with fewer channels in the Options menu.

## How to Contact Plexon about PLX Utilities

To better help you resolve any problems with PLX Utilities, please have the following information available before you contact Plexon:

- PLX Utilities software version
- PC make and model
- Operating System (Windows NT or XP)

Contact Plexon by telephone or email as follows:

Telephone: (214) 369-4957

Email: [support@plexoninc.com](mailto:support@plexoninc.com)

# Chapter 1

## PLX Utilities

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## Overview

PLX Utilities (PlexUtil) is a program for organizing .plx and .ddt data files. For complete information on these file formats, see [“Understanding PLX and DDT Data Files” on page 1-19](#). With PlexUtil you can:

- *scan* .plx files for errors and inconsistencies and repair the files
- *create subsets* of files that include:
  - all channels
  - your selection of spike, event, and continuous channels
  - your selection of start and end times
  - your choice of file name
- *split* files with your choice of the following options:
  - include all channels
  - include your selection of spike, event, and continuous channels
  - split the file into multiple files by:
    - channels
    - time
    - space
    - frames
  - your choice of file name
- *convert* the continuous channels of a .plx file to a .ddt file, and the .ddt file to a .plx file, which only contains continuous channels. The convert function provides the following choice of options:
  - all continuous channels
  - selected continuous channels
  - include all data
  - specify start and end times
  - your choice of file name
- *re-order* .plx files using either system temp or output directories
- *merge* two or more compatible files as follows:
  - data blocks by timestamps
  - consecutively with a time gap between files
  - your choice of file name

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With all functions that accept a time input, you can specify the time in fractions of a second. The time you enter in seconds is converted to timestamps. For example, if the data in a file is clocked at 40 kHz, the actual time resolution is 25 microseconds.

With all functions that accept a disk space (file size) input, you can specify the space in fractions of a megabyte. The resulting files are never larger than the size you specify, which includes all headers and data. PlexUtil attempts to create the largest valid file, which is equal to or less than the size you specify.

You can cancel any operation at any time. When you cancel an operation, PlexUtil:

- cancels the activity
- deletes all output files
- deletes all temporary files
- provides you with a message describing the action

## Opening, Scanning, and Repairing Files

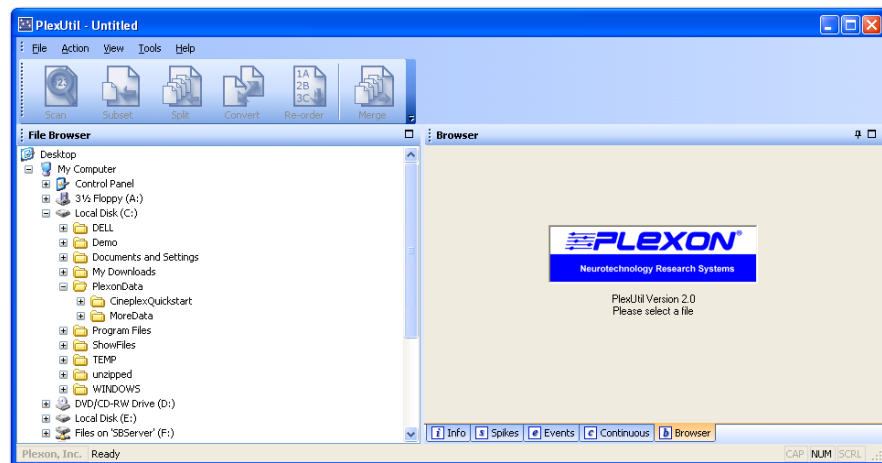
PlexUtil includes a file browser that enables you to locate .plx files on your computer or on a network. When you start PlexUtil, it opens with a file browser pane that includes the same view you see in Windows Explorer. The PlexUtil toolbar buttons remain unavailable until you click on a file.

To start PlexUtil and open a file

- 1 To start PlexUtil, double-click the **PlexUtil** icon on the desktop.



*PlexUtil opens with the start screen.*



- 2 In the PlexUtil **File Browser** pane, navigate to a .plx file and click on the file to open it.

*PlexUtil scans and opens the .plx file with a summary in the **Info** pane.*

The screenshot shows the 'Info' pane in PlexUtil. At the top, it displays the file name and path: 'C:\Documents and Settings\vrnk\Desktop\PlexUtilMrgTst\plxUtilMergeTst.plx'. It also shows statistics: 'spikes: 204915, events: 751257, continuous: 1811614, bad: 3, warn: 1'. A 'Review' button is in the top right. Below is a table with three columns: 'Item', 'Header Value', and 'Data Value'. The rows are color-coded: green for file system info, yellow for file headers, and red for scan results.

Item	Header Value	Data Value
Size:	108.8M (114,064,438 bytes)	
Creation Time:	Wednesday, April 19, 2006 15:20:50	
Version:	103	
Comment:	V1 cell only / v1 stimulus / RF; -4.2, -4.3	
Acquired On:	Thursday, August 04, 2005 17:36:22	
Spikes Chs:	16	
Event Chs:	28	
Continuous Chs:	64 (enabled 3)	
Spike AD Frequency:	40,000 Hz	
Last Timestamp:	377,424,552 ticks (9435.61 seconds)	5,521,214,013,440 ticks (1.3803e+008 seconds)
Data Type:	Single Electrode	
Spike Bits/Sample:	12	
Continuous Bits/Sample:	12	
Spike Max Magnitude:	3000 mV	
Continuous Max Magnitude:	5000 mV	
Spike Pre-amp Gain:	unspecified	
Selected Spikes Chs:	1	
Selected Event Chs:	5	
Selected Continuous Chs:	3	

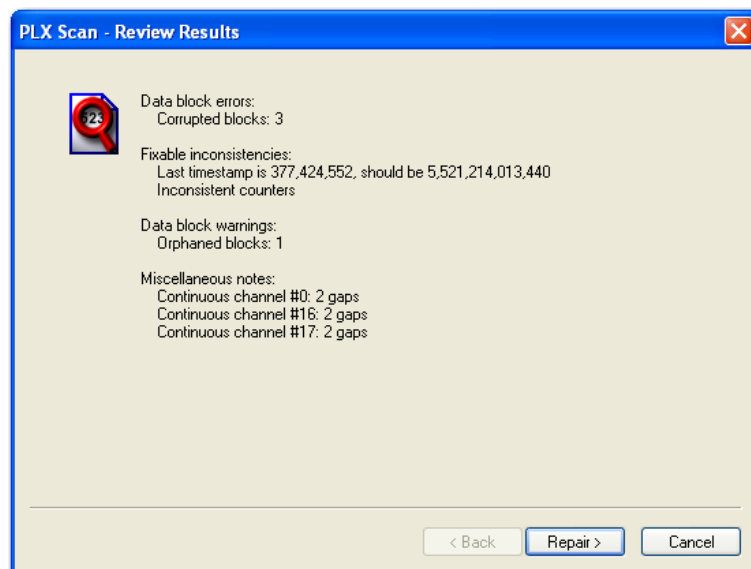
The **Info** pane displays three columns of information derived from three sources, which are highlighted as follows:

- Green: data from the file system; file size and creation time
- Yellow: data directly from file headers
- Red: information from actual data blocks, which is updated after scanning because PlexUtil automatically selects all channels with non-zero counts before scanning, then it updates the counts to reflect actual data.

**Note:** For complete information on the items that PlexUtil checks while doing a scan, see [“What Scan Does” on page 1-21](#).

- 3 After the file opens, PlexUtil provides a summary of the items found during the scan in the top right corner of the **Info** pane. To see a full report, click **Review**.

*The **PLX Scan - Review Results** window opens.*



**Note:** The review window contains a **Repair** button. For more information on repairing files, see [“What Repair Does” on page 1-23](#).

To proceed without repairing the file, click **Cancel** to close the review window.

- 4 To look at the contents of the file, click the tabs at the bottom of the right pane. The **Spikes**, **Events**, and **Continuous** tabs list the information in the same format as Sort Client. Scan updates the **Counts** and **Data Size** columns so you can estimate subsets or splits more accurately. The **Browser** tab shows the data blocks in numerical order with the following colors for each data type: Spikes = white, Events = yellow, and Continuous = green.
- 5 To close the file, click on any folder in the **File Browser** pane.

## Creating a Subset of a File

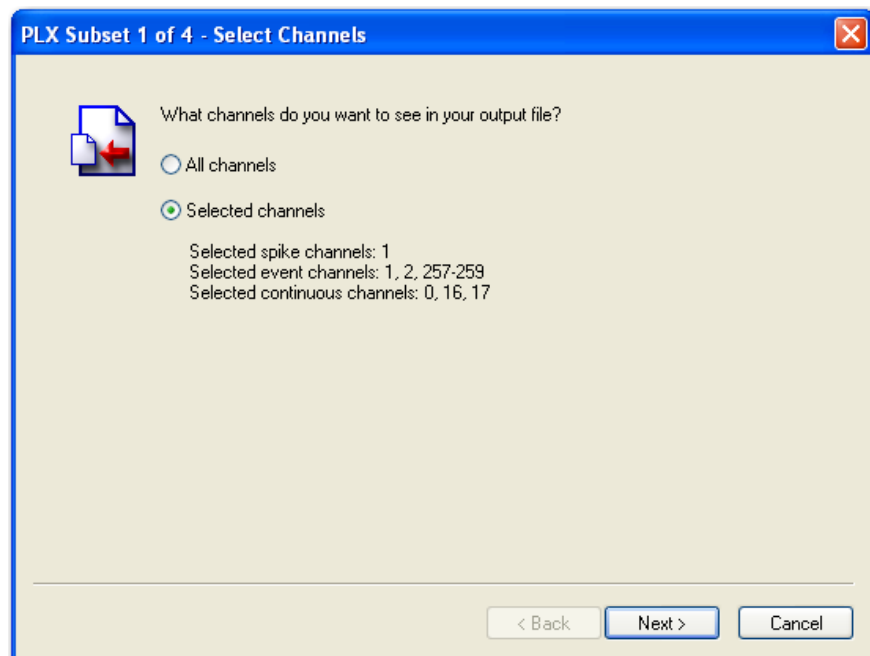
You can use PlexUtil to create a new subset file of a .plx file. When you create the subset file, the original .plx file remains intact. You can select which channels to include in the subset file, which part of the file to include in the subset based on start and end times, and the name and location of the new subset file. You can create numerous subset files with different content and distinct names.

To create a subset of a file

- 1 Start PlexUtil. In the **File Browser** pane, click the file to create a subset of.
- 2 When the file opens, you can review the contents and make any repairs. For more information, see [“What Repair Does” on page 1-23](#).
- 3 If you want the subset of the file to only include certain channels, select those channels now; on the **Spikes**, **Events**, and **Continuous** tabs, select each channel you want to include in the subset of the file.
- 4 On the toolbar, click the **Subset** button.

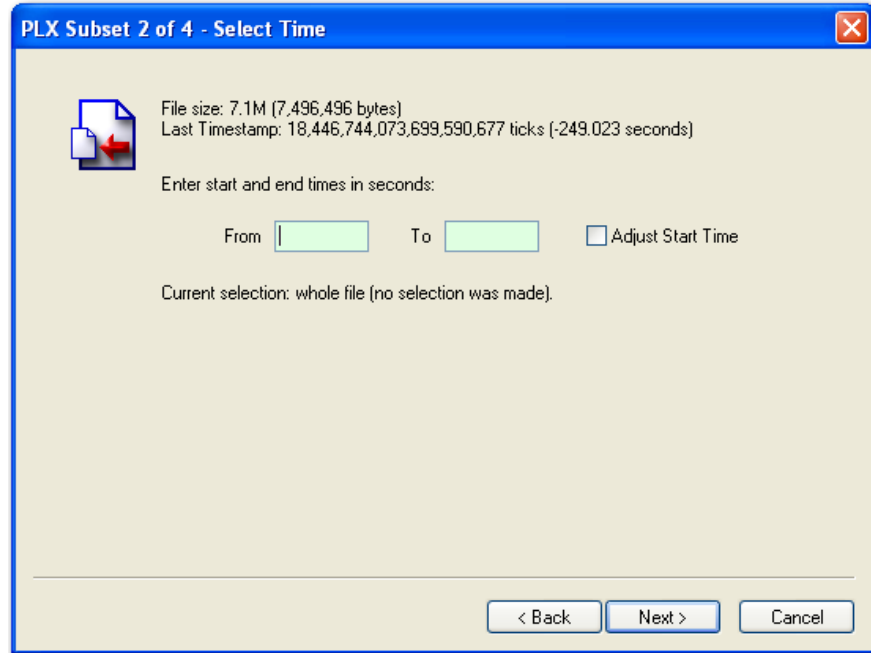


The **PLX Subset 1 of 4 - Select Channels** window opens.



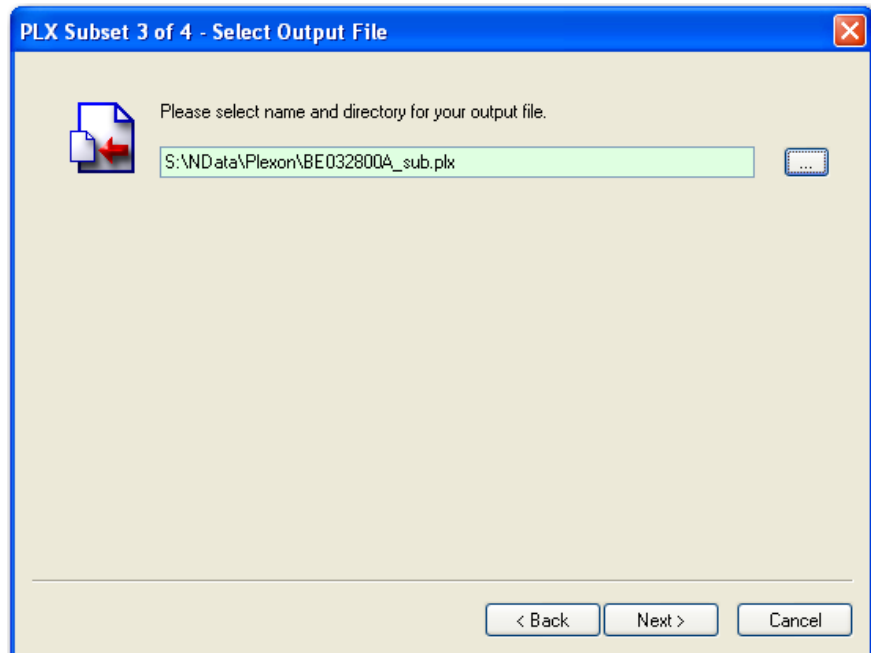
- 5 To include all spike, event, and continuous channels, click **All channels**. To include only those channels you selected in [Step 3](#), click **Selected channels**. Click **Next**.

*The **PLX Subset 2 of 4 - Select Time** window opens.*



- 6 If you want only a portion of the file based on time, enter the start and end times. To update the **Acquired On** time in the header of the subset file and to reset all timestamps accordingly, click **Adjust Start Time**. Click **Next**.

*The **PLX Subset 3 of 4 - Select Output File** window opens.*

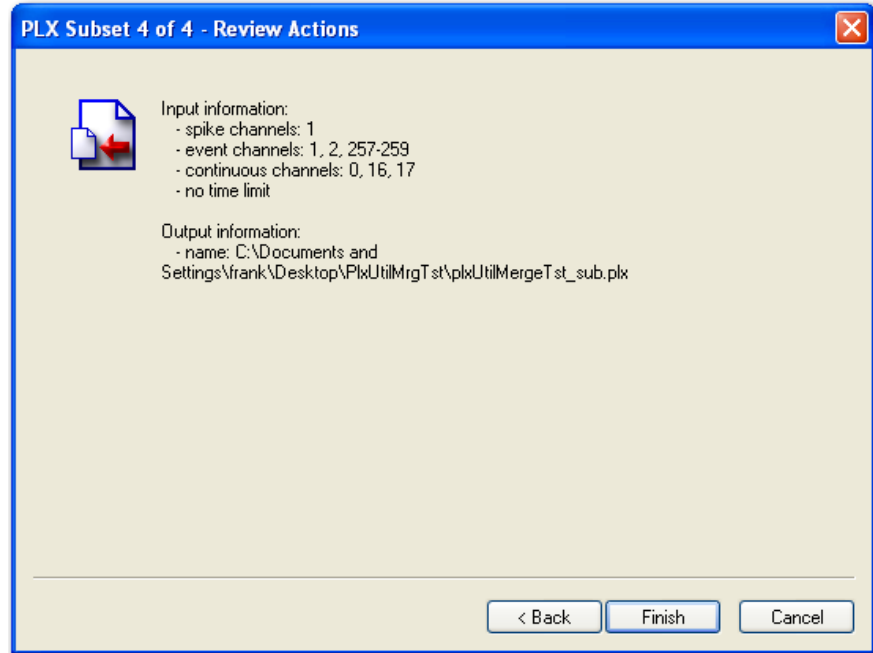


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**Note:** PlexUtil automatically adds **\_sub** to the subset file name.

- 7 In the **PLX Subset 3 of 4 - Select Output File** window, type or select a location and a name for the subset file. To continue, click **Next**.

The **PLX Subset 4 of 4 - Review Actions** window opens.



- 8 Review the **Input Information** and **Output Information** areas to make sure PlexUtil creates the split files you need, then click **Finish** to create the file and close the subset window.

## Splitting Files

You can use PlexUtil to split a .plx file into multiple new files. When you complete a split operation, PlexUtil preserves the original .plx file and creates multiple new .plx files that include the characteristics you specify. You can specify which channels to include in the split files. You can split files by:

- channels
- time slices in seconds
- file size increments in megabytes
- frame segments that are bounded by start and stop events

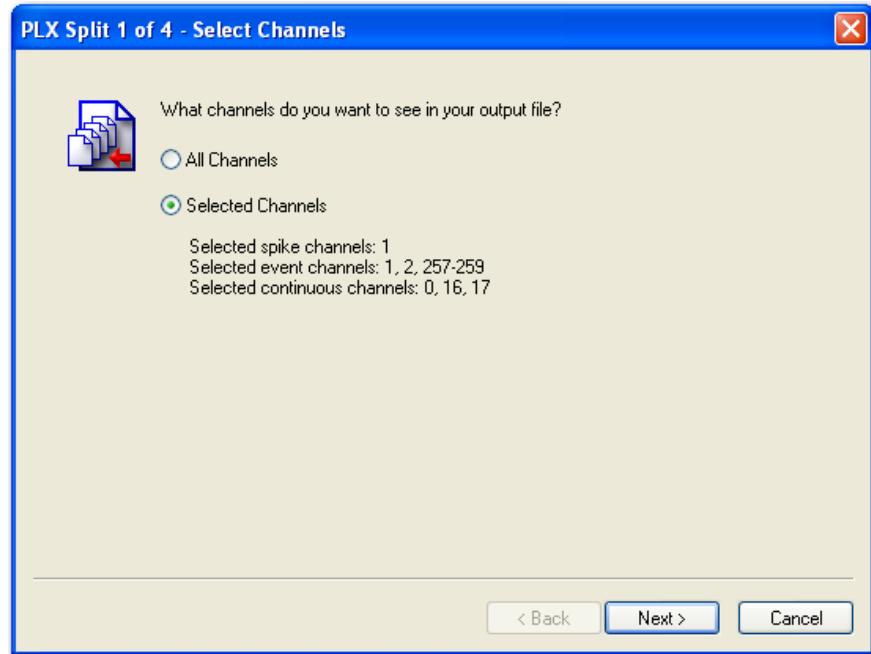
To split files by channels

- 1 In the **File Browser** pane, select the file to split.
- 2 When the file opens, you can review the contents and make any repairs. For more information, see [“What Scan Does” on page 1-21](#) and [“What Repair Does” on page 1-23](#).

- If you want the split files to only include certain channels, select those channels now; on the **Spikes**, **Events**, and **Continuous** tabs, select each channel you want to include in the split files.
- On the toolbar, click the **Split** button.

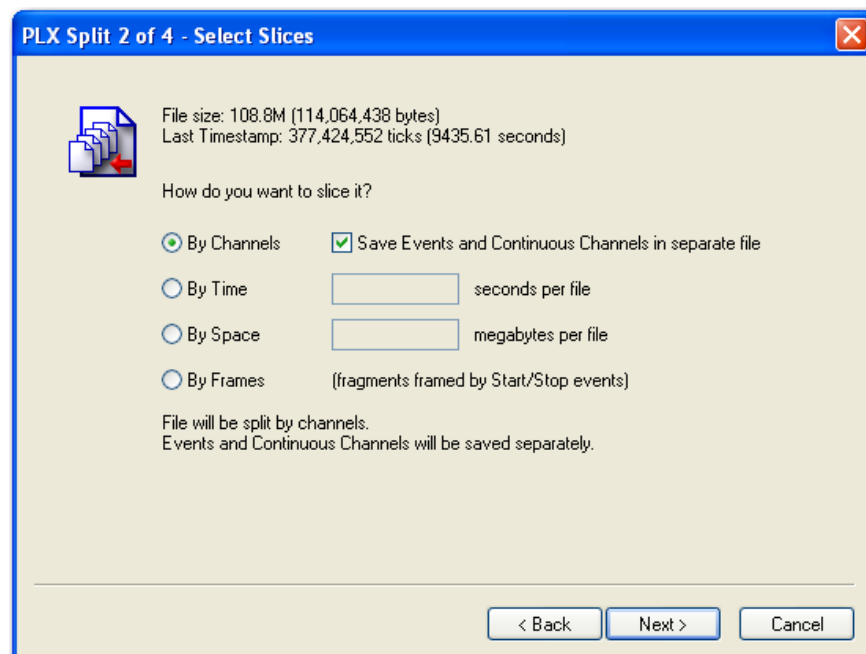


The **PLX Split 1 of 4 - Select Channels** window opens.



- To include all spike, event, and continuous channels, click **All channels**. To include only those channels you selected in [Step 3](#), click **Selected channels**. Click **Next**.

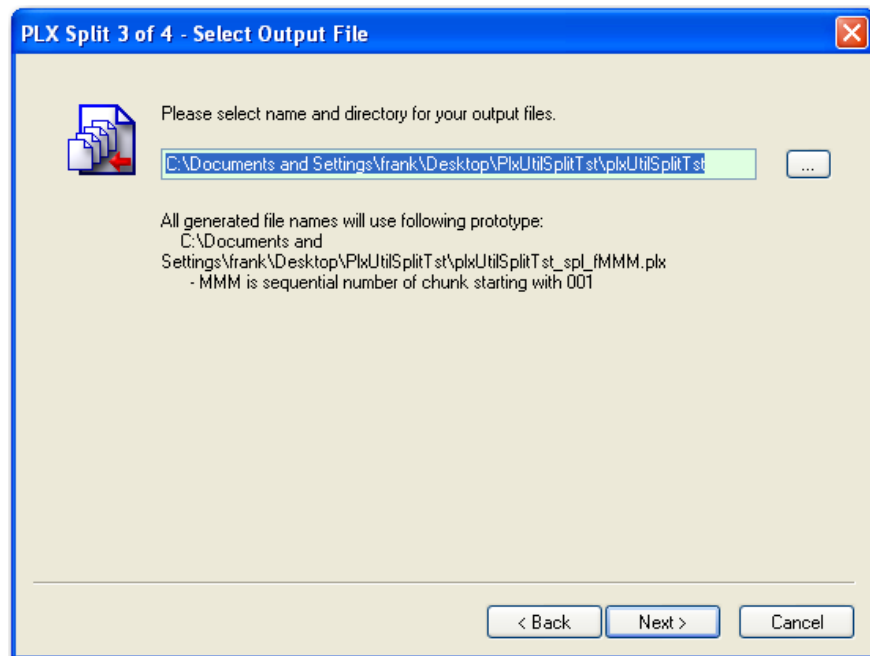
The **PLX Split 2 of 4 - Select Slices** window opens.



- 6 In the **PLX Split 2 of 4 - Select Slices** window, chose one of the following options:
- **By Channels:** Click to create a separate file for each spike channel. To create a separate file for all the non-spike channels, click **Save Events and Continuous Channels in separate file**. Otherwise, click to clear the check box to ignore the event and continuous channels. Each split-by-channels file is in the format myfile\_spl\_cNNN.plx.
- Note:** If you select channels with 0 in the **Units**, **Unsorted**, or **Count** columns, PlexUtil initially sets up file names for these channels. These file names can appear briefly in the **File Browser** pane. When PlexUtil determines that there is no data for these channels, PlexUtil automatically deletes the file names.
- **By Time:** Click to create separate files based on time slices. Type the duration of each file in seconds. If you leave the box blank, PlexUtil does not split the file. If you enter a duration greater than the initial file duration, PlexUtil does not split the file. Each split-by-time file is in the format myfile\_spl\_tNNN.plx.
  - **By Space:** Click to create separate files based on file size. Type the size of the files in megabytes. If you leave the box blank, PlexUtil does not split the file. If you enter a size greater than the initial file size, PlexUtil does not split the file. Each split-by-space file is in the format myfile\_spl\_sNNN.plx.
  - **By Frames:** Click to create separate files based on start and stop events. Each split-by-frames file is in the format myfile\_spl\_fNNN.plx.

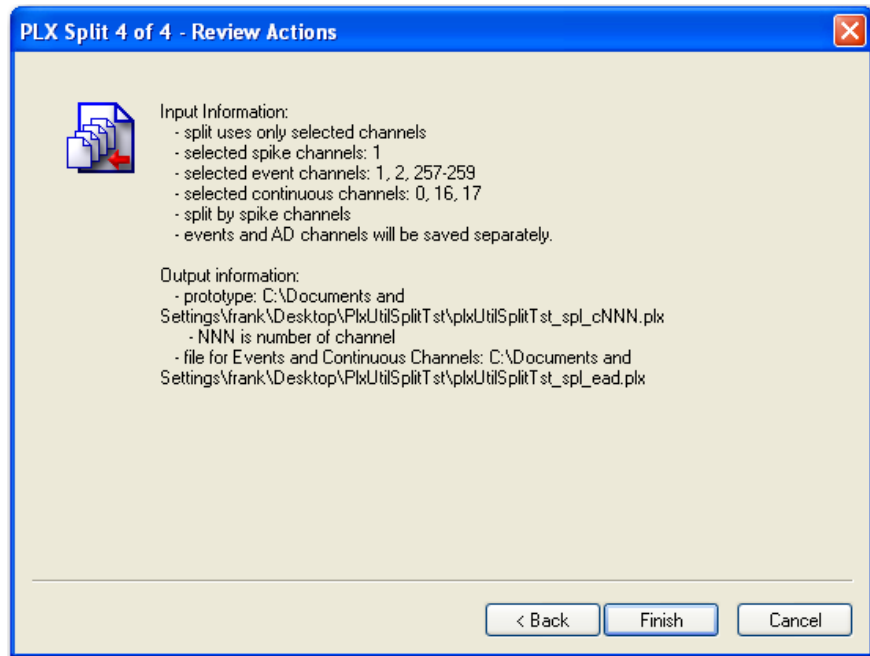
Click **Next**.

The **PLX Split 3 of 4 - Select Output File** window opens.



- 7 In the **PLX Split 3 of 4 - Select Output File** window, type or select a location and name for the split files. Click **Next**.

The **PLX Split 4 of 4 - Review Actions** window opens.



- 8 Review the **Input Information** and **Output Information** areas to make sure PlexUtil creates the split files you need. Click **Finish** to create the file and close the split file window.

## Converting Files

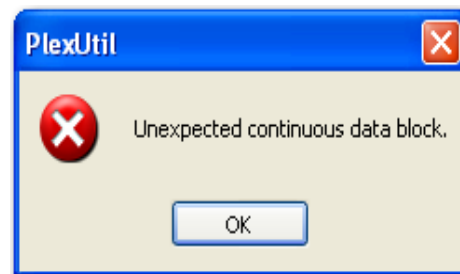
You can use PlexUtil to convert a .plx file into a .ddt file, or conversely, a .ddt file to a .plx file. When you complete a file conversion, PlexUtil preserves the original .plx or .ddt file and creates a new .ddt or .plx file that includes the characteristics you specify. You can specify which channels to include in the converted files and you can specify a time interval to convert.



### HINT

#### Repair data blocks before conversion

If the PlexUtil file scan reveals bad blocks when you open a file, repair the data blocks before you convert the file, otherwise the following error message can appear. For more information, see [“What Repair Does”](#) on page 1-23.

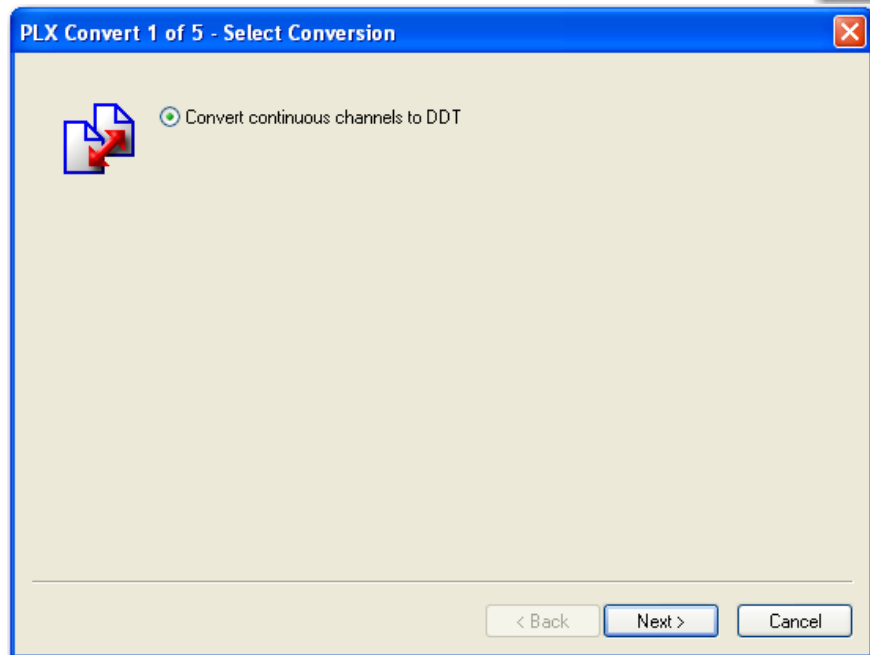


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To convert a file

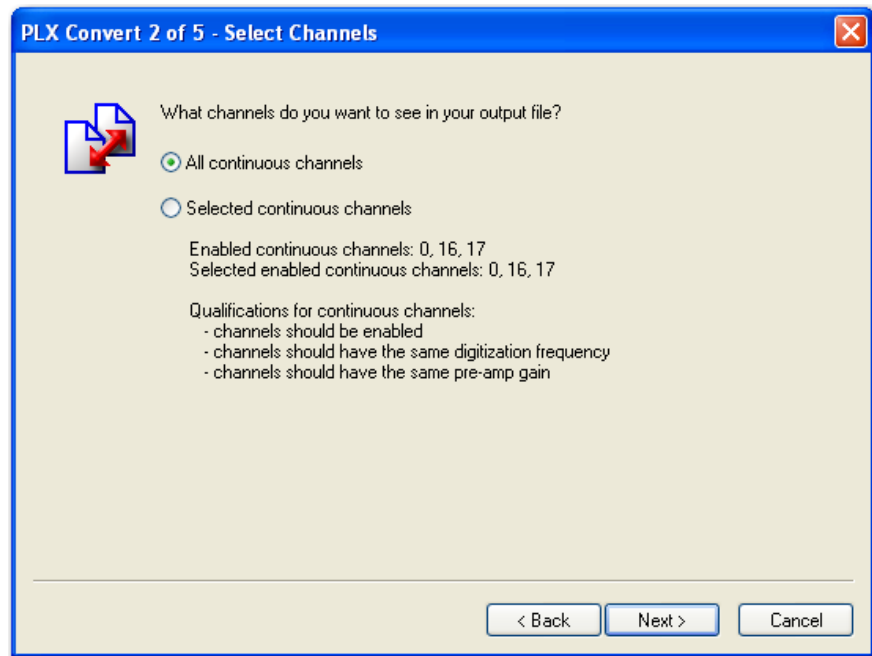
- 1 In the **File Browser** pane, select the file to convert, either a .plx file or a .ddt file.  
**Note:** For simplicity, this procedure shows a .plx to .ddt file conversion. You can also do a .ddt to .plx conversion, which means the .plx file only contains continuous channels.
- 2 When the file opens, you can review the contents and make any repairs. For more information, see [“What Repair Does” on page 1-23](#).
- 3 If you want the converted file to only include certain channels, select those channels now; on the **Continuous** tab, select each channel you want to include in the converted file.
- 4 On the toolbar, click the **Convert** button.

The **PLX Convert 1 of 5 - Select Conversion** window opens.



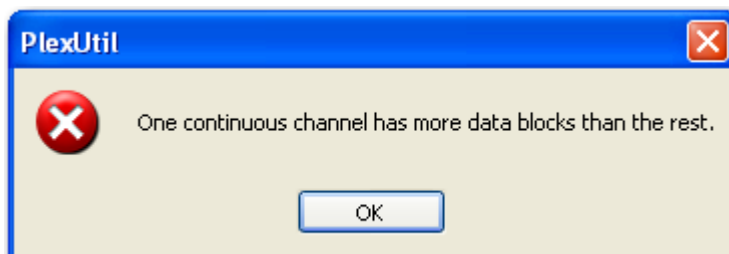
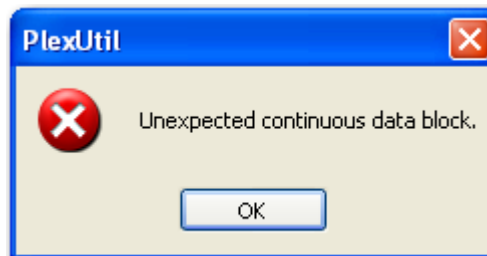
Make sure that the file you are converting is correct, either .plx to .ddt or .ddt to .plx, then click **Next**.

The **PLX Convert 2 of 5 - Select Channels** window opens.



- 5 To convert all continuous channels, click **All continuous channels**. To convert only the channels you have selected, click **Selected continuous channels**.

**Note:** If the continuous channel data is inconsistent, the following messages can appear.



---

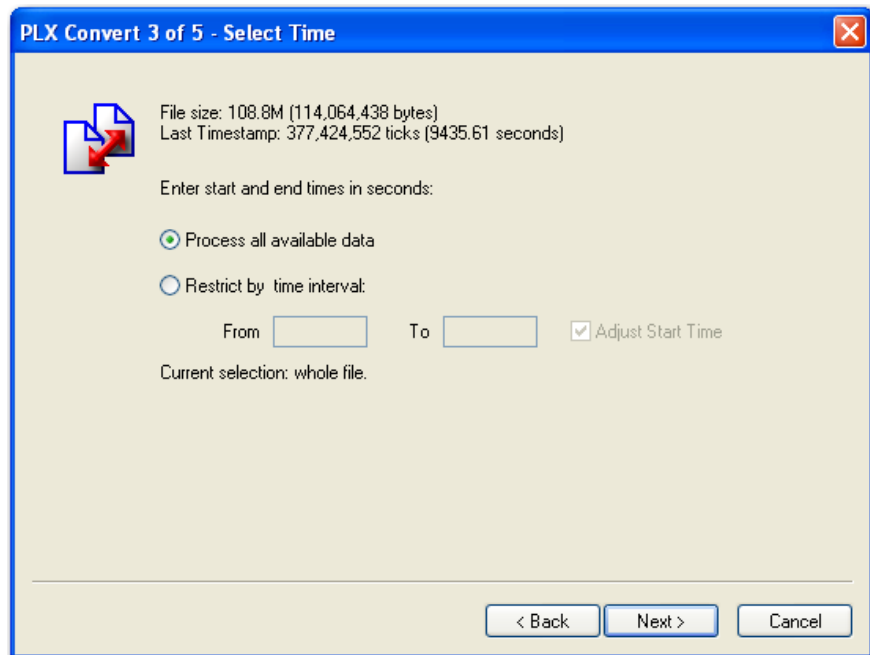
To avoid these problems, in the **Continuous** tab, make sure that the channels you select indicate:

- Enabled = yes
- Frequency = <the same for all selected channels>
- Preamp Gain = <the same for all selected channels>
- Count = <the same for all selected channels>

**Note:** Some .plx files can have disordered continuous data blocks that result in errors during conversion. This often happens with files that were converted to .plx from other formats. In these cases, it can be beneficial to re-order the .plx file before converting it to .ddt. For more information, see [“Re-Ordering Files” on page 1-15](#).

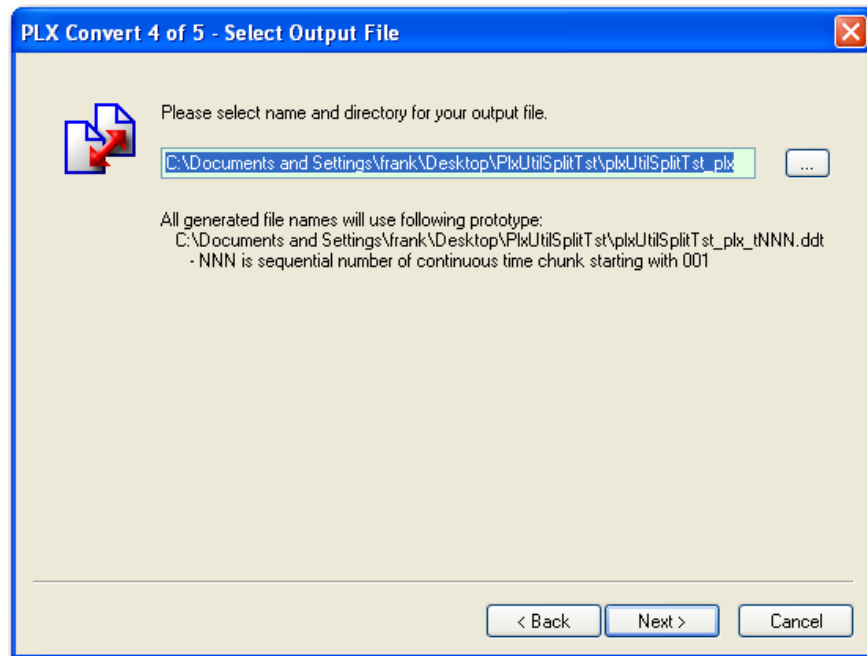
Click **Next**.

The **PLX Convert 3 of 5 - Select Time** window opens.



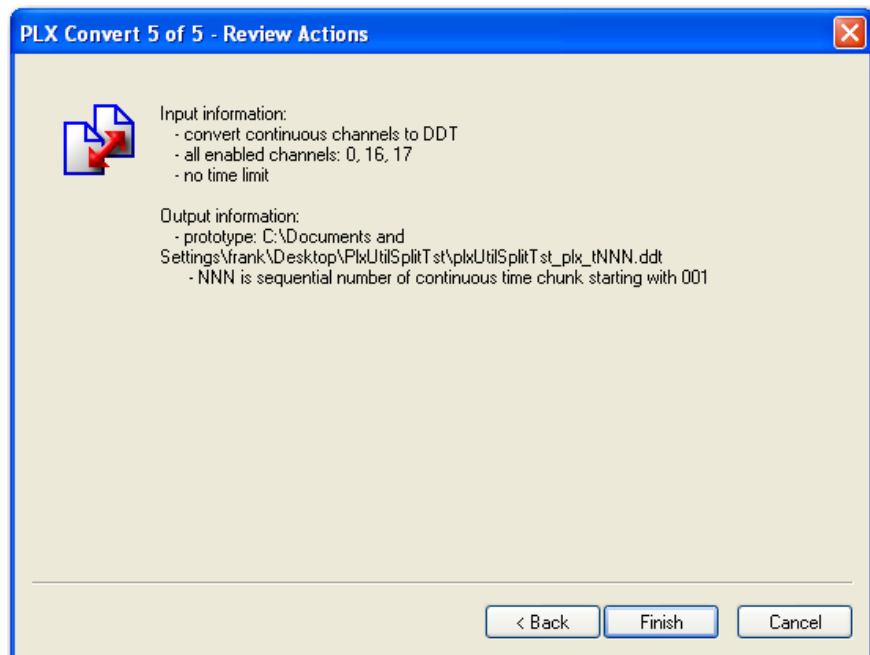
- 6 To include all the data for the channels you selected, click **Process all available data**. To include only the data for a specific time interval, click **Restrict by time interval** and type the time in seconds in the **From** and **To** boxes. Click **Next**.

The **PLX Convert 4 of 5 - Select Output File** window opens.



- 7 In the **PLX Convert 4 of 5 - Select Output File** window, type or select a location and name for the subset file. Click **Next**.

The **PLX Convert 5 of 5 - Review Actions** window opens.



- 8 Review the input and output information. If it's correct, click **Finish** to create the file and close the convert window.

---

**Note:** Some .plx files have gaps in them. This is a normal situation that occurs when you suspend an experiment for awhile. However, .ddt files cannot have gaps in them. This is why the conversion from .plx to .ddt can produce several .ddt files. The only place to keep timestamps in .ddt file is in the header, which is accurate up to one second. This means that a .plx to .ddt to .plx conversion can produce different timestamps.

## Re-Ordering Files

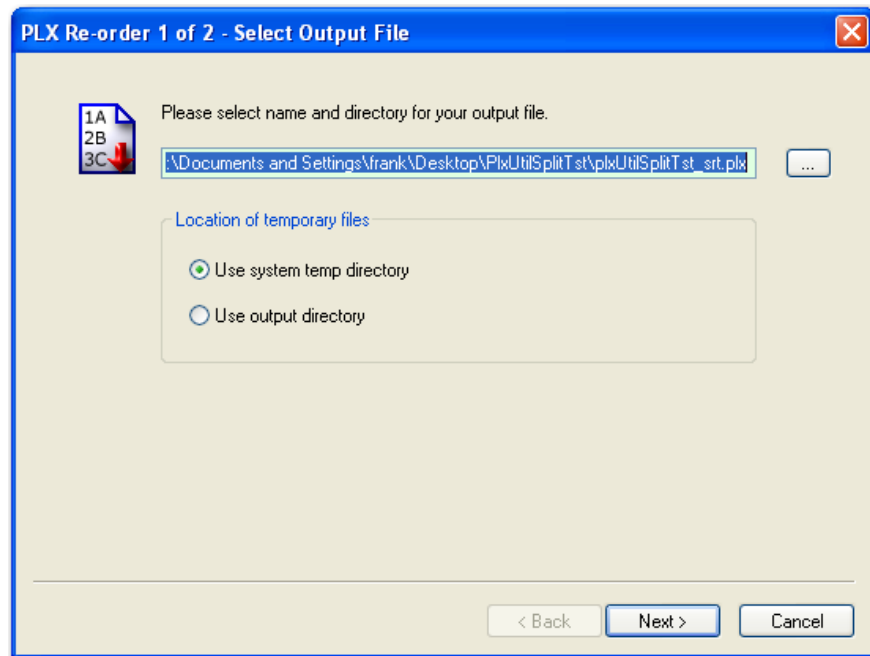
You can use the PlexUtil re-order function to arrange all the data blocks in a file in their timestamp order, from the earliest to the latest. When the file is arranged in timestamp order, PlexUtil can easily determine duplicate data blocks.

To re-order a file

- 1 In the **File Browser** pane, select the file to re-order.
- 2 When the file opens, you can review the contents and make any repairs. For more information, see [“What Repair Does” on page 1-23](#).
- 3 On the toolbar, click the **Re-order** button.

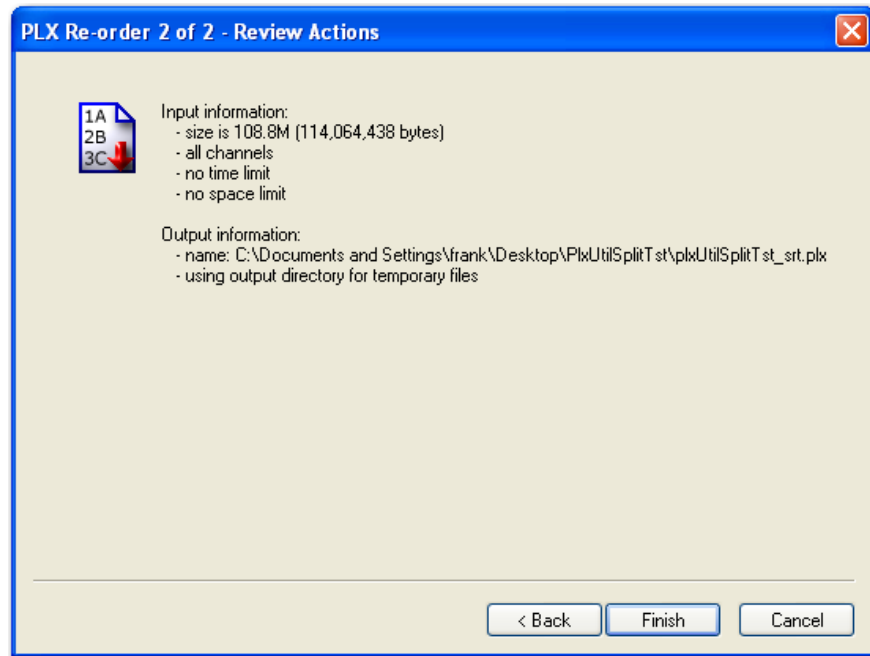


The **PLX Re-order 1 of 2 - Select Output File** window opens.



- 4 Type a path and name for the re-ordered file. PlexUtil can generate large temporary files during the re-order process. If you have adequate room on the computer hard drive, click **Use system temp directory**. If the output directory is located on another disk drive or a server with adequate capacity, click **Use output directory**. Re-order speed is also a consideration; the local system temp directory is typically much faster than any remote drive. Click **Next**.

The **PLX Re-order 2 of 2 - Review Actions** window opens.



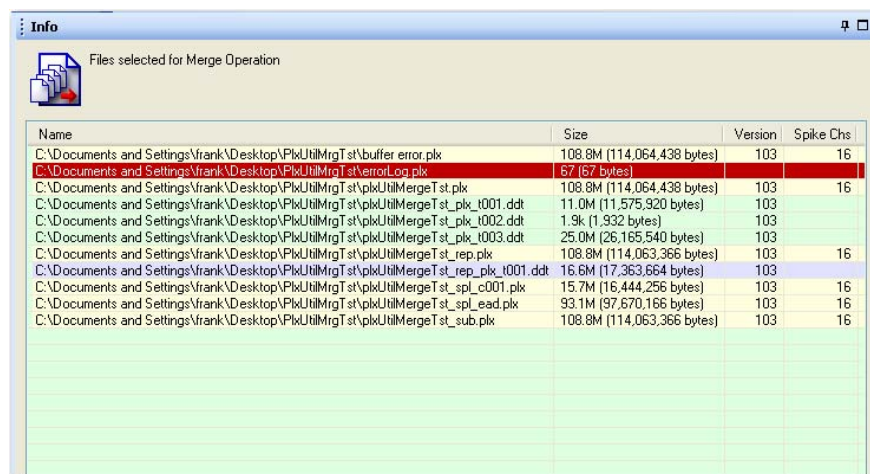
- 5 Make sure the information is correct. Click **Finish** to re-order the file and close the re-order window.

## Merging Files

You can use the PlexUtil merge function to merge .plx or .ddt files. You can create a single merged .plx file from multiple .plx files, or a single merged .ddt file from multiple .ddt files.

To merge files

- 1 In the **File Browser** pane, select one or more files to merge.
- 2 PlexUtil switches to the **Info** tab and displays a list of the files you selected.



---

Color codes identify the suitability of each file for the merge operation according to the following list:

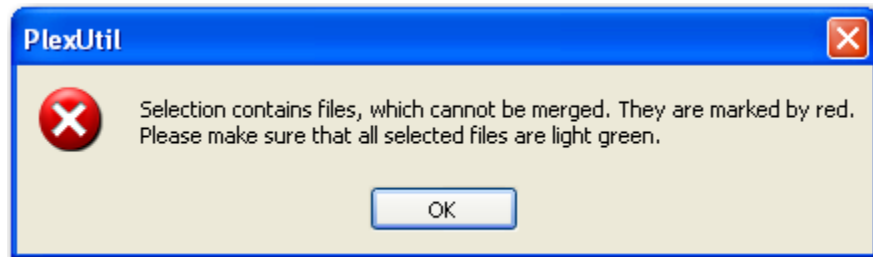
- Green = files that can be merged
- Other colors = files that cannot be merged with the green files
- Red = files that are incompatible or corrupt and they cannot be merged with any file

**Note:** If you want to merge the files in consecutive order from top to bottom as indicated in [Step 4](#), select a file and use the **Move Up** and **Move Down** buttons to correctly position the file in the list. You can only merge files of the same type; you cannot mix .ddt and .plx files.

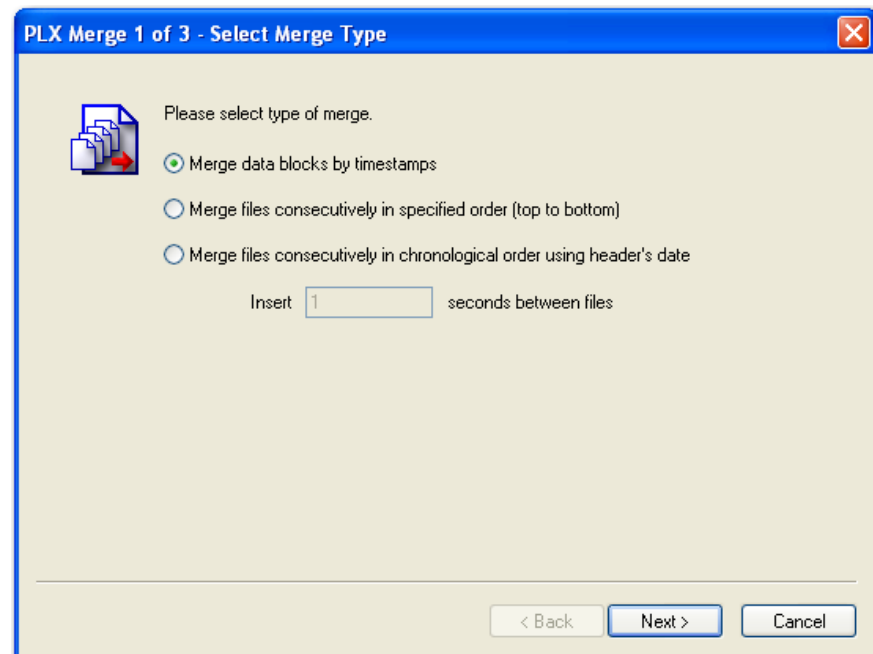
- 3 Click the **Merge** button.



*If you have selected incompatible files, the following message appears. Make sure all the files you select appear green in the file list.*



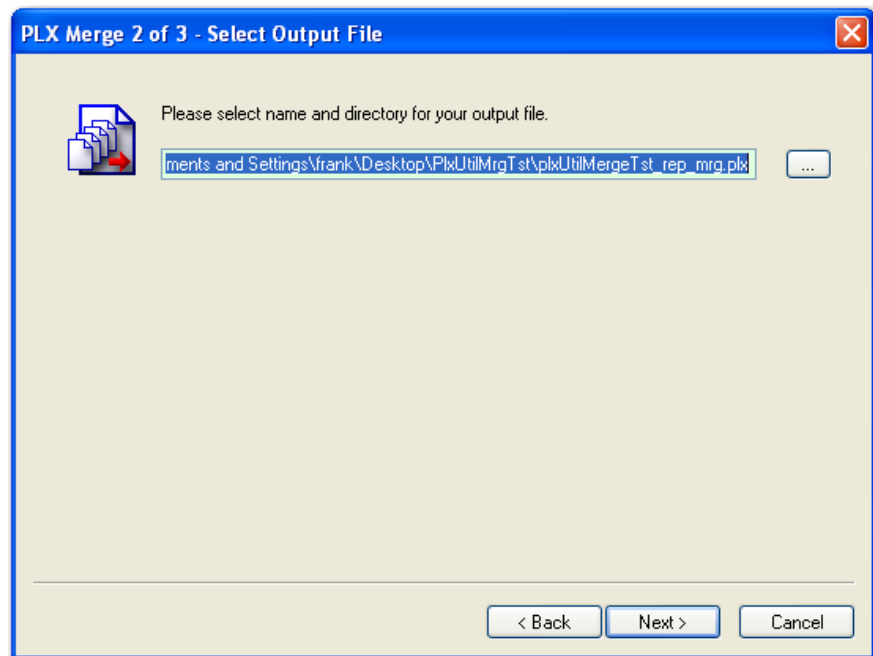
*If you selected compatible files, the **PLX Merge 1 of 3 - Select Merge Type** window appears.*



- 4 Select the merge type:
- **Merge data blocks by timestamps:** Click to merge the data blocks of all the files in the order of their timestamps.
  - **Merge files consecutively in specified order (top to bottom):** Click to concatenate files in the order you established in [Step 2](#). Enter the separation time for the files in the **Insert \_ seconds between files** box.
  - **Merge files consecutively in chronological order using header's date:** Click to concatenate the files in chronological order. Enter the separation time for the files in the **Insert \_ seconds between files** box.

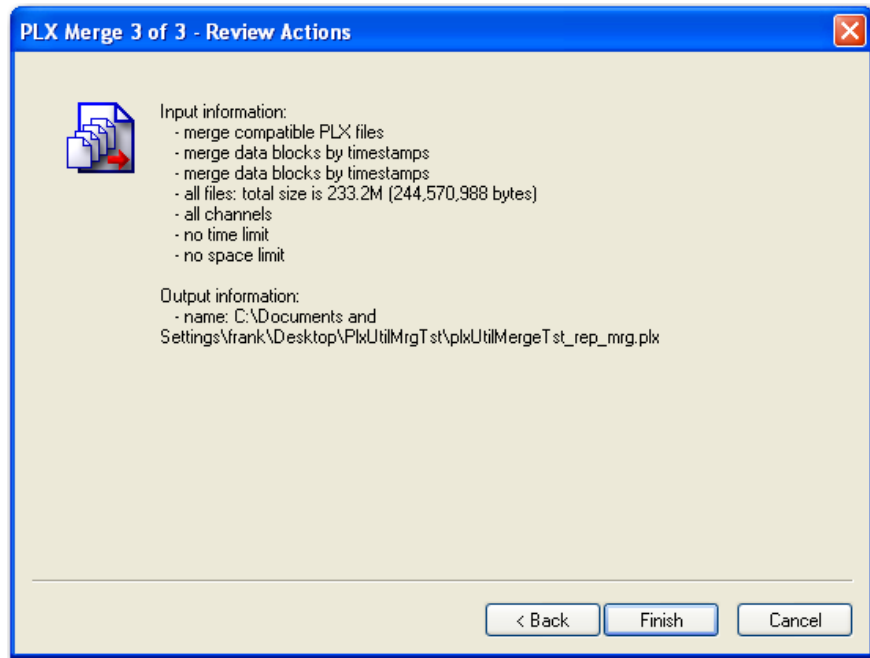
Click **Next**.

*The **PLX Merge 2 of 3 - Select Output File** window opens.*



- 5 Type the directory and file name. PlexUtil automatically adds **\_mrg** to the file name. Click **Next**.

The **PLX Merger 3 of 3 - Review Actions** window opens.



- 6 Make sure the information is correct and that you have sufficient disk space to accommodate the new merge file. Click **Finish** to start the merge.

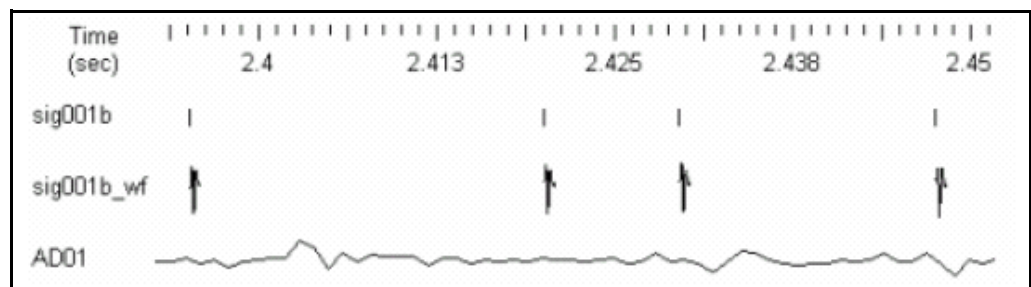
## Understanding PLX and DDT Data Files

This overview section describes each data file type in detail. It also lists the purpose of each PlexUtil function.

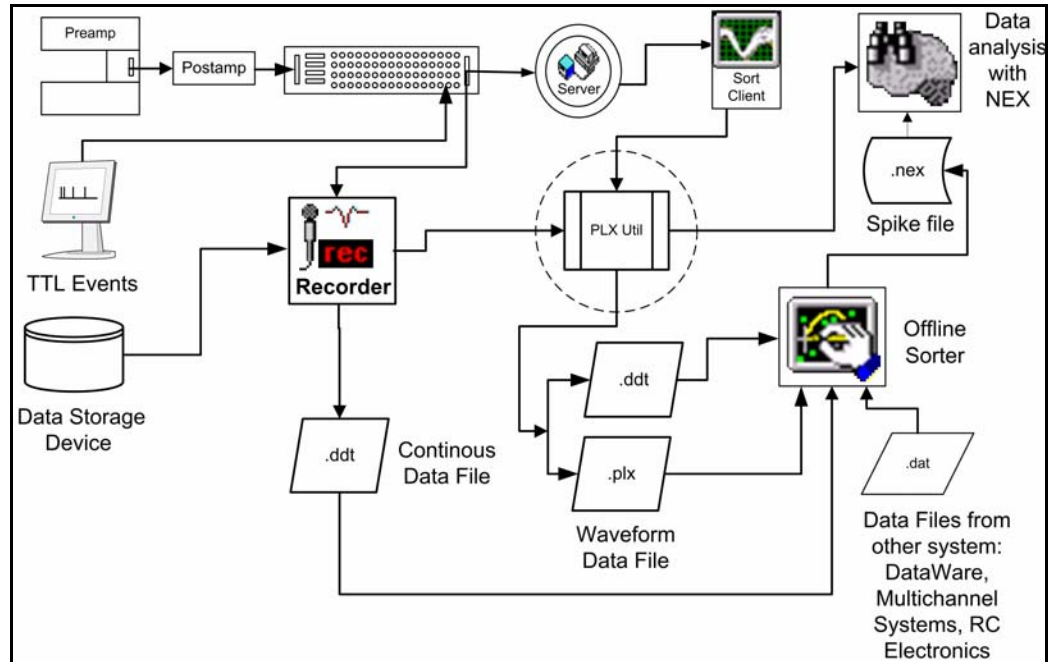
### PLX Data Files

PLX files are Plexon data files containing action-potential (spike) timestamps and waveforms, event timestamps, and continuous variable data. PLX files are optimized for recording segments of waveforms where thresholds have been applied. However, you can save low-digitizing-rate continuous channels in a .plx file. You can use some .plx utilities to merge .plx files and extract portions of .plx data files to .ddt files.

The following illustration shows a portion of a .plx file containing the spike train sig001b and its accompanying waveform segments sig001b\_wf together with the continuous variable AD01, as seen by NeuroExplorer.



A number of different Plexon software programs can generate output in the form of a .plx file including Sort Client, [Plexon Offline Sorter](#), and [Plexon Recorder](#). You can also use Offline Sorter to sort spike waveforms in .plx files and you can analyze them together with the continuous variables by using [NeuroExplorer](#).



**Large PLX files:** When recording either digitized waveform segments, or spike timestamps and waveforms using the MAP box and Sort Client, .plx data files can sometimes grow in excess of 50 MB.

The time needed to load large .plx files into Offline Sorter can be significant. To reduce this time, you can split a .plx file into separate channel files (file.plx001, file.plx002, etc.), plus a header file (file.plx0). Then you can open the header file in Offline Sorter and the individual channel files automatically open when you select individual channels. All the header files and channel files must be located in the same directory. Alternatively, you can reduce the size of the .plx file size by saving a subset of the channels or by saving a subset of the .plx file.

When you make separate files for each channel and save a subset of channels, PlexUtil passes the event timestamps, continuous variables, and corresponding spike waveforms to the destination .plx or .plx0 file.

## DDT Data Files

The .ddt data file type is optimized for continuous (streaming) recording where every channel is continuously recorded without gaps and the recording includes any “dead time” between spikes. If you record many channels, .ddt files can be very large. The .ddt file type is appropriate for:

- Continuous signals such as local field potentials (LFP).

- 
- Spikes when the data thresholds are changed off line.
  - Custom processing methods that require continuous data.

## What Scan Does

When you open or scan a .plx file, PlexUtil performs the following checks:

- Checks that the last timestamp corresponds to the actual data.
- Checks that PLX counters match the actual statistics.
- If the size of any data block is bigger than the size of the available data, PlexUtil marks the data block as corrupted.
- If any data block is of unknown data type, PlexUtil marks it as corrupted.
- PlexUtil processes each type of recognized data block as follows:
  - Spikes
    - If the number of waveforms is negative or more than 1, PlexUtil marks it as corrupted.
    - If a unit is negative or a block contains more than 26 units, PlexUtil marks it as corrupted.
    - If the number of words in a waveform is negative or more than 480, PlexUtil marks it as corrupted.
    - If a channel does not correspond to any spike channel declaration in the header, PlexUtil marks it as orphaned.
    - If a good block has a timestamp that is less than a timestamp of a previous block from the same channel, PlexUtil marks it as out-of-order.
    - If a good block has a timestamp that is equal to a timestamp of a previous block from the same channel, PlexUtil marks it as a duplicate.
  - Events
    - If a channel is greater or equal to 261, PlexUtil marks it as corrupted.
    - If the number of words in a waveform is negative or more than 480, PlexUtil marks it as corrupted.
    - If a channel doesn't correspond to any event channel declaration in the header, PlexUtil marks it as orphaned.
    - If a good block has a timestamp that is less than a timestamp of a previous block from the same channel, PlexUtil marks it as out-of-order.

- If a good block has a timestamp that is equal to a timestamp of a previous block from the same channel, PlexUtil marks it as a duplicate.
- Continuous
  - If the number of waveforms is negative or more than 1, PlexUtil marks it as corrupted.
  - If the number of words in a waveform is negative or more than 1024, PlexUtil marks it as corrupted.
  - If a channel doesn't correspond to any continuous channel declaration in the header, PlexUtil marks it as orphaned.
  - If a good block has a timestamp that is less than a timestamp of a previous block from the same channel, PlexUtil marks it as out-of-order.
  - If a good block has a timestamp that is equal to a timestamp of a previous block from the same channel, PlexUtil marks it as a duplicate.
  - If a good block overlaps the data from a previous block for any period of time, PlexUtil marks it as overlapped.
  - If there is a time gap between a good data block and a previous block, PlexUtil marks it as a gap.

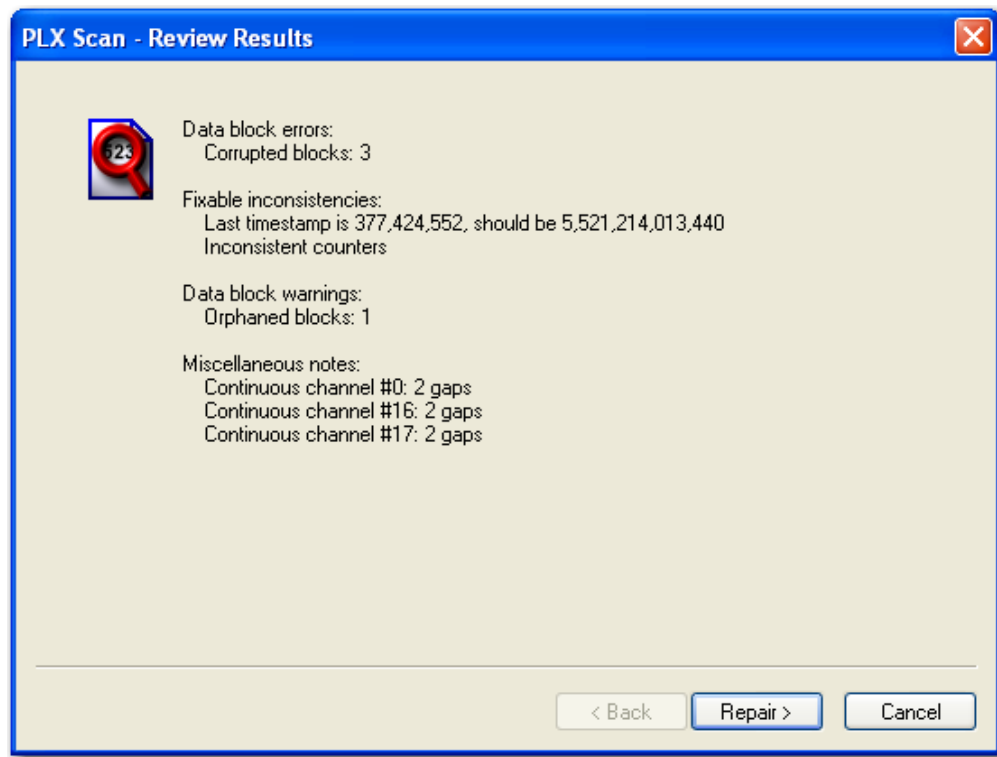
After scanning, PlexUtil reports problems under the following headings in the **PLX Scan - Review Results** window:

- **Data block errors:** The total number of corrupted blocks.
- **Fixable inconsistencies:** Inconsistent last timestamps and inconsistent counters. For example, a last timestamp with a lower value than a preceding timestamp.
- **Data block warnings:** The total number of orphaned blocks.
- **Miscellaneous notes:**
  - For spike channels:
    - The total number of out-of-order blocks for each channel.
    - The total number of duplicate blocks for each channel.
  - For event channels:
    - Total number of out-of-order blocks for each channel.
    - Total number of duplicate blocks for each channel.
  - For continuous channels:
    - The total number of out-of-order blocks for each channel.

- 
- The total number of duplicate blocks for each channel.
  - The total number of gaps in continuous data for each channel.
  - The total number of overlaps for each channel.

## What Repair Does

If PlexUtil finds any problems after scanning a file, the **Review** button appears in the top right corner. When you click **Review**, the **PLX Scan - Review Results** window opens with a list of all the problems PlexUtil found.



PlexUtil can repair some of these problems. If PlexUtil finds errors, warnings, or fixable inconsistencies, the **Repair** button appears in the **PLX Scan - Review Results** window. PlexUtil can repair all fixable inconsistencies. When you click **Repair**, PlexUtil creates a new copy of the file that includes the following repairs:

- All counters and the last timestamp are replaced with the actual values.
- All corrupted blocks are skipped and not copied to the new file.
- Repair also corrects headers and recalculates statistics.
- The file-name format for the repaired is myfile\_rep.plx.

The PlexUtil Scan and Repair functions do not repair out-of-order blocks. To do so you must use the Re-order function. For more information, see [“Re-Ordering Files” on page 1-15](#).

## PlexUtil Output File-Name Suffixes

Each PlexUtil function creates files with unique file-name suffixes. Here is a list of file-name suffixes and the PlexUtil function that produces that format:

- `_rep.plx` = a **Repaired** (rep) file
- `_sub.plx` = a **Subset** (sub) of file
- `_spl_cNNN.plx` = a file **Split** (spl) by **channels** (c) with the numeric (N) sequence of each split file starting at 001
- `_spl_tNNN.plx` = a file **Split** (spl) by **time** (t) with the numeric (N) sequence of each split file starting at 001
- `_spl_sNNN.plx` = a file **Split** (spl) by file-size **space** (s) with the numeric (N) sequence of each split file starting at 001
- `_spl_fNNN.plx` = a file **Split** (spl) by **frames** (f) with the numeric (N) sequence of each split file starting at 001
- `_plx_tNNN.ddt` = a .plx file **Converted** to .ddt format with a sequential number (N) of time (t) chunks starting at 001
- `_ddt_tNNN.plx` = a .ddt file **Converted** to .plx format with a sequential number (N) of time (t) chunks starting at 001
- `_rord.plx` = a re-ordered (rord) file produced by the **Re-order** function
- `_mrg.plx` = a file merged (mrg) file produced by the **Merge** function

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MAP System  
**PLX Utilities**  
User's Guide

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