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| **Navigation:**  [Operations](https://ninjatrader.com/support/helpGuides/nt8/operations.htm) > [Playback Connection](https://ninjatrader.com/support/helpGuides/nt8/playback_connection.htm) >  **Playback** | [Previous page](https://ninjatrader.com/support/helpGuides/nt8/set_up12.htm) [Return to chapter overview](https://ninjatrader.com/support/helpGuides/nt8/playback_connection.htm) [Next page](https://ninjatrader.com/support/helpGuides/nt8/data_files.htm) |

Once market replay data or historical tick data is available by either recording or downloading (See the "[*Set Up*](https://ninjatrader.com/support/helpGuides/nt8/set_up12.htm)" page of the Help Guide), it can be replayed in all NinjaTrader windows.

tog_minus        [How to connect to Market Replay data](javascript:HMToggle('toggle','HowToConnectToMarketReplayData','HowToConnectToMarketReplayData_ICON'))

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| **Connecting to Replay Data**  To connect to Market Replay data:    1.Left mouse click on the **Connections** menu in the Control Center  2.Select the menu item Playback **Connection** menu item    Playback    The **Playback** connection should now be connected and the **Playback** Control should be visible.    Playback_PlaybackControl       |  | | --- | | **Note**: When disconnecting, the Playback account's trade history will be reset. | |

[permalink](https://ninjatrader.com/support/helpGuides/nt8/index.html?playback.htm#HowToConnectToMarketReplayData)

tog_minus        [How to work with replay data](javascript:HMToggle('toggle','HowToWorkWithReplayData','HowToWorkWithReplayData_ICON'))

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| **Playback Control**  Once connected to the **Playback** connection (see the "*How to connect to Market Replay data*" section above for how to connect), the **Playback** control window will appear.    In the caption bar of the **Playback** control you will see the current date and time of where the play head is located.    **Controls**  The **Playback** control is set up much like a DVD player. The following controls are available:     |  |  | | --- | --- | | Playback Type | Select either "**Market Replay**" or "**Historical**" | | Start | Sets the start date for the left side of the slider | | End | Sets the end date for the right side of the slider | | Play | Starts the market replay. | | Slide control | Selects a point in time to start replay (sliding during playback will reset the Replay101 account trade history) | | Speed control | Each successive click increases the speed of the playback. Playback of "**Max**" will process data at fastest possible speed. |     Playback_PlaybackControl |
| **Right Click Menu**  Right mouse clicking in the Replay control window will bring up the right click menu with the two following menu items:    Playback_ContextMenu     |  |  | | --- | --- | | Show Available Data... | Brings up the Historical Data Window window. Instruments with replay data will be displayed with the level 1 (L1) and level 2 (L2) Begin and End dates and times. | | Go To... | Brings up the Go To window where you can specify a date and time to jump the replay file to. There must be recorded data available for the selected time. | | Playback Current Day | Only the current day will be played back from Market Replay when dragging the slider between multiple days, for past days historical data would be loaded. | | Playback from selected | All historical data is loaded from historical data and Market Replay data is only used going forward. This is the fastest and default mode. This mode is sufficient when there's no NinjaScripts that need the sequence of events for each historical tick. | | Playback from start | Market Replay data is played back for every day between the start point of the slider and the end point of the slider. This will be slower as NinjaTrader must process more data, but is useful when you are back testing a strategy in playback. |      |  | | --- | | **Tip:**Should you be using the **Playback** for testing a NinjaScript strategy, please be sure the chart you apply the strategy onto has bars populating it prior to the start time of your replay. | |

[permalink](https://ninjatrader.com/support/helpGuides/nt8/index.html?playback.htm#HowToWorkWithReplayData)

tog_minus        [Understanding how the Playback works](javascript:HMToggle('toggle','UnderstandingHowThePlaybackWorks','UnderstandingHowThePlaybackWorks_ICON'))

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| Playback supports running on Market Replay data or Historical data. Market Replay data is the most accurate and holds both level I and level II (market depth) data. If you do not have market replay data for a time frame, you can choose to playback historical tick data. However using historical tick is less accurate as there is no level II data.    **Market Replay Data**    NinjaTrader stores level I and level II together in a single market replay file to ensure that level I and level II events are perfectly in sync per instrument.    Market replay files have the ability to record time stamps down the 100 nanosecond level. However please note that we use the time stamp provided by the market data providers when storing data. This means that you are limited to the granularity of the provider if the time stamp is natively provided. Please see the [Historical & Real-Time Data](https://ninjatrader.com/support/helpGuides/nt8/data_by_provider.htm) section of the help guide for more information.     |  | | --- | | **Note**:  When using market replay, the NinjaTrader core market data updates occur at the granularity provided by the market data provider.  However, the NinjaTrader user interface only visually updates in 1-second intervals for performance optimizations.  Even though the NinjaTrader UI's are only visually updating at 1-second intervals, orders, indicators, and strategies will calculate just as they were running in real-time. |     **Historical Data**    When using Historical data for playback NinjaTrader will use historical tick data for playback. If the tick data from your provider is stamped with ask and bid data then NinjaTrader will use that to simulate the ask and bid price during playback. If your historical data provider does not support ask/bid stamped tick data then NinjaTrader will simulate the ask and bid price by setting it either to last price or last price +/- 1 tick at random.     |  | | --- | | **Note**: Ask and Bid Volume during playback with Market Replay or historical data will be simulated and set to "1" except for Equities and Forex, where "100" is used for Equities and "100,000" for Forex. |     **Order Processing Differences in Playback**    When submitting orders to the Playback101 account, these orders are processed immediately and synchronously. This enables reproducible results for strategy developers that run a strategy on the playback connection. Playback101 and Sim101 work differently when executing, since simulated internet latency delay simulation is not present in playback. |

[permalink](https://ninjatrader.com/support/helpGuides/nt8/index.html?playback.htm#UnderstandingHowThePlaybackWorks)

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| **Navigation:**  [Operations](https://ninjatrader.com/support/helpGuides/nt8/operations.htm) > [Historical Data](https://ninjatrader.com/support/helpGuides/nt8/historical_data_manager.htm) >  **Importing** | [Previous page](https://ninjatrader.com/support/helpGuides/nt8/data_by_provider.htm) [Return to chapter overview](https://ninjatrader.com/support/helpGuides/nt8/historical_data_manager.htm) [Next page](https://ninjatrader.com/support/helpGuides/nt8/exporting.htm) |

Historical data can be imported from a text file with a ".txt" extension within the **Loaded** section of the Historical Data Window. Several formats and data types are supported and NinjaTrader can optionally build 'Minute' bars from tick data as well as 'Day' bars from tick or minute data.

tog_minus        [Understanding import options](javascript:HMToggle('toggle','UnderstandingImportOptions','UnderstandingImportOptions_ICON'))

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| MarketDataArchives_Import    **Understanding import options**  The following formats and options are available when importing a text file:    **Format**  Select one of three options available in the Format drop down menu:    1.NinjaTrader (timestamps in import file(s) represent end of bar time)  2.NinjaTrader (timestamps in import file(s) represent start of bar time)  3.Tick Data, LLC    **Data Type**  Select one of three options available for the data type:    1.Ask - Data values in the text file represent historical Ask prices  2.Bid - Data values in the text file represent historical Bid prices  3.Last - Data values in the text file represent historical Last prices (trades)    **Time Zone of Imported Data**  Select the time zone of the data you are importing (not the time zone you are importing to as all imported data will always be converted to local PC time). If you are importing data exported from NinjaTrader then this should be left as UTC because NinjaTrader exports are always done in the UTC time zone.    Generate 'Minute' Bars from Imported Tick Data:  Select this option to convert the tick data from the import file into historical 'Minute' data. This allows any 'Minute' interval to be available within NinjaTrader.    Generate 'Day' Bars from Imported Tick or Minute Data:  Select this option to convert the tick or minute data from the import file into 'Day' data. This allows the building of 'Day', 'Week', 'Month' and 'Year' bars within NinjaTrader. (See the "*[Historical & Real-Time Data](https://ninjatrader.com/support/helpGuides/nt8/data_by_provider.htm)*" section of the Help Guide for more information on historical data.)    Note: Generating bars from imported tick data is done based off of the timestamps of the tick data. It is possible that the generated bars do not perfectly match minute or daily bars provided by the data provider as they may utilize a different timestamp granularity than your import data for their own bar generations. |

[permalink](https://ninjatrader.com/support/helpGuides/nt8/index.html?importing.htm#UnderstandingImportOptions)

tog_minus        [Understanding import file and data formats](javascript:HMToggle('toggle','UnderstandingImportFileAndDataFormats','UnderstandingImportFileAndDataFormats_ICON'))

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| **File Name**  When using the NinjaTrader format, the name of the text file to be imported must be the NinjaTrader instrument name followed by a period and "Last", "Bid", or "Ask" depending on the data type. For example:    MSFT.Last.txt for Microsoft stock last price data  ES 12-09.Bid.txt for the S&P E-mini December contract bid price data  EURUSD.Ask.txt for the Euro/U.S. dollar currency pair ask price data    **Daily Bars Format**  Each bar must be on its own line and fields must be separated by semicolon (;). Only 1 day bars can be imported.    The format is:  **yyyyMMdd;open price;high price;low price;close price;volume**    Sample data:  **20061023;1377.25;1377.25;1377.25;1377.25;86**  **20061024;1377.25;1377.25;1377.25;1377.25;27**  **20061025;1377.25;1377.25;1377.25;1377.25;24**  **20061026;1377.50;1377.50;1377.25;1377.25;82**    **Minute Bars Format**  Each bar must be on its own line and fields must be separated by semicolon (;). Only 1 minute bars can be imported.    The format is:  **yyyyMMdd HHmmss;open price;high price;low price;close price;volume**    Sample data:  **20061023 004400;1377.25;1377.25;1377.25;1377.25;86**  **20061023 004500;1377.25;1377.25;1377.25;1377.25;27**  **20061023 004600;1377.25;1377.25;1377.25;1377.25;24**  **20061023 004700;1377.50;1377.50;1377.25;1377.25;82**    **Tick Format (Second Granularity)**  Each tick must be on its own line and fields must be separated by semicolon (;).    The format is:  **yyyyMMdd HHmmss;price;volume**    Sample data:  **20061107 000431;1383.00;1**  **20061107 000456;1383.25;25**  **20061107 000456;1383.25;36**  **20061107 000537;1383.25;14**    **Tick Format (Sub Second Granularity)**  You can also import tick granularity to the ten millionth of a second. Each tick must be on its own line and fields must be separated by semicolon (;).    The format is:  **yyyyMMdd HHmmss fffffff;price;volume**    Sample data: (Note: If you wanted to import in millisecond granularity data then each line must have the remaining "0"'s behind it to import correctly.)  **20061107 000431 1000000;1383.00;1**  **20061107 000456 1000000;1383.25;25**  **20061107 000456 2000000;1383.25;36**  **20061107 000537 7000000;1383.25;14**     |  | | --- | | **Tip**:  You can also import historical tick data to be used with [Tick Replay](https://ninjatrader.com/support/helpGuides/nt8/tick_replay.htm), which includes the current bid and ask prices associated with the last price of that tick (not to be confused with Playback "Market Replay" data which CANNOT import manually). Importing tick replay data without sub-second granularity is less accurate. |     **Tick Replay Format (Sub Second Granularity)**  Each tick must be on its own line and fields must be separated by semicolon (;).    The format is:  **yyyyMMdd HHmmss fffffff;last price; bid price; ask price;volume**    Sample data: (Note: If you wanted to import in millisecond granularity data then each line must have the remaining "0"'s behind it to import correctly.)  **20061107 000431 1000000;1383.00;1383.00;1383.25;1**  **20061107 000456 1000000;1383.25;1382.50;1382.25;25**  **20061107 000456 2000000;1383.25;1383.25;1383.50;36**  **20061107 000537 7000000;1383.25;1383.25;1383.50;14**    **Tick Replay Format (Second Granularity)**  Each tick must be on its own line and fields must be separated by semicolon (;).    The format is:  **yyyyMMdd HHmmss;last price;bid price;ask price;volume**    Sample data:  **20061107 000431;1383.00;1383.00;1383.25;1**  **20061107 000456;1383.25;1382.50;1382.25;25**  **20061107 000456;1383.25;1383.25;1383.50;36**  **20061107 000537;1383.25;1383.25;1383.50;14** |

[permalink](https://ninjatrader.com/support/helpGuides/nt8/index.html?importing.htm#UnderstandingImportFileAndDataFormats)

tog_minus        [How to import historical data](javascript:HMToggle('toggle','HowToImportHistoricalData','HowToImportHistoricalData_ICON')) from a text file

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| **Importing Tips**  Please review the following before importing:    •If you are importing historical data for a futures or forex instrument, the instrument MUST exist in the database. If it does not, you must add it first via the [Instruments](https://ninjatrader.com/support/helpGuides/nt8/instruments.htm) window.  •Any data imported where the instrument does not exist in the database will automatically be imported as a "Stock" instrument type  •Data points will be rounded to the instruments tick size as it is imported if the price is not evenly divisible by the instrument's tick size  •Imported data, regardless of time zone, will be converted to the local time zone.    **Importing Historical Text Data**  To import historical data from a text file into NinjaTrader:    MarketDataArchives_ImportSteps    1Choose the Format and Data type that correctly represent the data in the import file (see  the "*Understanding the import options*" section above)  2Optionally select any of the Generate... choices to have NinjaTrader create other bar types from the import data  3Select the **Time zone of the imported data**(Note: Any data exported from NinjaTrader is always exported in UTC time zone)  4Press the Import button  5Select the text file from your PC to import and press the "Open" button.    NinjaTrader will attempt to import the text file. If successful, a window will appear confirming this. If unsuccessful, an error window will appear and you should check the [Log tab](https://ninjatrader.com/support/helpGuides/nt8/log_tab2.htm) of the Control Center to view the error(s). |

[permalink](https://ninjatrader.com/support/helpGuides/nt8/index.html?importing.htm#HowToImportHistoricalData)

tog_minus        [Formatting data from Tick Data, LLC](javascript:HMToggle('toggle','FormattingdatafromTickDataLLC','FormattingdatafromTickDataLLC_ICON'))

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| When exporting data from Tick Data, LLC with their TickWrite utility, the data must be exported in a format NinjaTrader can import and then the file will need to be properly renamed.    **Formatting data**  Download the following file then unzip it to access the NinjaTrader.twj file: [TickDataLLC.zip](https://ninjatrader.com/support/helpGuides/nt8/samples/TickDataLLC.zip" \t "_blank).  Within TickWrite you can go to **File** and select **Open Job** to select the NinjaTrader.twj file.  Now you can configure what data you want to export and when you execute the job the data will be in the required format.    TickWrite    **Formatting the File Name**  When using the NinjaTrader format, the name of the text file to be imported must be the NinjaTrader instrument name followed by a period and "Last", "Bid", or "Ask" depending on the data type. For example:    MSFT.Last.txt for Microsoft stock last price data  ES 12-09.Bid.txt for the S&P E-mini December contract bid price data  EURUSD.Ask.txt for the Euro/U.S. dollar currency pair ask price data |

[permalink](https://ninjatrader.com/support/helpGuides/nt8/index.html?importing.htm#FormattingdatafromTickDataLLC)

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| **Navigation:**  [Operations](https://ninjatrader.com/support/helpGuides/nt8/operations.htm) > [Historical Data](https://ninjatrader.com/support/helpGuides/nt8/historical_data_manager.htm) >  **Editing** | [Previous page](https://ninjatrader.com/support/helpGuides/nt8/exporting.htm) [Return to chapter overview](https://ninjatrader.com/support/helpGuides/nt8/historical_data_manager.htm) [Next page](https://ninjatrader.com/support/helpGuides/nt8/download.htm) |

Historical data saved in NinjaTrader can be edited via the Edit section of the **Historical Data Window**.

tog_minus        [How to edit historical data](javascript:HMToggle('toggle','HowToEditHistoricalData','HowToEditHistoricalData_ICON'))

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| **Editing Historical Data**  It is important to understand that the historical data you wish to edit must currently be saved in NinjaTrader as provided by the data provider or collected live. Please see the "*[Historical & Real-Time Data](https://ninjatrader.com/support/helpGuides/nt8/data_by_provider.htm)"*section of the Help Guide for more information. If you do not have data, it can be downloaded from your data provider if they offer it by using the [Load tab](https://ninjatrader.com/support/helpGuides/nt8/download.htm) of the **Historical Data Window**.    To edit historical data available within NinjaTrader:    1 Left mouse click the plus "+" for "**Historical**"  2 Select the "**+**"for the Instrument.  3 Select "Ask," "Bid," or "Last,"data type  4 Select the "**Tick**", "**Minute**", "**Day**" data type  5 Select the **date.**    The data for that data type and date will be shown in the data grid.    MarketDataArchives_EditingHistorical    •Changing data - Double left mouse click on a cell in the Open, High, Low, Close or Volume column to edit the data value.  •Adding data - Left mouse click on a row to select it. Then right mouse click to access the options to **Add**a new data row.  •Excluding data - Right mouse click on the desired row and select the menu item **Exclude** to exclude the data. Excluded data is data that is intentionally ignored and not used. NinjaTrader will remember this excluded data on a historical data reload.  •Any changes that are made are both color coded as well as shown in the Status column. The status column will report when any data has been modified from original values.    MarketDataArchives_Status    Once the desired changes are made, press "save" in the bottom right hand corner of the Edit tab to save the changes within NinjaTrader.    Note: If more than one row contains the same Date, Time and price values, all similar rows will be edited.    **Excluding Data**  To exclude data right click on the row of data to be excluded and select "Exclude". Note: All rows with the same date and time will be automatically excluded by NinjaTrader.    MarketDataArchives_Excluded    **Using the Edit Logs**  1 Once any changes are saved to the historical data by pressing "save", an Edit Logs node appears under the instrument node.  2 The Edit Logs node contains all edits made to historical data for a specific instrument. Edits can be undone by right mouse clicking on the change you wish to undue and selecting the menu item **Remove Exclusion.** All edits can be removed by right mouse clicking over the edit node and selecting the menu item **Remove All Edits**.    MarketDataArchives_EditLog |

[permalink](https://ninjatrader.com/support/helpGuides/nt8/index.html?editing.htm#HowToEditHistoricalData)

tog_minus        [How to delete historical data](javascript:HMToggle('toggle','HowToDeleteHistoricalData','HowToDeleteHistoricalData_ICON'))

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| Historical data saved in NinjaTrader can be deleted via the **Loaded** section of the **Historical Data Window**.    **Deleting Historical Data**  It is important to understand that the historical data you wish to delete must currently be saved in NinjaTrader as provided by the data provider or collected live.    MarketDataArchives_Delete    To delete historical data saved in NinjaTrader:    1.Left mouse click on any node available in the **Edit** tab of the **Historical Data Window**to select it.  2.Right mouse click and select the menu item **Delete**or press the 'Delete' key on your keyboard to delete all data contained in the node.    Note: Deleted historical data will be replaced when data is reloaded from the connectivity provider. Please see the "Excluding Data" sub-section of the "How to edit historical data" section above for more information on excluding data, which will remain excluded when reloading data from the data provider. |

[permalink](https://ninjatrader.com/support/helpGuides/nt8/index.html?editing.htm#HowToDeleteHistoricalData)

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| **Navigation:**  [Operations](https://ninjatrader.com/support/helpGuides/nt8/operations.htm) > [Historical Data](https://ninjatrader.com/support/helpGuides/nt8/historical_data_manager.htm) >  **Download** | [Previous page](https://ninjatrader.com/support/helpGuides/nt8/editing.htm) [Return to chapter overview](https://ninjatrader.com/support/helpGuides/nt8/historical_data_manager.htm) [Next page](https://ninjatrader.com/support/helpGuides/nt8/hot_key_manager.htm) |

Historical data can be downloaded from the data provider via the **Download** section.

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| **How to Download Historical Data**  To download historical data first make sure NinjaTrader is [connected](https://ninjatrader.com/support/helpGuides/nt8/connecting.htm) and [historical data](https://ninjatrader.com/support/helpGuides/nt8/data_by_provider.htm) is available from your data provider.    1 Select an instrument for data to be downloaded. (**Tip**: You may also select an instrument list)  2 Select the desired Start and End date range  3 Select the desired Intervals and Data Types  4 Press the "Download" button to begin the download    MarketDataArchives_Download    A message in the bottom right of the **Historical Data Window** will appear and display the status of the download.    To cancel a historical data request close the Historical Data Window window.     |  | | --- | | **Notes**:  •If you already have historical data for an instrument, please be sure to only select a date range in which your data provider offers historical data. If you choose a range older than what your data provider offers you may lose any data you had stored on those dates in that range outside of what your data provider offers.  •Downloading historical data will function based on the **Merge Policy** being used. Using **MergeBackAdjusted** or **MergeNonBackAdjusted** will switch what contract month is being downloaded based on the rollovers occurring during the selected date range. To download data for just the selected contract the **Merge Poli**cy will need to be set to **DoNotMerge**. See the [**Merge Policy**](https://ninjatrader.com/support/helpGuides/nt8/merge_policy.htm) section for more information on Merge Policies. | |