

Nexus Communicator 2.0

Log Database Structure

Revision 1.20
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Electro Industries/GaugeTech

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"The World Leader in Power Monitoring"

**Nexus Communicator
Log Database Structure
Revision 1.20**

Published by:
Electro Industries/GaugeTech
1800 Shames Drive
Westbury, NY 11590

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1.0 Introduction

The purpose of this document is to describe the structure of the databases used to store data by the Nexus Communicator software package. The database structures described below are templates, which contain characteristics of devices to be polled, and the types of data available. One database template file (EIGData.DB) is used to create a database per device in which all the historical data is stored. By default, this database uses the meter name as its file name to identify its origin.

Although this paper is intended to describe how to access data from the meter database, it also contains a description of the Log Converter and Log Viewer programs and their associated databases. The Log Converter is used to translate the actual downloaded binary data into the database file for the Log Viewer to display.

It should be noted that the database is not specific to any individual device. To add a new device, the appropriate entries for that device (data type, protocol, etc.) should be added to the EIGNameList.DB file. A driver program can then be written to download and translate data from the new device into the standard database format for reviewing. Current parameters for Electro Industries' Nexus device are defined.

2.0 Database files

There are three database files for the software package. All are in the Microsoft Access 97 format. Their file extensions are DB.

2.1 EIGData.DB

Location: \[Windows system folder]. For Win95/98, it is in \System. For NT4, it is in \System32.
Description: This is the template database file to be duplicated for each device to store its data (converted from binary data format into this database format by Log Converter program).

2.1.1 (Meter Name).DB

Location (default): \Electro Industries\Nexus Communicator\Retrieved Logs
Description: This is the duplicated database for each device to store its logged data where (Meter Name) is the designated meter name for that device.

2.2 EIGNameList.DB

Location: \[Windows system folder]. For Win95/98, it is in \System. For NT4, it is in \System32.
Description: This database serves as a lookup file for the Log Converter and the Log Viewer programs. It has the readings' text names and unique IDs for each device's reading property, data type definitions and more.

2.3 LogViewTempQuery.DB

Location: \Electro Industries\LogViewer\Resource
Description: This is the template database file for the Log Viewer program. It's duplicated every time the Log Viewer program starts. Its structure is similar to the EIGData.DB file.

2.3.1 yyyy_mm_dd_hh_nn_ss.TempQuery

Location: \Electro Industries\LogViewer\TempQuery
Description: This is the run time version of the LogViewTempQuery.DB file. It is generated every time the Log Viewer program starts. This file name is constructed with the year, month, date, hour, minute and second values. It stores the temporary query data generated by the Log Viewer program.

3.0 Log database overview

3.1 Data entry process

Before the data stored in the device can be presented to the end user, it must be downloaded, converted to readable values and stored in the database. Figure_1 shows that process using the Nexus Communicator software package.

3.2 Data display process

The data stored in the database can be presented to the end user for analysis. Figure_2 shows that process using the Nexus Communicator software package.

4.0 Data entry process

All Nexus devices must be assigned a unique device name before any logs can be downloaded. A binary *.nbl file is generated after the Nexus Communicator downloads any log from the Nexus device. If the device has a name such as UserA_Meter1, the file name will be automatically assigned as UserA_Meter1.nbl. If the device does not have a name, the Nexus Communicator software will ask the user to enter a file name.

If the download is successful, Nexus Communicator will make a back up copy of the binary file with the name in this format: file name – yyyy_mm_dd_hh_mm_ss.nbl. This back up file has a read only file attribute and is generated for debugging purpose only.

The Log Converter program is automatically started by Nexus Communicator immediately after a successful download. The Log Converter program is given the command to convert the downloaded binary file into a database format.

During the conversion process, two database files are needed.

- 1) EIGNameList.DB
- 2) EIGData.DB

The first database serves as a data point lookup table. From the downloaded log file, we can obtain each data's pointer and index number. From the DeviceProtocol_y_z table for the corresponding device and protocol, we can obtain each data point's global unique ID and its property such as data type, PTCT ratio and full-scale value. All this information will be supplied to the converter program to calculate the final primary number for each data point.

The second database is the device data template file. If the converter program did not find a device database file in the designated path for that device, a new device database file will be generated by duplicating the template file. Otherwise, all converted data will be stored in the existing file.

At the end of conversion, a process summary will be appended to a log file in the application file's Converter Activity Logs folder with the name Log_yyyy_mm.Txt. If there are conversion processes in every month, there will be a log file for each month. If the process is successful, the source binary file will be deleted. Otherwise, it will not be deleted. The backup file will not be touched unless done manually by the user.

For the details of the conversion process, see the Figure_3.

5.0 Data retrieve process

5.1 Data retrieve using Log Viewer program

Figure_4 shows the details of the data retrieve process using Log Viewer program.

5.2 General procedures on how to retrieve log data out of the database file

5.2.1 Identify the database file and its location. Usually the file name is the device's name. But the user should always check the [HardwareName] field in the [DeviceInformation] table. Also, make sure the EIGNamelist.DB is present.

5.2.2 Decide what type of log you want to retrieve. Here is the list:

a) Snapshots –

Snapshot data includes regular interval snapshots logged in log 1 and log 2 plus limit type snapshots.

To retrieve data, you need to define a time range (start time and end time) and what data points you want to retrieve. All available snapshot data point IDs in the database are listed in the [DataPoints] table. To obtain the text name, you need to break up the data ID into its data group ID and its sub group ID. From these two numbers, you can run 2 queries to find the text name in the EIGNamelist.DB file (see notes on EIGNamelist.DB.)

Next, go to [AllhistoricalLogs] table, and run a query on all the dates within your time range. If any date is missing in that table, then go to the next day to see if the date exists. If a date is found, then check the hour table status in [Hour_x] field where x is the hour index from 0 to 23. If the hour table status is True that means there is data in that table. If the hour table status is False, there will not be any data table for that hour on that date. Once a date is found and the hour table status is True, you can obtain the data table ID and the time stamp table ID from this record. The ID is constructed with the [LogTablesIndex] value (y) and the hour index (0 to 23) value (z). The corresponding data table name is [HistLog_y_z] and the time stamp table name is [HistlogTimeIndex_y_z]. Here, you can run a joint query on these two tables based on your query criteria: the time range, data points, and snapshot types.

To complete the query process, you must search for data and time stamps for all the dates within your time range and all the hours within those dates.

a(1) Displaying demand readings in the Log Viewer

Displaying demand readings in Log Viewer is a sub set of retrieving snapshot data. The data points are preselected. They are in 4 groups, with a total of 12 data points. The names and data IDs are

Instantaneous VA	20617
Instantaneous VAR	20621
Instantaneous W	20625
Thermal Average VA	21017
Thermal Average VAR	21021
Thermal Average W	21025
Sliding Window Average VA	21203
Sliding Window Average VAR	21204
Sliding Window Average W	21205
Fixed Window Average VA	26003
Fixed Window Average VAR	26004
Fixed Window Average W	26005

b) Limits

To retrieve data, you need to define a time range (start time and end time). Then go to the [AllLimitsLogs] table and run a query on the dates between your time range. If any date is missing in that table, go to the next day to see if that date exists. If a date is found, then you have to check its data table status in [Htable] field. If the data table status is True, there is data in the table. If the data table status is False, then there is no data for that date. Once a date is found and the data table status is True, you can obtain the data table ID from this record. The ID is constructed with the [LogTablesIndex] value (y). The corresponding data table name is [LimitsLog_y]. Here, you can run a query on this table based on your query criteria: the time range, data points.

To complete the query process, you must search for all the dates within your time range and their limit data.

To obtain the text name for a data point, see the notes on EIGNamelist.DB.

b(1) Limit settings

Limit settings for each limit record in the limit data table can be retrieved in the following steps:

b(1)a In the [LimitsLog_y] table for a limit record, obtain the [Linkindex] field value, the [DataID] field value and the [Index] field value.

b(2)a With these values as the criteria, run a query in the [LimitsLogDataItem] table to get the limit settings for that limit record.

b(2) Limits snapshots

To retrieve the Limit snapshot data, follow the steps for Snapshots. The search criteria for the data type value in the [TypeID] field should be 4.

c) Waveforms

To retrieve waveform data, you need to define a time range (start time and end time). Then go to [AllWaveformLogs] table, and run a query on all the dates within your time range. If any date is missing in that table, then go to the next day to see if that date exists. If a date is found, then check its data table status in the [Htable] field. If the data table status is True, there is data in that table. If the data table status is False, there is no data for that date. Once a date is found and the data table status is True, you can obtain the

data table ID from this record. The ID is constructed with the [LogTablesIndex] value (y). The corresponding data table name is [WaveformLog_y]. Here, you can run a query on this table based on your query criteria: time range, waveform conditions.

To complete the query process, you must search for all the dates with in your time range and their waveform data

c(1) Waveform settings

Waveform settings for each waveform record in the waveform data table can be retrieved using the following steps:

c(1)a In the [Waveformlog_y] table for a waveform record, obtain the [Index] field value.

c(1)b With the value as the criteria, run a query in the [PQWaveLogDataItem] table. You then get the waveform settings for that waveform record.

d) Power Quality

To retrieve PQ data, you need to define a time range (start time and end time). Then, go to [AllPQLogs] table, and run a query for all the dates within your time range. If any date is missing in that table, go to the next day to see if that date exists. If a date is found, then check its data table status in [Htable] field. If the data table status is True, there is data in that table. If the data table status is False, there is no data for that date. Once a date is found and the data table status is True, you can obtain the data table ID from this record. The ID is constructed with the [LogTablesIndex] value (y). The corresponding data table name is [PQLog_y]. Here, you can run a query on this table based on your query criteria: time range, PQ conditions.

To complete the query process, you must search for all the dates within your time range and their waveform data

d(1) PQ & waveform settings

PQ setting for each PQ record in the PQ data table can be retrieved using the following steps:

d(1)a In the [PQlog_y] table for a PQ record, obtain the [Index] field value.

d(1)b With the value as the criteria, run a query in the [PQWaveLogDataItem] table. You then get the waveform setting for that waveform record.

d(2) Waveforms

If there are waveform records associated with a PQ record, the value for [WaveformLink] field in the [PQlog_y] table should be True. To obtain the waveform data, follow the steps below for retrieving waveform data. Some additional criteria should be used.

d(2)a Obtain the [SWNumber], [EWNumber], [Index] from the PQ record.

d(2)b Find the waveform data using the retrieve waveform data steps.

Additional criteria are:

- The time stamp for the waveform should be close or in the range of the PQ record's time stamp.
- The [Index] value for the PQ record should be equal to the [Index] value for waveform record.
- The waveform's [OrigWNumber] should be in the range of PQ's [SWnumber] and [EWNumber] values.

e) Input

To retrieve input log data, you need to define a time range (start time and end time). Then go to [InputLogA] table and run a query on the dates within your time range.

e(1) Input settings

Input settings for each input record in the input data table can be retrieved using the following steps:

e(1)a In the [InputLogA] table, obtain the [Index], [ModuleIndex], and [InputIndex] field values.

e(1)b With these values as the criteria, run a query in the [InputLogDataItem] table to get the input settings for each input record.

e(2) Input snapshots

To retrieve the input snapshot data, follow the step for snapshots. The search criteria for the data type value in the [TypeID] field should be 5.

f) Relay

To retrieve relay log data, you need to define a time range (start time and end time). Then go to [RelayLogA] table and run a query on the dates within your time range.

f(1) Relay settings

Relay settings for each relay record in the relay data table can be retrieved using the following steps:

f(1)a In the [RelayLogA] table, obtain the [Index], [ModuleIndex], and [RelayIndex] field values.

f(1)b With these values as the criteria, run a query in the [RelayLogDataItem] table to get the input settings for each relay record.

f(2) Relay snapshots

To retrieve the relay snapshot data, follow the step for snapshots. The search criteria for the data type value in the [TypeID] field should be 6.

6.0 Database definitions

6.1 EIGData.DB

6.1.1 Tables overview

Figure_5 shows the tables in the EIGData.DB file, grouped by their function.

6.1.2 Table names

Below is the list of all tables in the EIGData.DB file with their table names and descriptions.

Table Name	Description
* AllEnergyDemandLogs	* N/A
* AllFlickerLogs	* N/A
AllHistoricalLogs	One record per day for all snapshot log data.
AllInputLogs	One record per day for all input log data.
AllLimitsLogs	One record per day for all limit log data.
AllLogs	One record for every download file been converted.
AllPQLogs	One record per day for all PQ log data.
AllProfiles	Device's profiles at the time of download.
AllRelayLogs	One record per day for all relay log data.
AllWaveformLogs	One record per day for all waveform data.
DataPoints	Available data point Ids stored in all HistLog_XXX sub tables.
DeviceInformation	Device's name, address, ID, serial number.
* EDLogTmp	* N/A
* EDTimeIndexTmp	* N/A
FullScales	Device's full scale values
HistLogTimeIndexTmp	Template table for snapshot log data. Stores date/time stamps and snapshot type information. Duplicates for every hour. Duplicated table name is HistLogTimeIndex_yyy_zz, where yyy is the date index from AllHistoricalLogs table and zz is the hour index. Works in pairs with HistLog_yyy_zz table.
HistLogTmp	Template table for snapshot log data. Stores primary values and data point IDs. Duplicates for every hour. Duplicated table name is HistLog_yyy_zz, where yyy is the date index from AllHistoricalLogs table and zz is the hour index. Works in pairs with HistLogTime_yyy_zz table.
ID_TABLE	This file's version and description information
InputLogA	Input log data table.
InputLogDataItem	Input log settings.
LastTimeStamps	The last record's date/time information of each log. Used for partial download in Nexus Communicator's download.
LimitsLogDataItem	Limit log settings
LimitsLogTmp	Template table for limit log data. Duplicated for each day. Duplicated table name is LimitsLog_yyy where yyy is the date index from AllLimitsLogs table.
PQLogTmp	Template table for PQ log data. Duplicated for each day. Duplicated table name is PQLog_yyy where yyy is the date index from AllPQLogs table.
PQWaveLogDataItem	PQ/Waveform log settings
RelayLogA	Relay log data table.
RelayLogDataItem	Relay log settings.
WaveformLogTmp	Template table for waveform log data. Duplicated for each day. Duplicated table name is Waveformlog_yyy where yyy is the date index from AllWaveformLogs table.

6.1.3 Remarks

The data file will hold data for one device only. The user should take care of the collection of database files, to make sure the proper file name is assigned and no duplicates exist. To use with Nexus Communicator software, the Nexus device must be assigned and programmed with a unique device name. Then, the software will use that name as the default file name. Almost all data values are in primary form.

6.1.4 Fields definitions

See Appendix A for EIGData.DB file's fields definitions.

6.2 EIGNameList.DB

6.2.1 Tables overview

Figure_6 shows the tables in the EIGNameList.DB file, grouped by their function.

6.2.2 Tables

Below is the list of all tables in the EIGNameList.DB file with their table names and descriptions.

Table Name	Description
DataTypes	Data type IDs, names, number of bytes, ...
DeviceProtocol_3_1	Detailed table for EIG Nexus 1250 meter with Modbus RTU protocol. Contains available data points ID, pointers, indexes, and more data points properties
DeviceProtocolTemplate_3_1	Template data and protocol table for EIG Nexus 1250 meter with Modbus RTU protocol
Devices	A list of device IDs and names
DevicesAndProtocols	Devices and protocol IDs and indexes.
ID_Table	Information about this file: name, version, ...
Protocols	A list of protocols
Type_100	Sub group data for group 100, Device Information.
Type_103	Sub group data for group 103, 1 Cycle
Type_108	Sub group data for group 108, Max.Thrm.Avg.
Type_112	Sub group data for group 112, Energy.
Type_113	Sub group data for group 113, Demand.
Type_114	Sub group data for group 114, Harm.Mag. Va
Type_129	Sub group data for group 129, Phase Angles
Type_130	Sub group data for group 130, Fixed Window Avg.
Type_131	Sub group data for group 131, Coincident Thrm. Avg.
Types	Data points group names, IDs, reference table indexes, ...
TypeTemplate	Template table for sub group data points table. Will be created if necessary. New table name will be Type_xxx where xxx is the data group ID.

6.2.3 Remarks

- a) All available devices, protocols and data types must be registered to their associated tables.
- b) All data IDs are grouped in the Types table. Each group consists of 200 points. The current starting group ID is 100. The current starting number for data ID is 20000 (200 x 100). Thereafter, every 200 indexes are reserved for any data group.
- c) The ReferenceID field in the Types table is for the sub group table's ID which stores data point labels of the 200 points within that group (Ex: Type_xxx). A new sub group table must be created if it is necessary. Each sub group table can be referenced to multiple data groups if they use the same labels.
- d) DeviceProtocol_y_z is created for one device at one protocol. The template table DeviceProtocolTemplate_y_z table should be created first. To avoid duplications and indexing conflict, an entry should be made to the DeviceAndProtocols table for every device with one protocol only. These sets of table should be custom designed for the particular device with one protocol. It will serve as the look up table or translate table between the predefined data ID names and the device's native data name.

6.2.4 How to obtain the data point text label from a data ID

- a) Divide the data ID by 200, obtain the integer part only, this is the data group ID.
- b) Get the modulus of data ID and 200 (divide two numbers and return only the remainder). This is the sub data ID.
- c) Go to Types table. Find the data group ID, text label and its reference ID xxx.
- d) Go to sub data table Type_xxx, find the sub data ID and its text label.
- e) Combine the two text labels, this will be the final text label for the data point.

6.2.5 Fields definitions

See Appendix B for EIGNameList.DB file's fields' definitions.

6.3 LogViewTempQuery.DB

6.3.1 Tables overview

Figure_7 shows the tables in the LogViewTempQuery.DB file, grouped by function.

6.3.2 Tables

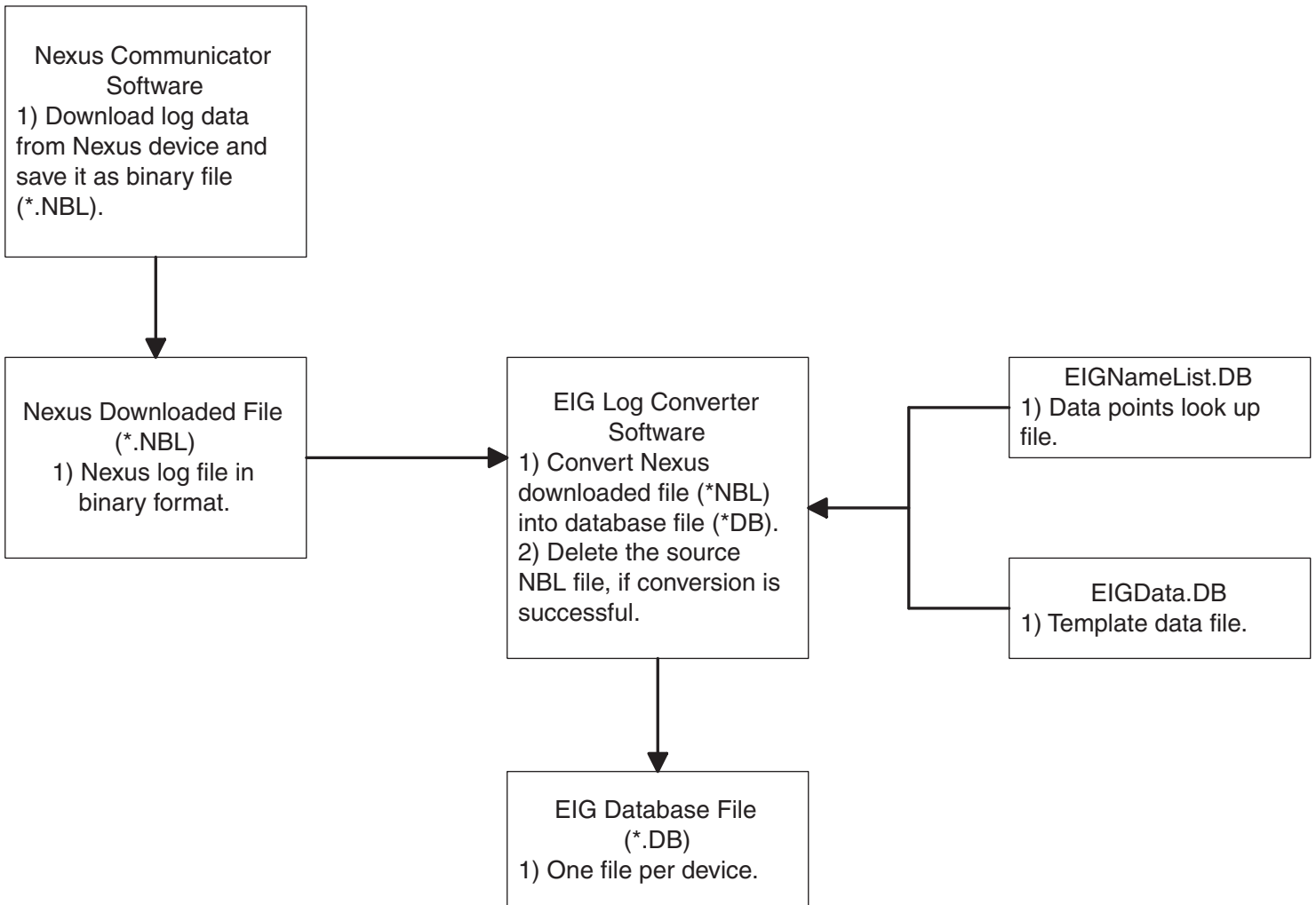
Below is a list of all tables in the LogViewTempQuery.DB file with the table names and descriptions.

Table Name	Description
AllQueries	All query indexes table. Every query must be registered here to obtain a unique query ID.
FullScalesTmp	Template table for full scale values. Duplicated for every sub query. Duplicated table name is FullScales_yyy_zz, where yyy is the query index from AllQueries table and zz is the sub query index from HistSubQuery_yy table
HistLogTmp	Template table for snapshot log data. Duplicated for every sub query. Duplicated table name is HistLog_yyy_zz where yyy is the query index from AllQueries table and zz is the sub query index from HistSubQuery_yyy table.
HistSubQueryTmp	Template table for sub query information of every query. Duplicated for every query. Duplicated table name is HistSubQuery_yyy, where yyy is the query index from AllQueries table. It contains all sub queries indexes for this query.
HlogTimeIndexTmp	Template table for snapshot log data. Duplicated for every query. Reusable for its sub queries. It contains sub query's date/time stamps.
ID_TABLE	Information about this database file, version, name, ...
InputLogATmp	Template Table for input log data.
InputLogDataItemTmp	Template table for input settings.
* LimitsLogDataItemTmp	* N/A
LimitsLogTmp	Template table for limit log data. Duplicated for every sub query. Duplicate table name is LimitsLog_yyy_zz, where yyy is the query index from AllQueries and zz is the sub query index from HistSubQuery_yyy table.
LogDevicesTmp	Template table for devices' information. Duplicated for every query. Duplicated table name is LogDevices_yyy, where yyy is the query index from AllQueries. It contains devices' name, type, ID, ...
* PowerGraphTmp	* N/A
* PQLogDataItemTmp	* N/A
PQLogTmp	Template table for PQ log data. Duplicated for every sub query. Duplicated table name is PQLog_yyy_zz, where yyy is query index from AllQueries, and zz is the sub query index from HistSubQuery_yyy table.
PQWaveLogDataItemTmp	Template table for PQ and waveform log data. Duplicated for every sub query. Duplicated table name is PQWaveLogDataItem_yyy_zz, where yyy is the query index from AllQueries and zz is the sub query from HistSubQuery_yyy table. It contains the PQ's and waveform's settings.
RelayLogATmp	Template Table for relay log data.
RelayLogADataItemTmp	Template Table for relay settings.
TagNamesTmp	Template table duplicated for every sub query. Duplicated table name is TagNames_yyy_zz, where yyy is the query index form AllQueries table and zz is the sub query index from HistSubQuery_yyy table. It is mainly used with querying limit log data.
WaveformLogTmp	Template table for waveform log data. Duplicated for every sub query. Duplicated table name is Waveformlog_yyy_zz, where yyy is the query index from AllQueries table and zz is the sub query index from HistSubQuery_yyy table.

6.3.3 Fields definitions

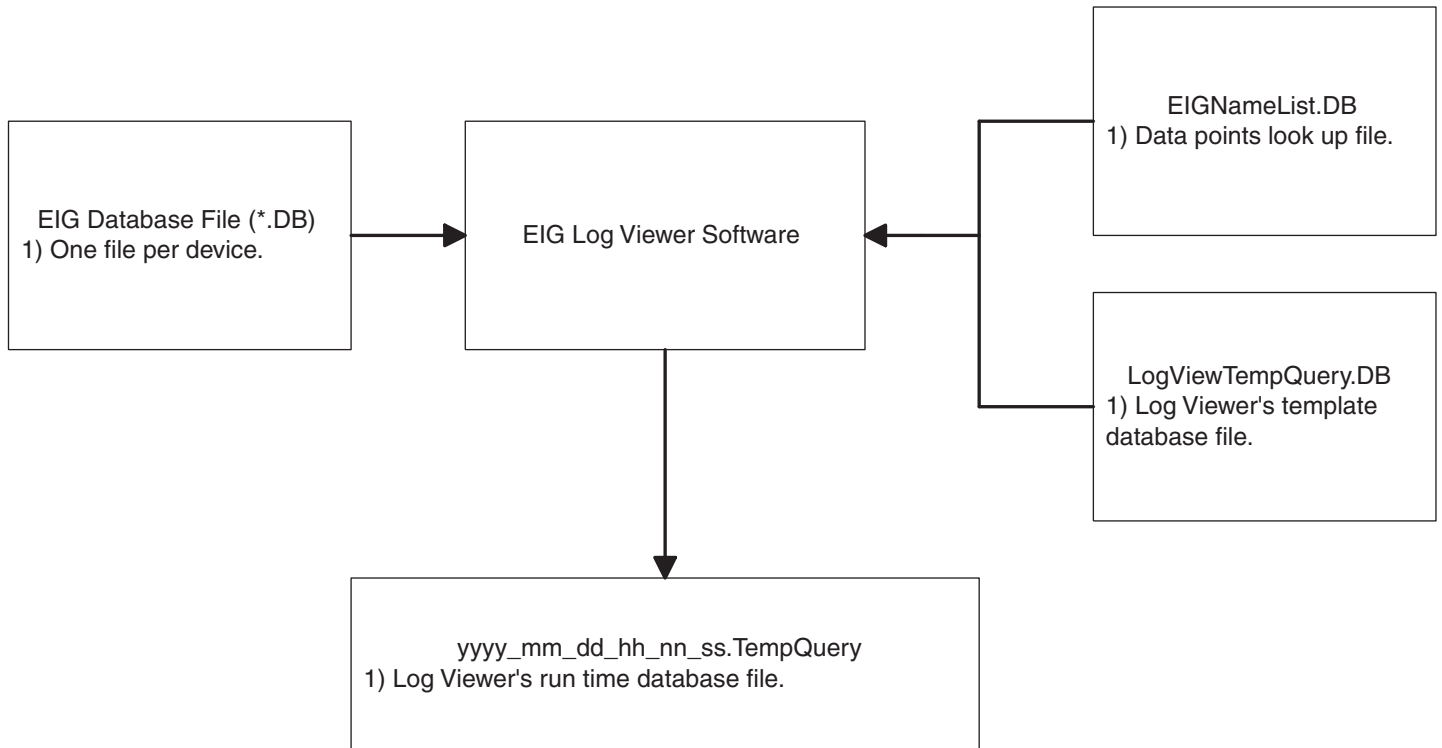
See Appendix C for LogViewTempQuery.DB file's fields definitions.

EIG Nexus Communicator Log Database Files Overview (Data Entry Process)



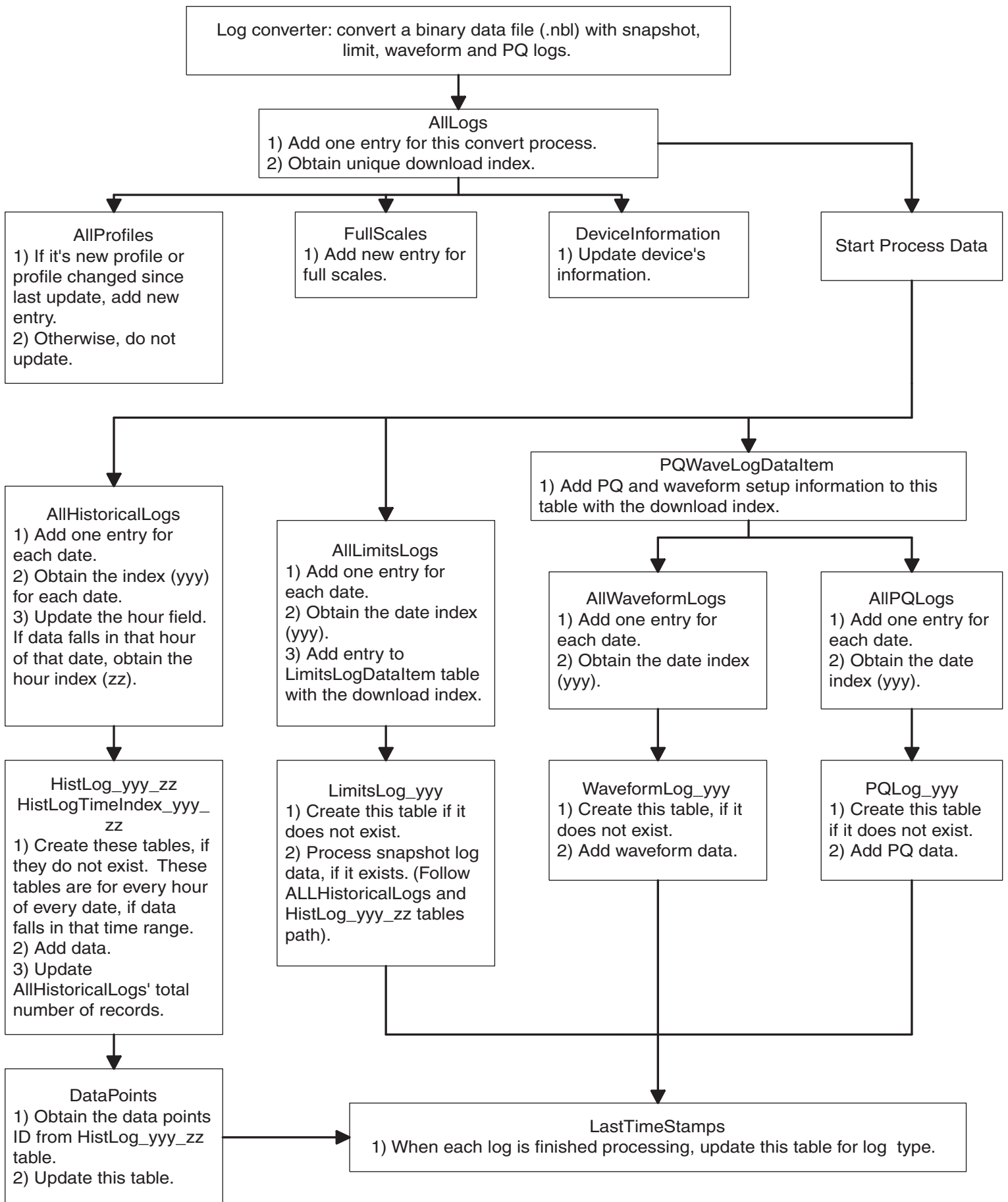
Figure_1

EIG Nexus Communicator Log Database Files Overview (Data Display Process)



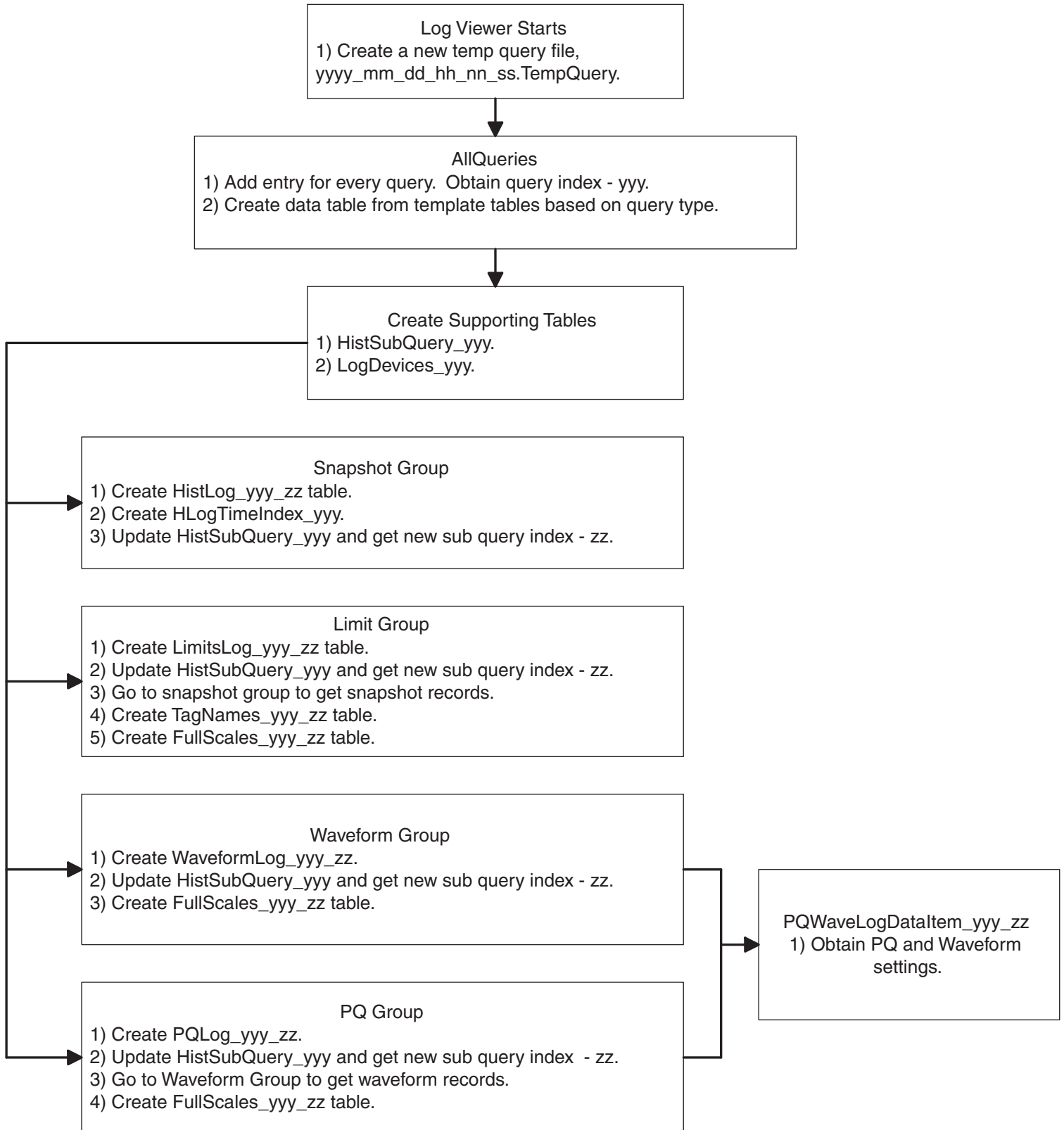
Figure_2

Data Process for EIGData.DB



Figure_3

Data Process for LogViewTempQuery.DB (yyyy_mm_dd_hh_nn_ss.TempQuery)



Figure_4

EIGData.DB Tables

Master Table Group

- 1) AllLogs
- 2) AllProfiles
- 3) DataPoints
- 4) DeviceInformation
- 5) FullScales
- 6) ID_Table
- 7) LastTimeStamps
- 8) InputLogA
- 9) InputLogDataItem
- 10) RelayLogA
- 11) RelayLogDataItem

Template Table Group

- 1) Snapshot log group:
 - a) HistLogTmp
 - b) HistLogTimeIndexTmp
- 2) Limit log group:
 - a) LimitsLogTmp
- 3) Waveform log group:
 - a) WaveformLogTmp
- 4) PQ log group:
 - a) PQLogTmp

Duplicated Tables

yyy: date index
zz: hour index

- 1) Snapshot log group:
 - a) HistLog_yyy_zz
 - b) HistLogTimeIndex_yyy_zz
- 2) Limit log group:
 - a) LimitsLog_yyy
- 3) Waveform log group:
 - a) WaveformLog_yyy
- 4) PQ log group:
 - a) PQLog_yyy

Index Table Group

- 1) AllHistoricalLogs
- 2) AllLimitsLogs
- 3) AllWaveformLogs
- 4) AllPQLogs
- 5) AllInputLogs
- 6) AllRelayLogs

Device Setting Table Group

- 1) LimitsLogDataItem
- 2) PQWaveLogDataItem

Figure_5

EIGNameList.DB

Master Table Group

- 1) Data Types
- 2) Devices
- 3) DevicesAndProtocols
- 4) ID_Table
- 5) Protocols
- 6) Types

Data Type Table Group

- 1) Type_100
- 2) Type_103
- 3) Type_108
- 4) Type_112
- 5) Type_113
- 6) Type_114
- 7) Type_129
- 8) Type_130
- 9) Type_131

Template Temple Group

- 1) Type Template
- 2) Device
ProtocolTemplate_3_1

Detailed Data Points Table Group

- 1) DeviceProtocol_3_1

LogViewTempQuery.DB

<u>Master Table Group</u>	<u>Template Table Group</u>	<u>Duplicated Table Group</u>
1) AllQueries 2) ID_Table	1) Sub Query indexes group: a) HisSubQueryTmp 2) Device Information group: a) LogDevicesTmp 3) Full scales group: a) FullScalesTmp 4) Tag names group: a) TagNamesTmp 5) Snapshot log group: a) HistLogTmp b) HLogTimeIndexTmp 6) Limit log group: a) LimitsLogTmp 7) Waveform log group: a) WaveformLogTmp 8) PQLogTmp: a) PQLogTmp 9) PQ & waveform setting group: a) PQWaveLogDataItemTmp 10) Input log group: a) InputLogATmp b) InputLogDataItemTmp 11) Relay log group: a) RelayLogATmp b) RelayLogDataItemTmp	yyy: Query index from AllQueries zz: Sub Query index from HistSubQuery_yyy 1) Sub query indexes group: a) HistSubQuery_yyy 2) Device information group: a) LogDevices_yyy 3) Full scales group: a) FullScales_yyy_zz 4) Tag names group: a) TagNames_yyy_zz 5) Snapshot log group: a) HistLog_yyy_zz b) HLogTimeIndex_yyy 6) Limit log group: a) LimitsLog_yyy_zz 7) Waveform log group: a) WaveformLog_yyy_zz 8) PQ log group: a) PQLog_yyy_zz 9) PQ & waveform setting group: a) PQWaveLogDataItem_yyy_zz 10) Input log group: a) InputLogA_yyy_zz b) InputLogDataItem_yyy_zz 11) Relay log group: a) RelayLogA_yyy_zz b) RelayLogDataItem_yyy_zz

Figure_7

Appendix A: EIGData.DB Fields Definition

Version 8.0

Table: AllEnergyDemandLogs
Table: AllFlickerLogs
Table: AllInputLogs
Table: AllHistoricalLogs
Table: AllLimitsLogs
Table: AllLogs
Table: AllPQLogs
Table: AllProfiles
Table: AllRelayLogs
Table: AllWaveformLogs
Table: DataPoints
Table: DeviceInformation
Table: EDLogTmp
Table: EDTimeIndexTmp
Table: FullScales
Table: HistLogTimeIndexTmp
Table: HistLogTmp
Table: ID_TABLE
Table: LastTimeStamps
Table: LimitsLogDataItem
Table: LimitsLogTmp
Table: PQLogTmp
Table: PQWaveLogDataItem
Table: WaveformLogTmp

Appendix A: EIGData.DB Fields Definition

Version 8.0

Table: AllEnergyDemandLogs

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
LogTablesIndex	Number (Long)	4	Sub data table ID
Date/Time	Date/Time	8	
HTable	Yes/No	1	Sub data table available status
Recs	Number (Long)	4	Number of records for that date

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Date/Time	1	Date/Time, Ascending
LogTablesIndex	1	LogTablesIndex, Ascending
PrimaryKey	1	Date/Time, Ascending

Table: AllFlickerLogs

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
LogTablesIndex	Number (Long)	4	Sub data table ID
Date/Time	Date/Time	8	
HTable	Yes/No	1	Sub data table available status
Recs	Number (Long)	4	Number of records for that date

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Date/Time	1	Date/Time, Ascending
LogTablesIndex	1	LogTablesIndex, Ascending
PrimaryKey	1	Date/Time, Ascending

Table: AllInputLogs

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
LogTablesIndex	Number (Long)	4	Sub data table ID
Date/Time	Date/Time	8	
HTable	Yes/No	1	Sub data table available status
Recs	Number (Long)	4	Number of records for that date

Appendix A: EIGData.DB Fields Definition

Version 8.0

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Date/Time	1	Date/Time, Ascending
LogTablesIndex	1	LogTablesIndex, Ascending
PrimaryKey	1	Date/Time, Ascending

Appendix A: EIGData.DB Fields Definition

Version 8.0

Table: AllHistoricalLogs

RecordCount: 0

Columns

Name	Type	Size	
LogTablesIndex	Number (Long)	4	Sub data table ID
Date/Time	Date/Time	8	
Hour_0	Yes/No	1	Sub data table available status Hour 0 to 23
Hour_1	Yes/No	1	
Hour_2	Yes/No	1	
Hour_3	Yes/No	1	
Hour_4	Yes/No	1	
Hour_5	Yes/No	1	
Hour_6	Yes/No	1	
Hour_7	Yes/No	1	
Hour_8	Yes/No	1	
Hour_9	Yes/No	1	
Hour_10	Yes/No	1	
Hour_11	Yes/No	1	
Hour_12	Yes/No	1	
Hour_13	Yes/No	1	
Hour_14	Yes/No	1	
Hour_15	Yes/No	1	
Hour_16	Yes/No	1	
Hour_17	Yes/No	1	
Hour_18	Yes/No	1	
Hour_19	Yes/No	1	
Hour_20	Yes/No	1	
Hour_21	Yes/No	1	
Hour_22	Yes/No	1	
Hour_23	Yes/No	1	
Recs_0	Number (Long)	4	Number of records for the hour Hour 0 to 23
Recs_1	Number (Long)	4	
Recs_2	Number (Long)	4	
Recs_3	Number (Long)	4	
Recs_4	Number (Long)	4	
Recs_5	Number (Long)	4	
Recs_6	Number (Long)	4	
Recs_7	Number (Long)	4	

Appendix A: EIGData.DB Fields Definition

Version 8.0

Recs_8	Number (Long)	4
Recs_9	Number (Long)	4
Recs_10	Number (Long)	4
Recs_11	Number (Long)	4
Recs_12	Number (Long)	4
Recs_13	Number (Long)	4
Recs_14	Number (Long)	4
Recs_15	Number (Long)	4
Recs_16	Number (Long)	4
Recs_17	Number (Long)	4
Recs_18	Number (Long)	4
Recs_19	Number (Long)	4
Recs_20	Number (Long)	4
Recs_21	Number (Long)	4
Recs_22	Number (Long)	4
Recs_23	Number (Long)	4

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Date/Time	1	Date/Time, Ascending
LogTablesIndex	1	LogTablesIndex, Ascending
PrimaryKey	1	Date/Time, Ascending

Table: AllLimitsLogs

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
LogTablesIndex	Number (Long)	4	Sub data table ID
Date/Time	Date/Time	8	
HTable	Yes/No	1	Sub data table available status
Recs	Number (Long)	4	Number of records for that date

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Date/Time	1	Date/Time, Ascending
LogTablesIndex	1	LogTablesIndex, Ascending
PrimaryKey	1	Date/Time, Ascending

Table: AllLogs

Appendix A: EIGData.DB Fields Definition

Version 8.0

RecordCount: 0

Columns

Name	Type	Size	
Index	Number (Long)	4	Download index
EntryDate/Time	Date/Time	8	
LogOptionID1	Number (Long)	4	Value is the sum of these values: a1) No data available = 0 a2) Programming File = 1 a3) Historical Log Profile = 2 a4) Event Log Profile = 4 a5) Waveform Log Profile = 8 a6) Programming Block = 16 a7) Historical Log = 32 a8) Log 1 = 64 a9) Log 2 = 128 a10) Energy/Demand Log = 256 a11) Limit Log = 512 a12) Input Log = 1024 a13) Relay Log = 2048 a14) Flicker Log = 4096 a15) Waveform Log = 8192 a16) Power Quality Log = 16384
LogOptionID2	Number (Long)	4	Reserved
LogOptionName	Memo -		Log option text names
ProFileIndex	Number (Long)	4	ProFileIndex in the AllProfiles table
LogConverterVersion	Text	255	Log Converter version number, format: v#.#.# where # is the numerical value.
LogConverterInfo	Text	255	Log converter description.
DownloadSoftwareInfo	Text	255	
FirmwareInfo1	Text	255	
FirmwareInfo2	Text	255	
FirmwareInfo3	Text	255	
FirmwareInfo4	Text	255	
FirmwareInfo5	Text	255	

Table Indexes

Name	Number of Fields	Fields Table Indexes
EntryDate/Time	1	EntryDate/Time, Ascending
Index	1	Index, Ascending
PrimaryKey	1	Index, Ascending

Appendix A: EIGData.DB Fields Definition

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Table: AllPQLogs

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
LogTablesIndex	Number (Long)	4	Sub data table ID
Date/Time	Date/Time	8	
HTable	Yes/No	1	Sub data table available status
Recs	Number (Long)	4	Number of records for that date

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Date/Time	1	Date/Time, Ascending
LogTablesIndex	1	LogTablesIndex, Ascending
PrimaryKey	1	Date/Time, Ascending

Table: AllProfiles

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ProfileIndex	Number (Long)	4	Profile entry index
Date/Time	Date/Time	8	Profile modification date/time
ms	Number (Integer)	2	Millisecond
DTmode	Number (Integer)	2	Date/time mode, reserved
Profile	Memo -		Binary value of device's programming setup information.

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Date/Time	1	Date/Time, Ascending
PrimaryKey	1	ProfileIndex, Ascending
ProfileIndex	1	ProfileIndex, Ascending

Table: AllRelayLogs

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
LogTablesIndex	Number (Long)	4	Sub data table ID
Date/Time	Date/Time	8	
HTable	Yes/No	1	Sub data table available status

Appendix A: EIGData.DB Fields Definition

Version 8.0

Recs	Number (Long)	4	Number of records for that date
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Table Indexes

Name	Number of Fields	Fields
Index	1	LogTablesIndex, Ascending
PrimaryKey	1	Date/Time, Ascending

Table: AllWaveformLogs

RecordCount: 0

Columns

Name	Type	Size	
LogTablesIndex	Number (Long)	4	Sub data table ID
Date/Time	Date/Time	8	
HTable	Yes/No	1	Sub data table available status
Recs	Number (Long)	4	Number of records for that date

Table Indexes

Name	Number of Fields	Fields
Date/Time	1	Date/Time, Ascending
LogTablesIndex	1	LogTablesIndex, Ascending
PrimaryKey	1	Date/Time, Ascending

Table: DataPoints

RecordCount: 0

Columns

Name	Type	Size	
DataID	Number (Long)	4	Data points ID, defined in EIGNameList.DB

Table Indexes

Name	Number of Fields	Fields
DataID	1	DataID, Ascending
PrimaryKey	1	DataID, Ascending

Table: DeviceInformation

RecordCount: 0

Columns

Appendix A: EIGData.DB Fields Definition

Version 8.0

Name	Type	Size	
DeviceTypeID	Number (Long)	4	Device ID, defined in EIGNameList.DB
DeviceType	Text	50	Device name in text
Address	Number (Long)	4	
HardwareID	Text	255	For Nexus, it is factory pre assigned ID
HardwareName	Text	255	For Nexus, it is user assigned name
TimeZone	Text	10	
HardwareTypeName	Text	255	Device's native hardware name, such as "0107 Nexus 1250"

Table: EDLogTmp

RecordCount: 0

Columns

Name	Type	Size
Date/TimeIndex	Number (Long)	4
DataID	Number (Long)	4
Value	Text	30

Table is reserved

Table Indexes

Name	Number of Fields	Fields
DataID	1	DataID, Ascending
Date/TimeIndex	1	Date/TimeIndex, Ascending

Table: EDTimeIndexTmp

RecordCount: 0

Columns

Name	Type	Size
Date/TimeIndex	Number (Long)	4
Date/Time	Date/Time	8
ms	Number (Integer)	2
DTmode	Number (Integer)	2

Table is reserved

Appendix A: EIGData.DB Fields Definition

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Table Indexes

Name	Number of Fields	Fields
Date/TimeIndex	1	Date/TimeIndex, Ascending

Table: FullScales

RecordCount: 0

Columns

Name	Type	Size	
Index	Number (Long)	4	Download index
PTCT_Ratio1	Text	255	CT ratio
PTCT_Ratio2	Text	255	CT aux ratio
PTCT_Ratio3	Text	255	PT ratio
PTCT_Ratio4	Text	255	PT aux ratio
FullScale1	Text	50	I a,b,c
FullScale2	Text	50	I n
FullScale3	Text	50	V an, bn, cn
FullScale4	Text	50	V aux
FullScale5	Text	50	V ab, bc, ca
FullScale6	Text	50	Power-phase
FullScale7	Text	50	Power-total
FullScale8	Text	50	Frequency

Table Indexes

Name	Number of Fields	Fields
Index	1	Index, Ascending
PrimaryKey	1	Index, Ascending

Table: HistLogTimeIndexTmp

RecordCount: 0

Columns

Name	Type	Size	
Date/TimeIndex	Number (Long)	4	Timestamp index
Date/Time	Date/Time	8	
ms	Number (Integer)	2	Milliseconds
DTmode	Number (Integer)	2	Date/Time mode
TypeID	Number (Integer)	2	a1) Log 1 snapshots = 2
			a2) Log 2 snapshots = 3
			a3) Limit snapshots = 4

Appendix A: EIGData.DB Fields Definition

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a4) Waveform snapshots = 8

Table Indexes

Name	Number of Fields	Fields
Date/TimeIndex	1	Date/TimeIndex, Ascending
Date/TimeIndex	1	Date/TimeIndex, Ascending
PrimaryKey	1	Date/TimeIndex, Ascending

Table: HistLogTmp

RecordCount: 0

Columns

Name	Type	Size	
Date/TimeIndex	Number (Long)	4	Timestamp index in the HistLogTimeIndexTmp table
DataID	Number (Long)	4	Data point ID
Value	Number (Double)	8	Data value in primary format

Table Indexes

Name	Number of Fields	Fields
DataID	1	DataID, Ascending
Date/TimeIndex	1	Date/TimeIndex, Ascending

Table: ID_TABLE

RecordCount: 1

Columns

Name	Type	Size	
Name	Text	50	Reserved
Version	Number (Double)	8	Database version
KeyName	Text	50	Reserved
Note	Text	255	

Table: LastTimeStamps

RecordCount: 0

Columns

Name	Type	Size	
LogID	Number (Long)	4	a1) Profile = 0 a2) Log 1 = 1

Appendix A: EIGData.DB Fields Definition

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			a3) Log 2	= 2
			a4) Limits	= 3
			a5) Limit snapshots	= 4
			a6) Waveform trigger	= 10
			a7) Waveform sample	= 12
			a8) PQ	= 13
LogName	Text	10		
LastDateTime	Date/Time	8	Last record date/Time. For profile, it is last modified date/time.	
Lastms	Number (Integer)	2	Last record millisecond time	
LastDTmode	Number (Integer)	2	Last record date/time mode	
LastRecNum	Number (Long)	4	Last Record number. For profile, it is the check sum Value.	
LastRecOffSet	Number (Long)	4	Reserved	

Table Indexes

Name	Number of Fields	Fields
PrimaryKey	1	LogID, Ascending

Table: LimitsLogDataItem

RecordCount: 0

Columns

Name	Type	Size	
LinkIndex	Number (Long)	4	Refrence number
Index	Number (Long)	4	Download index
DataID	Number (Long)	4	Data point ID
DataIndex	Number (Integer)	2	Data point position number, reserved
LimitID	Number (Long)	4	1=Above, 2=Below
LSet	Number (Double)	8	Limit set value
LSAB	Text	255	Above or Below
LSet%	Number (Double)	8	Limit set % of full scale

Table Indexes

Name	Number of Fields	Fields
DataID	1	DataID, Ascending
DataIndex	1	DataIndex, Ascending
Index	1	Index, Ascending
LimitID	1	LimitID, Ascending
LinkIndex	1	LinkIndex, Ascending

Appendix A: EIGData.DB Fields Definition

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Table: LimitsLogTmp

RecordCount: 0

Columns

Name	Type	Size	
LinkIndex	Number (Long)	4	LinkIndex in table LimitsLogDataItem
StartDate/Time	Date/Time	8	
Startms	Number (Integer)	2	Start millisecond
SDTMode	Number (Integer)	2	Start date/time mode
EndDate/Time	Date/Time	8	
Endms	Number (Integer)	2	End millisecond
EDTMode	Number (Integer)	2	End date/time mode
LState	Text	8	Limit conditions: Above or Below
Duration	Number (Double)	8	Duration is in seconds
LValue	Number (Double)	8	Snapshot value
DescriptionCode	Number (Integer)	2	a1) Above = 1 a2) Below = 2 a3) Normal = 0 a4) Start Point = -1 a5) End Point = -2
Index	Number (Long)	4	Download index
DataID	Number (Long)	4	

Table Indexes

Name	Number of Fields	Fields
DataID	1	DataID, Ascending
EndDate/Time	1	EndDate/Time, Ascending
LinkIndex	1	LinkIndex, Ascending
StartDate/Time	1	StartDate/Time, Ascending

Table: PQLogTmp

RecordCount: 0

Columns

Name	Type	Size	
StartDate/Time	Date/Time	8	PQ's start date/time
Startms	Number (Integer)	2	Start millisecond
SDTMode	Number (Integer)	2	Start date/time mode
SWNumber	Number (Integer)	2	unadjusted waveform number which the start PQ point is in that waveform
Ssample	Number (Integer)	2	unadjusted waveform sample point, which is the start PQ point

Appendix A: EIGData.DB Fields Definition

Version 8.0

EndDate/Time	Date/Time	8	PQ's end date/time
Endms	Number (Integer)	2	End millisecond
EDTMode	Number (Integer)	2	End date/time mode
EWNnumber	Number (Integer)	2	unadjusted waveform number which the end PQ point is in that waveform
ESample	Number (Integer)	2	unadjusted waveform sample point, which is the end PQ point
Index	Number (Long)	4	download index
Duration	Number (Double)	8	calculated duration in milliseconds
ChannelID	Number (Integer)	2	Van = 0 Vbn = 1 Vcn = 2 Vaux = 3 Ia = 4 Ib = 5 Ic = 6 Iaux = 7 In = 8 Vab = 9 Vbc = 10 Vca = 11 Input 1 = 12 Input 2 = 13 Input 3 = 14 Input 4 = 15 Input 5 = 16 Input 6 = 17 Input 7 = 18 Input 8 = 19
PQValue	Number (Double)	8	the peak RMS value during the PQ event
PQ%	Number (Double)	8	PQvalue in percent of full-scale value
ChannelName	Text	16	
ConditionCode	Number (Integer)	2	Normal = 0 Surge = 1 Sag = 2 Start point = -1 End point = -2
ConditionName	Text	16	
WaveformLink	Yes/No	1	

Table Indexes

Appendix A: EIGData.DB Fields Definition

Version 8.0

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Date/Time	1	StartDate/Time, Ascending
EndDate/Time	1	EndDate/Time, Ascending
Index	1	Index, Ascending

Appendix A: EIGData.DB Fields Definition

Version 8.0

Table: PQWaveLogDataItem

RecordCount: 0

Columns

Name	Type	Size	
Index	Number (Long)	4	Download index
SampleRate	Number (Integer)	2	
CaptureNum	Number (Integer)	2	Number of captures
Mode	Number (Integer)	2	Capture mode
HSI	Number (Integer)	2	HIS setting value
C0_L1	Number (Double)	8	Limit 1 set values
			Van = 0
			Vbn = 1
			Vcn = 2
			Vaux = 3
			Ia = 4
			Ib = 5
			Ic = 6
			Iaux = 7
			In = 8
			Vab = 9
			Vbc = 10
			Vca = 11
C1_L1	Number (Double)	8	
C2_L1	Number (Double)	8	
C3_L1	Number (Double)	8	
C4_L1	Number (Double)	8	
C5_L1	Number (Double)	8	
C6_L1	Number (Double)	8	
C7_L1	Number (Double)	8	
C8_L1	Number (Double)	8	
C9_L1	Number (Double)	8	
C10_L1	Number (Double)	8	
C11_L1	Number (Double)	8	
C0_L2	Number (Double)	8	Limit 2 set values
C1_L2	Number (Double)	8	
C2_L2	Number (Double)	8	
C3_L2	Number (Double)	8	
C4_L2	Number (Double)	8	
C5_L2	Number (Double)	8	
C6_L2	Number (Double)	8	
C7_L2	Number (Double)	8	

Appendix A: EIGData.DB Fields Definition

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C8_L2	Number (Double)	8	
C9_L2	Number (Double)	8	
C10_L2	Number (Double)	8	
C11_L2	Number (Double)	8	
C0_L1SAB	Text	8	Limit 1 set states: Above or Below
C1_L1SAB	Text	8	
C2_L1SAB	Text	8	
C3_L1SAB	Text	8	
C4_L1SAB	Text	8	
C5_L1SAB	Text	8	
C6_L1SAB	Text	8	
C7_L1SAB	Text	8	
C8_L1SAB	Text	8	
C9_L1SAB	Text	8	
C10_L1SAB	Text	8	
C11_L1SAB	Text	8	
C0_L2SAB	Text	8	Limit 2 set states: Above or Below
C1_L2SAB	Text	8	
C2_L2SAB	Text	8	
C3_L2SAB	Text	8	
C4_L2SAB	Text	8	
C5_L2SAB	Text	8	
C6_L2SAB	Text	8	
C7_L2SAB	Text	8	
C8_L2SAB	Text	8	
C9_L2SAB	Text	8	
C10_L2SAB	Text	8	
C11_L2SAB	Text	8	
WaveEnables	Number (Long)	4	Channel enables for waveform capture. Bit 0 is LSB.

Values are:

Van, L1 = Bit 0
 Van, L2 = Bit 1
 Vbn, L1 = Bit 2
 Vbn, L2 = Bit 3
 Vcn, L1 = Bit 4
 Vcn, L2 = Bit 5
 Vaux, L1 = Bit 6
 Vaux, L2 = Bit 7
 Ia, L1 = Bit 8
 Ia, L2 = Bit 9
 Ib, L1 = Bit 10

Appendix A: EIGData.DB Fields Definition

Version 8.0

				Ib, L2 = Bit 11
				Ic, L1 = Bit 12
				Ic, L2 = Bit 13
				Iaux, L1 = Bit 14
				Iaux, L2 = Bit 15
				In, L1 = Bit 16
				In, L2 = Bit 17
				Vab, L1 = Bit 18
				Vab, L2 = Bit 19
				Vbc, L1 = Bit 20
				Vbc, L2 = Bit 21
				Vca, L1 = Bit 22
				Vca, L2 = Bit 23
WaveEnables_Input	Number (Byte)	1		Input channels enables for waveform capture. Input 1 is bit 0, LSB, input 8 is bit 7, MSB.
PQEnables	Number (Long)	4		Channel enables for PQ capture. Bit 0 is LSB. Values are the same as WaveEnables.
PQEnables_Input	Number (Byte)	1		Input channels enables for PQ capture. Input 1 is bit 0, LSB, input 8 is bit 7, MSB.
HookUp	Number (Long)	4		a1) Wye = 0 a2) Delta = 1 a3) 2 CTs = 2 a4) 2.5 elements = 3 a5) Grounded Delta= 4
RecordFormat	Number (Long)	4		256 Sampling Rate: Volts = 0, current = 1 512 Sampling Rate: Volts a,b,c = 0-2 Current a,b,c,Iaux = 4-7 None = 3
				RecordFormat is used for waveforms with 256 and 512 sampling rates.
				For 256 Sampling Rate: Volts = 0, the waveform will contain all 3 voltages and all 8 inputs data. Current = 1, the waveform will contain all 3 currents and data from all 8 inputs.
				For 512 Sampling Rate:

Appendix A: EIGData.DB Fields Definition

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Volts a,b,c = 0,1,2

Current a,b,b,Iaux = 4,5,6,7

None = 3

The waveform will contain any single analog channel and data from all 8 inputs.

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Index	1	Index, Ascending
PrimaryKey	1	Index, Ascending

Appendix A: EIGData.DB Fields Definition

Version 8.0

Table: WaveformLogTmp

RecordCount: 0

Columns

Name	Type	Size	
Date/Time	Date/Time	8	Date/time at the end of the triggering cycle
ms	Number (Integer)	2	Millisecond at the end of the triggering cycle
DTMode	Number (Integer)	2	Date/time mode at the end of the triggering cycle
WaveformNumber	Number (Integer)	2	Adjusted waveform number, starting at 1.
TriggeredBy1	Text	255	Trigger description
TriggeredBy2	Text	255	Trigger description
TriggerCode	Number (Long)	4	What channel caused this waveform capture. Usually is the channel whose state was changed.
	Van, L1	= Bit 0	
	Van, L2	= Bit 1	
	Vbn, L1	= Bit 2	
	Vbn, L2	= Bit 3	
	Vcn, L1	= Bit 4	
	Vcn, L2	= Bit 5	
	Vaux, L1	= Bit 6	
	Vaux, L2	= Bit 7	
	Ia, L1	= Bit 8	
	Ia, L2	= Bit 9	
	Ib, L1	= Bit 10	
	Ib, L2	= Bit 11	
	Ic, L1	= Bit 12	
	Ic, L2	= Bit 13	
	Iaux, L1	= Bit 14	
	Iaux, L2	= Bit 15	
	In, L1	= Bit 16	
	In, L2	= Bit 17	
	Vab, L1	= Bit 18	
	Vab, L2	= Bit 19	
	Vbc, L1	= Bit 20	
	Vbc, L2	= Bit 21	
	Vca, L1	= Bit 22	
	Vca, L2	= Bit 23	
	Input 1	= Bit 24	
	Input 2	= Bit 25	
	Input 3	= Bit 26	
	Input 4	= Bit 27	
	Input 5	= Bit 28	

Appendix A: EIGData.DB Fields Definition

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Input 6 = Bit 29
 Input 7 = Bit 30
 Input 8 = Bit 31
 * Bit value 1 = triggered. Bit value 0 = not triggered.

ConditionCode	Number (Long)	4	conditions for all channels. Van, L1 = Bit 0 Van, L2 = Bit 1 Vbn, L1 = Bit 2 Vbn, L2 = Bit 3 Vcn, L1 = Bit 4 Vcn, L2 = Bit 5 Vaux, L1 = Bit 6 Vaux, L2 = Bit 7 Ia, L1 = Bit 8 Ia, L2 = Bit 9 Ib, L1 = Bit 10 Ib, L2 = Bit 11 Ic, L1 = Bit 12 Ic, L2 = Bit 13 Iaux, L1 = Bit 14 Iaux, L2 = Bit 15 In, L1 = Bit 16 In, L2 = Bit 17 Vab, L1 = Bit 18 Vab, L2 = Bit 19 Vbc, L1 = Bit 20 Vbc, L2 = Bit 21 Vca, L1 = Bit 22 Vca, L2 = Bit 23 * Bit value 1 = condition exceeded. Bit value 0 = condition not exceeded.
ConditionCode_Input	Number (Integer)	2	Inputs conditions. Input 1 is bit 0 (LSB) and input 8 is bit 7 (MSB). State 1= 1 and state 0 = 0.
Index	Number (Long)	4	Download index
V0	Number (Double)	8	Van RMS
V1	Number (Double)	8	Vbn RMS
V2	Number (Double)	8	Vcn RMS
V3	Number (Double)	8	Vaux RMS

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V4	Number (Double)	8	Ia RMS
V5	Number (Double)	8	Ib RMS
V6	Number (Double)	8	Ic RMS
V7	Number (Double)	8	Iaux RMS
V8	Number (Double)	8	In RMS
V9	Number (Double)	8	Vab RMS
V10	Number (Double)	8	Vbc RMS
V11	Number (Double)	8	Vca RMS
WaveformTriggerNumber	Number (Integer)	2	Triggered by a waveform with the same value in fields WaveformNumber
Contiguous	Yes/No	1	
CaptureSequence	Number (Integer)	2	0=first,1 or more=additional to the first
SampleInTriggerCyc	Number (Integer)	2	Number of samples in the triggering cycle
EndTriggerCycPT	Number (Integer)	2	End point for the triggering cycle
TimingPT	Number (Integer)	2	Sample point with a timestampe value in Date/Time field
Sample0	Memo -		<p>SampleX: Holds the tab-delimited string of waveform samples value, where X is:</p> <p>Van/ab = 0</p> <p>Vbn/bc = 1</p> <p>Vcn/ca = 2</p> <p>Ia = 3</p> <p>Ib = 4</p> <p>Ic = 5</p> <p>Iaux = 6</p> <p>Input 1 to 8 = 7 to 14</p> <ul style="list-style-type: none"> Special cases for delta mode and 2.5 elements mode: <ul style="list-style-type: none"> Delta, 3CT: <ul style="list-style-type: none"> a) Recalculate Vab, bc, ca values. Delta, 2CT: <ul style="list-style-type: none"> a) Recalculate Vab, bc, ca values. b) Ib should be re-calculated from $I_b = -I_a - I_b$. 2.5 element: <ul style="list-style-type: none"> a) Vb should be re-calculated from $V_b = -V_a - V_c$

For waveform with 256 sampling rate, fields Sample0 and Sample1 hold the data for Channel 1, fields Sample2 and Sample3 for Channel 2, fields Sample4 and Sample5 for Channel 3. They can be either volts or current. Each field has 1024 samples. There is a total of 2048 samples per channel in a capture.

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For waveform with 512 sampling rate, fields Sample0, Sample1, Sample2 and Sample3 hold the data for a single analog channel. Each field has 1024 samples. There is a total of 4096 samples per single channel in a capture.

For waveform with 256 and 512 sampling rates, the user must reconstruct the data for a channel by concatenating the data in multiple fields.

Data from Waveform Inputs for Input 1 to Input 8 are always in fields Sample7 to Sample14.

Sample1	Memo	-	
Sample2	Memo	-	
Sample3	Memo	-	
Sample4	Memo	-	
Sample5	Memo	-	
Sample6	Memo	-	
Sample7	Memo	-	
Sample8	Memo	-	
Sample9	Memo	-	
Sample10	Memo	-	
Sample11	Memo	-	
Sample12	Memo	-	
Sample13	Memo	-	
Sample14	Memo	-	
WTDate/Time	Date/Time		8
WTms	Number (Integer)		2
WTDTmode	Number (Integer)		2
OrigFirstSample	Number (Long)		4
			unadjusted first sample index with in the waveform capture
OrigFirstWave	Number (Long)		4
OrigWNumber	Number (Integer)		2
			unadjusted waveform number
WSDT	Date/Time		8
WSms	Number (Integer)		2
			calculated waveform start date/time
WSDTmode	Number (Long)		4
			calculated waveform start millisecond
WEDT	Date/Time		8
			calculated waveform start date/time mode
WEmS	Number (Integer)		2
			calculated waveform end date/time
WEDTmode	Number (Integer)		2
			calculated waveform end millisecond
WDuration	Number (Double)		8
			calculated waveform end date/time mode
			calculated waveform duration in milliseconds

Appendix A: EIGData.DB Fields Definition

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Table Indexes

Name	Number of Fields	Fields
Date/Time	1	Date/Time, Ascending
ms	1	ms, Ascending

Table: InputLogA
Columns

Name	Type	Size	
Index	Number (Long)	4	Download index
DT1	Date/Time	8	Start date/time
ms1	Number (Integer)	2	Start ms
DT1mode	Number (Integer)	2	Start date/time mode
DT2	Date/Time	8	End date/time
ms2	Number (Integer)	2	End ms
DT2mode	Number (Integer)	2	End date/time mode
	ModuleIndex	Number (Integer)	2 Input module index, 0 for internal input, >0 for external input modules
InputIndex	Number (Integer)	2	Input channel index, normally is 1 to 8.
Status	Number (Byte)	1	Input status, 0 or 1.
DescriptionCode	Number (Integer)	2	0 for normal record, -1 for start point, -2 for end point.
Duration	Number (Double)	8	Input change duration in milliseconds.

Table: InputLogDataItem
Columns

Name	Type	Size	
Index	Number (Long)	4	Download index
ModuleIndex	Number (Integer)	2	Input module index, 0 for internal input, >0 for external input modules
ModulePort	Number (Byte)	1	External input module connected to Nexus' port.
ModuleAddress	Number (Long)	4	Input module address.
InputIndex	Number (Integer)	2	Input channel index, normally is 1 to 8.
ModuleLabel	Text	20	Module label.
InputLabel	Text	20	Input channel label

Appendix A: EIGData.DB Fields Definition

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TextLabel_0	Text	20	Description for state 0.
TextLabel_1	Text	20	Description for state 1.
NormalState	Number (Integer)	2	Normal state, 0 or 1.
InputFlip	Number (Long)	4	0 = No Flip, 1 = Flipped.

Table: RelayLogA
Columns

Name	Type	Size	
Index	Number (Long)	4	Download index
ModuleIndex	Number (Integer)	2	Module index
RelayIndex	Number (Integer)	2	Relay channel index
DT1	Date/Time	8	Stage 1 (trigger) date/time
ms1	Number (Integer)	2	Stage 1 (trigger) ms
DT1mode	Number (Integer)	2	Stage 1 (trigger) date/time mode
DT2	Date/Time	8	Stage 2 (command) date/time
ms2	Number (Integer)	2	Stage 2 (command) ms
DT2mode	Number (Integer)	2	Stage 2 (command) date/time mode
DT3	Date/Time	8	Stage 3 (acknowledge) date/time
ms3	Number (Integer)	2	Stage 3 (acknowledge) ms
DT3mode	Number (Integer)	2	Stage 3 (acknowledge) date/time
DT1CK	Number (Integer)	2	Stage 1 date/time status, -1=OK, 0=invalid. If value is 0, then Condition0, Condition1, condition0Text, Condition1Text, InputInfolx, InputStatus, and GateStatus will be invalid.
DT2CK	Number (Integer)	2	Stage 2 date/time status
DT3CK	Number (Integer)	2	Stage 3 date/time status
Duration12	Number (Double)	8	Duration between stage 1 and 2 in ms
Duration23	Number (Double)	8	Duration between stage 2 and 3 in ms
Duration13	Number (Double)	8	Duration between stage 1 and 3 in ms
Condition0	Number (Integer)	2	Relay condition before stage 1 0 = De-energized 1 = Energized 2 = Locked, De-energized 3 = Locked, Energized
Condition1	Number (Integer)	2	Relay condition at stage 1
Condition2	Number (Integer)	2	Relay condition at stage 2
Condition3	Number (Integer)	2	Relay condition at stage 3
Condition0Text	Text	255	Relay condition description before stage 1
Condition1Text	Text	255	Relay condition description at stage 1
Condition2Text	Text	255	Relay condition description at stage 2

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Condition3Text	Text	255	Relay condition description at stage 3
InputInfo11	Text	25	Input value 1 for ElectroLogic at stage 1
InputInfo12	Text	25	Input value 2 for ElectroLogic at stage 1
InputInfo13	Text	25	Input value 3 for ElectroLogic at stage 1
InputInfo14	Text	25	Input value 4 for ElectroLogic at stage 1
InputInfo15	Text	25	Input value 5 for ElectroLogic at stage 1
InputInfo16	Text	25	Input value 6 for ElectroLogic at stage 1
InputInfo17	Text	25	Input value 7 for ElectroLogic at stage 1
InputInfo18	Text	25	Input value 8 for ElectroLogic at stage 1
InputStatus	Number (Long)	4	Input status for ElectroLogic at stage 1, each bit indicates state 0 or 1 for each input. Bit 0 = input 1 Bit 1 = input 2 . . Bit 20= input 21 For Futura, Bit 21 = Phase Imb. Bit 22 = Phase Reversal
GateStatus	Number (Long)	4	Gate status for ElectroLogic at stage 1, each bit indicates state 0 or 1 for each gate. Bit 0 = gate A Bit 1 = gate B Bit 2 = gate C Bit 3 = gate D Bit 4 = gate E Bit 5 = gate F Bit 6 = gate G
InputStatusB	Number (Long)	4	Additional Input Status for Futura Bit 0 = Input 22 Bit 1 = Input 23
InputInfo19	Text	25	.
InputInfo54 (Inputs 19 through 54)	Text	25	For Futura, offset index by 10. See Logicstrxx in Table: RelayLogDataItem.

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Version 8.0

Table: RelayLogDataItem
Columns

Name	Type	Size	
Index	Number (Long)	4	Download index
ModuleIndex	Number (Integer)	2	Relay module index
ModuleAddress	Number (Long)	4	Relay module address
ModuleLabel	Text	20	Module label
ModulePort	Number (Byte)	1	External relay module connected to Nexus' port.
ModuleSlot	Number (Byte)	1	Module slot number.
RelayIndex	Number (Integer)	2	Relay index.
RelayLabel	Text	20	Relay label
SetDelay	Number (Byte)	1	Set delay time in sec.
ResetDelay	Number (Byte)	1	Reset delay time in sec.
LogicStr1	Text	255	ElectroLogic input 1 setting
LogicStr2	Text	255	ElectroLogic input 2 setting
LogicStr3	Text	255	ElectroLogic input 3 setting
LogicStr4	Text	255	ElectroLogic input 4 setting
LogicStr5	Text	255	ElectroLogic input 5 setting
LogicStr6	Text	255	ElectroLogic input 6 setting
LogicStr7	Text	255	ElectroLogic input 7 setting
LogicStr8	Text	255	ElectroLogic input 8 setting
LogicComb1	Number (Byte)	1	ElectroLogic gate A type Bit 4: negate combination (AND -> NAND) Bit 3-2: 00 = AND 01 = OR 10 = XOR 11 = Hysteresis Bit 1: 1 = invert gate input 2 Bit 0: 1 = invert gate input 1
LogicComb2	Number (Byte)	1	ElectroLogic gate B type
LogicComb3	Number (Byte)	1	ElectroLogic gate C type
LogicComb4	Number (Byte)	1	ElectroLogic gate D type
LogicComb5	Number (Byte)	1	ElectroLogic gate E type
LogicComb6	Number (Byte)	1	ElectroLogic gate F type
LogicComb7	Number (Byte)	1	ElectroLogic gate G type
LogicComb8	Number (Byte)	1	ElectroLogic gate H type
TextLabel_0	Text	20	Relay state 0 description
TextLabel_1	Text	20	Relay state 1 description

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NormalState	Number (Byte)	1	Relay normal state: 0 or 1
Logic1Type	Number (Integer)	2	ElectroLogic input 1 Type 1 = Limit logic 2 = Inputs
Logic2Type	Number (Integer)	2	ElectroLogic input 2 Type
Logic3Type	Number (Integer)	2	ElectroLogic input 3 Type
Logic4Type	Number (Integer)	2	ElectroLogic input 4 Type
Logic5Type	Number (Integer)	2	ElectroLogic input 5 Type
Logic6Type	Number (Integer)	2	ElectroLogic input 6 Type
Logic7Type	Number (Integer)	2	ElectroLogic input 7 Type
Logic8Type	Number (Integer)	2	ElectroLogic input 8 Type
Logic1ID	Number (Long)	4	ElectroLogic input 1 data ID For Limit type: Global data ID # For Input type: Input channel #
Logic2ID	Number (Long)	4	ElectroLogic input 2 data ID
Logic3ID	Number (Long)	4	ElectroLogic input 3 data ID
Logic4ID	Number (Long)	4	ElectroLogic input 4 data ID
Logic5ID	Number (Long)	4	ElectroLogic input 5 data ID
Logic6ID	Number (Long)	4	ElectroLogic input 6 data ID
Logic7ID	Number (Long)	4	ElectroLogic input 7 data ID
Logic8ID	Number (Long)	4	ElectroLogic input 8 data ID
LogicStr10	Text	255	For Futura, the order is: Van, Vbn, Vcn, Vab, Vbc, Vca, Ia, Ib, Ic, In W, VAR, VA, PF, Freq, THD-Va, THD-Vb, THD-Vc
LogicStr44	Text	255	THD-Ia, THD-Ib, THD-Ic, 1-21 for Limit1 22-42 for Limit2 43 = Phase Imb. 44 = Phase Imb.
Hysteresis	Number (Long)	4	0 = Disabled, 1 = Enabled
LogicControl	Number (Long)	4	1 = Positive, -1 = Negative

Appendix B: EIGNameList.DB Fields Definition

Version 4.8

Table: DataTypes
Table: DeviceProtocol_3_1
Table: DeviceProtocolTemplate_3_1
Table: Devices
Table: DevicesAndProtocols
Table: Type_100
Table: Type_103
Table: Type_108
Table: Type_112
Table: Type_113
Table: Type_114
Table: Type_129
Table: Type_130
Table: Type_131
Table: Types
Table: TypeTemplate

Appendix B: EIGNameList.DB Fields Definition

Version 4.8

Table: DataTypes

RecordCount: 23

Columns

Name	Type	Size	
ID	Number (Long)	4	Data type ID
Bytes	Number (Long)	4	Number of bytes
UseFullScale	Number (Long)	4	Use value in the next field: 0=No, 1=Yes
DefaultFullScale	Number (Double)	8	
Unit	Number (Double)	8	Additional multiplying factor
Name	Text	50	
Description	Text	255	

Table Indexes

Name	Number of Fields	Fields
ID	1	ID, Ascending

Table: DeviceProtocol_3_1

RecordCount: 2040

Columns

Name	Type	Size	
Index	Number (Long)	4	Data ID number
Description1	Text	100	
Description2	Text	50	
Data Type	Number (Long)	4	Data type ID
MSB_LSB	Number (Byte)	1	0=N/A, 1=MSB, 2=LSB
Use_Multiplier	Number (Long)	4	0=None, 1=CT Ratio, 2=CT Ratio AUX, 3=PT Ratio, 4=PT Ratio AUX, 5=PT and CT Ratio, 6=use value in next field, [Multiplier], reserved value from 10-49 for Analog Inputs in groups of 1x, 2x, 3x, 4x. Ex. 25 is for Module 2, Channel 6 (0 based).
Multiplier	Number (Double)	8	
Pointer	Number (Long)	4	Nexus data pointer number
VIndex	Number (Integer)	2	Nexus data index number
Modbus_Base_Register	Number (Long)	4	Reserved
DNP_Object	Number (Integer)	2	Reserved
DNP_Point	Number (Integer)	2	Reserved
FullScaleMultiplier	Number (Byte)	1	0=None, 1-I, 2-In, 3=Vp_n, 4=Vp_p, 5=Vaux, 6=Power_p, 7=Power_T, 8=Frequency

For Nexus with Modbus protocol

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Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Index	1	Index, Ascending
Modbus_Base_Register	1	Modbus_Base_Register, Ascending
Pointer	1	Pointer, Ascending
VIndex	1	VIndex, Ascending

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Table: DeviceProtocolTemplate_3_1

RecordCount: 0

Columns

Name	Type	Size
Index	Number (Long)	4
Description1	Text	100
Description2	Text	50
Data Type	Number (Long)	4
MSB_LSB	Number (Byte)	1
Use_Multiplier	Number (Long)	4
Multiplier	Number (Double)	8
Pointer	Number (Long)	4
VIndex	Number (Integer)	2
Modbus_Base_Register	Number (Long)	4
DNP_Object	Number (Integer)	2
DNP_Point	Number (Integer)	2
FullScaleMultiplier	Number (Byte)	1

Table Indexes

Name	Number of Fields	Fields
Index	1	Index, Ascending
Modbus_Base_Register	1	Modbus_Base_Register, Ascending
Pointer	1	Pointer, Ascending
VIndex	1	VIndex, Ascending
PrimaryKey	1	Index, Ascending

Table: Devices

RecordCount: 0

Columns

Name	Type	Size	
ID	Number (Long)	4	Device type ID, defined by EIG
DeviceName	Text	50	Device name
Description	Text	255	

Table Indexes

Name	Number of Fields	Fields
ID	1	ID, Ascending

Appendix B: EIGNameList.DB Fields Definition

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Table: DevicesAndProtocols

RecordCount: 1

Columns

Name	Type	Size	
Index	Number (Long)	4	Record entry number
DevID	Number (Long)	4	Device ID in table Devices, field ID
ProtocolID	Number (Long)	4	Protocol ID in table Protocols, field ID
Description	Text	255	

Table Indexes

Name	Number of Fields	Fields
DevID	1	DevID, Ascending
Index	1	Index, Ascending
ProtocolID	1	ProtocolID, Ascending

Table: ID_Table

RecordCount: 1

Columns

Name	Type	Size	
Version	Number (Double)	8	Database version number
Date/Time Created	Date/Time	8	
Name	Text	255	
Description	Text	255	
Last Modification			
Date/Time By User	Date/Time	8	

Table: Protocols

RecordCount: 0

Columns

Name	Type	Size	
ID	Number (Long)	4	Protocol ID, defined by EIG
Name	Text	50	Protocol name
Description	Text	255	

Table Indexes

Name	Number of Fields	Fields
ID	1	ID, Ascending

Appendix B: EIGNameList.DB Fields Definition

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Table: Type_100

RecordCount: 17

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Table: Type_103

RecordCount: 38

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Table: Type_108

RecordCount: 62

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Appendix B: EIGNameList.DB Fields Definition

Version 4.8

Table: Type_112

RecordCount: 28

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Table: Type_113

RecordCount: 7

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Table: Type_114

RecordCount: 129

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Appendix B: EIGNameList.DB Fields Definition

Version 4.8

Table: Type_129

RecordCount: 12

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Table: Type_130

RecordCount: 33

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Table: Type_131

RecordCount: 5

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Appendix B: EIGNameList.DB Fields Definition

Version 4.8

Table: Types

RecordCount: 33

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Data group ID
ReferenceID	Number (Long)	4	Data group reference ID
Name	Text	50	Data group name
Description	Text	255	
BaseNumber	Number (Long)	4	Reserved

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending
ReferenceID	1	ReferenceID, Ascending

Table: TypeTemplate

RecordCount: 1

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
ID	Number (Long)	4	Sub group data ID
Name	Text	50	
Description	Text	255	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
ID	1	ID, Ascending

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: AllQueries
Table: FullScalesTmp
Table: HistLogTmp
Table: HistSubQueryTmp
Table: HLogTimeIndexTmp
Table: ID_TABLE
Table: LimitsLogDataItemTmp
Table: LimitsLogTmp
Table: LogDevicesTmp
Table: PowerGraphTmp
Table: PQLogDataItemTmp
Table: PQLogTmp
Table: PQWaveLogDataItemTmp
Table: TagNamesTmp
Table: WaveformLogTmp

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: AllQueries

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
QueryIndex	Number (Long)	4	User query entry ID
StartDate/Time	Date/Time	8	Query start time
EndDate/Time	Date/Time	8	Query end time
QueryType	Number (Long)	4	Reserved

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Index	1	QueryIndex, Ascending
PrimaryKey	1	QueryIndex, Ascending

Table: FullScalesTmp

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
Index	Number (Long)	4	Device's download index
PTCT_Ratio1	Text	255	Same as in Appendix A
PTCT_Ratio2	Text	255	
PTCT_Ratio3	Text	255	
PTCT_Ratio4	Text	255	
FullScale1	Text	50	
FullScale2	Text	50	
FullScale3	Text	50	
FullScale4	Text	50	
FullScale5	Text	50	
FullScale6	Text	50	
FullScale7	Text	50	
FullScale8	Text	50	
DeviceIndex	Number (Long)	4	DeviceIndex in LogDevicesTmp table

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: HistLogTmp

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
DeviceIndex	Number (Long)	4	Query device index
Date/Time	Date/Time	8	
ms	Number (Integer)	2	Millisecond
DTMode	Number (Integer)	2	Date/time mode
TypeID	Number (Integer)	2	Snapshot ID
DataID	Number (Long)	4	Data point ID
Value	Number (Double)	8	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
DataID	1	DataID, Ascending
Date/Time	1	Date/Time, Ascending
DeviceIndex	1	DeviceIndex, Ascending
DTMode	1	DTMode, Ascending
ms	1	ms, Ascending
TypeID	1	TypeID, Ascending

Table: HistSubQueryTmp

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
SubQIndex	Number (Long)	4	Sub query index
SDate/Time	Date/Time	8	Sub query start date/time
EDate/Time	Date/Time	8	Sub query end date/time

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
PrimaryKey	1	SubQIndex, Ascending

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: HLogTimeIndexTmp

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
Date/TimeIndex	Number (Long)	4	Timestampe index
Date/Time	Date/Time	8	
ms	Number (Integer)	2	Millisecond
DTMode	Number (Integer)	2	Date/time mode
TypeID	Number (Integer)	2	Snapshot type ID

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
Date/Time	1	Date/Time, Ascending
Date/TimeIndex	1	Date/TimeIndex, Ascending

Table: ID_TABLE

RecordCount: 1

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
Name	Text	50	Reserved
Version	Number (Double)	8	Database version
KeyName	Text	50	Reserved
Note	Text	255	Reserved

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: LimitsLogDataItemTmp

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
Index	Number (Long)	4	Download index
DataID	Number (Long)	4	Data point ID
DataIndex	Number (Integer)	2	Data point position index
LSet	Number (Double)	8	Same as in Appendix A
LSAB	Text	8	
LSet%	Number (Double)	8	
LimitID	Number (Long)	4	
DeviceIndex	Number (Long)	4	Query device index

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
DataID	1	DataID, Ascending
DataIndex	1	DataIndex, Ascending
Index	1	Index, Ascending
LimitID	1	LimitID, Ascending

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: LimitsLogTmp

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
DeviceIndex	Number (Long)	4	Query device index
StartDate/Time	Date/Time	8	Same as in Appendix A
Startms	Number (Integer)	2	
SDTMode	Number (Integer)	2	
EndDate/Time	Date/Time	8	
Endms	Number (Integer)	2	
EDTMode	Number (Integer)	2	
DataID	Number (Long)	4	
LState	Text	255	
LimitID	Number (Long)	4	
Duration	Number (Double)	8	
LValue	Number (Double)	8	
DescriptionCode	Number (Integer)	2	
LSet	Number (Double)	8	
LSAB	Text	255	
LSet%	Number (Double)	8	

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
DataID	1	DataID, Ascending
EndDate/Time	1	EndDate/Time, Ascending
LimitID	1	LimitID, Ascending
StartDate/Time	1	StartDate/Time, Ascending

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: LogDevicesTmp

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>	
DeviceIndex	Number (Long)	4	Query device index
DeviceTypeID	Number (Long)	4	Device type ID in EIGNamelist.DB
DBPath	Text	255	Device's DB file path
HardwareName	Text	255	Device's user assigned text name
TimeZone	Text	10	
HardwareTypeName	Text	255	Device's native hardware name such as "0107 Nexus 1250"

Table Indexes

<u>Name</u>	<u>Number of Fields</u>	<u>Fields</u>
DeviceIndex	1	DeviceIndex, Ascending

Table: PowerGraphTmp

RecordCount: 0

Columns

<u>Name</u>	<u>Type</u>	<u>Size</u>
PGraphIndex	Number (Long)	4
QueryDT	Date/Time	8

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: PQLogDataItemTmp

RecordCount: 0

Columns

Name	Type	Size	
Index	Number (Long)	4	Device's download index
C0_L1	Number (Double)	8	Same as in Appendix A
C1_L1	Number (Double)	8	
C2_L1	Number (Double)	8	
C3_L1	Number (Double)	8	
C4_L1	Number (Double)	8	
C5_L1	Number (Double)	8	
C6_L1	Number (Double)	8	
C7_L1	Number (Double)	8	
C8_L1	Number (Double)	8	
C9_L1	Number (Double)	8	
C10_L1	Number (Double)	8	
C11_L1	Number (Double)	8	
C0_L2	Number (Double)	8	
C1_L2	Number (Double)	8	
C2_L2	Number (Double)	8	
C3_L2	Number (Double)	8	
C4_L2	Number (Double)	8	
C5_L2	Number (Double)	8	
C6_L2	Number (Double)	8	
C7_L2	Number (Double)	8	
C8_L2	Number (Double)	8	
C9_L2	Number (Double)	8	
C10_L2	Number (Double)	8	
C11_L2	Number (Double)	8	
C0_L1SAB	Text	8	
C1_L1SAB	Text	8	
C2_L1SAB	Text	8	
C3_L1SAB	Text	8	
C4_L1SAB	Text	8	
C5_L1SAB	Text	8	
C6_L1SAB	Text	8	
C7_L1SAB	Text	8	
C8_L1SAB	Text	8	
C9_L1SAB	Text	8	
C10_L1SAB	Text	8	
C11_L1SAB	Text	8	
C0_L2SAB	Text	8	
C1_L2SAB	Text	8	

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

C2_L2SAB	Text	8	
C3_L2SAB	Text	8	
C4_L2SAB	Text	8	
C5_L2SAB	Text	8	
C6_L2SAB	Text	8	
C7_L2SAB	Text	8	
C8_L2SAB	Text	8	
C9_L2SAB	Text	8	
C10_L2SAB	Text	8	
C11_L2SAB	Text	8	
DeviceIndex	Number (Long)	4	Query device index

Table Indexes

Name	Number of Fields	Fields
Index	1	Index, Ascending

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: PQLogTmp

RecordCount: 0

Columns

Name	Type	Size	
DeviceIndex	Number (Long)	4	Query device index
StartDate/Time	Date/Time	8	Same as in Appendix A
Startms	Number (Integer)	2	
SDTMode	Number (Integer)	2	
SWNumber	Number (Integer)	2	
SSample	Number (Integer)	2	
EndDate/Time	Date/Time	8	
Endms	Number (Integer)	2	
EDTMode	Number (Integer)	2	
EWNumber	Number (Integer)	2	
ESample	Number (Integer)	2	
Index	Number (Long)	4	
Duration	Number (Double)	8	
ChannelID	Number (Integer)	2	
PQValue	Number (Double)	8	
PQ%	Number (Double)	8	
ChannelName	Text	16	
ConditionCode	Number (Integer)	2	
ConditionName	Text	16	
WaveformLink	Yes/No	1	
RecCounter	Number (Long)	4	Reserved, Log Viewer run time counter

Table Indexes

Name	Number of Fields	Fields
Date/Time	1	StartDate/Time, Ascending
ms	1	Startms, Ascending
PQsIndex	1	RecCounter, Ascending

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: PQWaveLogDataItemTmp

RecordCount: 0

Columns

Name	Type	Size	
DeviceIndex	Number (Long)	4	Query device index
Index	Number (Long)	4	Device's download index
SampleRate	Number (Integer)	2	Same as in Appendix A
CaptureNum	Number (Integer)	2	
Mode	Number (Integer)	2	
HSI	Number (Integer)	2	
C0_L1	Number (Double)	8	
C1_L1	Number (Double)	8	
C2_L1	Number (Double)	8	
C3_L1	Number (Double)	8	
C4_L1	Number (Double)	8	
C5_L1	Number (Double)	8	
C6_L1	Number (Double)	8	
C7_L1	Number (Double)	8	
C8_L1	Number (Double)	8	
C9_L1	Number (Double)	8	
C10_L1	Number (Double)	8	
C11_L1	Number (Double)	8	
C0_L2	Number (Double)	8	
C1_L2	Number (Double)	8	
C2_L2	Number (Double)	8	
C3_L2	Number (Double)	8	
C4_L2	Number (Double)	8	
C5_L2	Number (Double)	8	
C6_L2	Number (Double)	8	
C7_L2	Number (Double)	8	
C8_L2	Number (Double)	8	
C9_L2	Number (Double)	8	
C10_L2	Number (Double)	8	
C11_L2	Number (Double)	8	
C0_L1SAB	Text	8	
C1_L1SAB	Text	8	
C2_L1SAB	Text	8	
C3_L1SAB	Text	8	
C4_L1SAB	Text	8	
C5_L1SAB	Text	8	
C6_L1SAB	Text	8	
C7_L1SAB	Text	8	
C8_L1SAB	Text	8	

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Table: WaveformLogTmp

RecordCount: 0

Columns

Name	Type	Size	
DeviceIndex	Number (Long)	4	Query device index
Index	Number (Long)	4	Device's download index
Date/Time	Date/Time	8	Same as in Appendix A
ms	Number (Integer)	2	
DTMode	Number (Integer)	2	
WaveformNumber	Number (Integer)	2	
TriggeredBy1	Text	255	
TriggeredBy2	Text	255	
TriggerCode	Number (Long)	4	
ConditionCode	Number (Long)	4	
ConditionCode_Input	Number (Integer)	2	
V0	Number (Double)	8	
V1	Number (Double)	8	
V2	Number (Double)	8	
V3	Number (Double)	8	
V4	Number (Double)	8	
V5	Number (Double)	8	
V6	Number (Double)	8	
V7	Number (Double)	8	
V8	Number (Double)	8	
V9	Number (Double)	8	
V10	Number (Double)	8	
V11	Number (Double)	8	
WaveformTriggerNumber	Number (Integer)	2	
Contiguous	Yes/No	1	
CaptureSequence	Number (Integer)	2	
SampleInTriggerCyc	Number (Integer)	2	
EndTriggerCycPT	Number (Integer)	2	
TimingPT	Number (Integer)	2	
Sample0	Memo	-	
Sample1	Memo	-	
Sample2	Memo	-	
Sample3	Memo	-	
Sample4	Memo	-	
Sample5	Memo	-	
Sample6	Memo	-	
Sample7	Memo	-	
Sample8	Memo	-	
Sample9	Memo	-	

Appendix C: LogViewTempQuery.DB Fields Definition

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Sample10	Memo	-	
Sample11	Memo	-	
Sample12	Memo	-	
Sample13	Memo	-	
Sample14	Memo	-	
WTDate/Time	Date/Time	8	
WTms	Number (Integer)	2	
WTDTmode	Number (Integer)	2	
OrigFirstSample	Number (Long)	4	
OrigFirstWave	Number (Long)	4	
OrigWNumber	Number (Integer)	2	
WSDT	Date/Time	8	
WSms	Number (Integer)	2	
WSDTmode	Number (Long)	4	
WEDT	Date/Time	8	
WEms	Number (Integer)	2	
WEDTmode	Number (Integer)	2	
WDuration	Number (Double)	8	
RecCounter	Number (Long)	4	Reserved, Log Viewer run time counter

Table Indexes

Name	Number of Fields	Fields
Date/Time	1	Date/Time, Ascending
ms	1	ms, Ascending
OrigWNum	1	OrigWNumber, Ascending
RecCounter	1	RecCounter, Ascending

Table: InputLogATmp
Columns

Name	Type	Size
DeviceIndex	Number (Long)	4
Index	Number (Long)	4
DT1	Date/Time	8
ms1	Number (Integer)	2
DT1mode	Number (Integer)	2
DT2	Date/Time	8
ms2	Number (Integer)	2
DT2mode	Number (Integer)	2
ModuleIndex	Number (Integer)	2
InputIndex	Number (Integer)	2
Status	Number (Byte)	1

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

DescriptionCode	Number (Integer)	2
Duration	Number (Double)	8
GIndex	Number (Long)	4

Table: InputLogDataItemTmp
Columns

Name	Type	Size	
DeviceIndex	Number (Long)	4	
Index	Number (Long)	4	
ModuleIndex	Number (Integer)	2	
ModulePort	Number (Byte)	1	
ModuleAddress	Number (Long)	4	
InputIndex	Number (Integer)	2	
ModuleLabel	Text	20	
InputLabel	Text	20	
TextLabel_0	Text	20	
TextLabel_1	Text	20	
NormalState	Number (Integer)	2	
InputFlip	Number (Long)	4	0 = No Flip, 1 = Flipped

Table: RelayLogATmp

Columns

Name	Type	Size
DeviceIndex	Number (Long)	4
Index	Number (Long)	4
ModuleIndex	Number (Integer)	2
RelayIndex	Number (Integer)	2
DT1	Date/Time	8
ms1	Number (Integer)	2
DT1mode	Number (Integer)	2
DT2	Date/Time	8
ms2	Number (Integer)	2
DT2mode	Number (Integer)	2
DT3	Date/Time	8
ms3	Number (Integer)	2
DT3mode	Number (Integer)	2
DT1CK	Number (Integer)	2
DT2CK	Number (Integer)	2
DT3CK	Number (Integer)	2
Duration12	Number (Double)	8
Duration23	Number (Double)	8

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

Duration13	Number (Double)	8
Condition0	Number (Integer)	2
Condition1	Number (Integer)	2
Condition2	Number (Integer)	2
Condition3	Number (Integer)	2
Condition0Text	Text	255
Condition1Text	Text	255
Condition2Text	Text	255
Condition3Text	Text	255
InputInfo11	Text	25
InputInfo12	Text	25
InputInfo13	Text	25
InputInfo14	Text	25
InputInfo15	Text	25
InputInfo16	Text	25
InputInfo17	Text	25
InputInfo18	Text	25
InputStatus	Number (Long)	4
GateStatus	Number (Long)	4
GIndex	Number (Long)	4
InputStatusB	Number (Long)	4
InputInfo19	Text	25
.		
.		
InputInfo54	Text	25

Table: RelayLogDataItemTmp
Columns

Name	Type	Size
DeviceIndex	Number (Long)	4
Index	Number (Long)	4
ModuleIndex	Number (Integer)	2
ModuleAddress	Number (Long)	4
ModuleLabel	Text	20
ModulePort	Number (Byte)	1
ModuleSlot	Number (Byte)	1
RelayIndex	Number (Integer)	2
RelayLabel	Text	20
SetDelay	Number (Byte)	1
ResetDelay	Number (Byte)	1
LogicStr1	Text	255
LogicStr2	Text	255

Appendix C: LogViewTempQuery.DB Fields Definition

Version 8.0

LogicStr3	Text	255	
LogicStr4	Text	255	
LogicStr5	Text	255	
LogicStr6	Text	255	
LogicStr7	Text	255	
LogicStr8	Text	255	
LogicComb1	Number (Byte)	1	
LogicComb2	Number (Byte)	1	
LogicComb3	Number (Byte)	1	
LogicComb4	Number (Byte)	1	
LogicComb5	Number (Byte)	1	
LogicComb6	Number (Byte)	1	
LogicComb7	Number (Byte)	1	
LogicComb8	Number (Byte)	1	
TextLabel_0	Text	20	
TextLabel_1	Text	20	
NormalState	Number (Byte)	1	
Logic1Type	Number (Integer)	2	
Logic2Type	Number (Integer)	2	
Logic3Type	Number (Integer)	2	
Logic4Type	Number (Integer)	2	
Logic5Type	Number (Integer)	2	
Logic6Type	Number (Integer)	2	
Logic7Type	Number (Integer)	2	
Logic8Type	Number (Integer)	2	
Logic1ID	Number (Long)	4	
Logic2ID	Number (Long)	4	
Logic3ID	Number (Long)	4	
Logic4ID	Number (Long)	4	
Logic5ID	Number (Long)	4	
Logic6ID	Number (Long)	4	
Logic7ID	Number (Long)	4	
Logic8ID	Number (Long)	4	
LogicStr10	Text	255	
.			
.			
LogicStr44	Text	255	
Hysteresis	Number (Long)	4	1 = Enabled, 0 = Disabled
LogicControl	Number (Long)	4	1 = Positive, -1 = Negative

Appendix D: EIGData.DB Fields Relationships

Format: [Table Name]|(Field name)

1) General

- a) Master download index: [AllLogs]|(Index), used by many other sub tables.
[LimitsLogDataItem]|(Index)
[PQWaveLogDataItem]|(Index)
[FullScales]|(Index)
[LimitsLog_y]|(Index)
[PQLog_y]|(Index)
[WaveformLog_y]|(Index)
- b) Device profile index: [AllLogs]|(ProFileIndex) = [AllProfiles]|(ProFileIndex)
- c) Available data points IDs for this device file: [DataPoints]|(DataID). Its corresponding text name can be obtained from EIGNamelist.DB file. Values are collected from all [HistLog_y_z] table's (DataID) field.

2) Snapshots

- a) Date Index (y): [AllHistoricalLogs]|(LogTablesIndex)
- b) Hour Index (z, 0 to 23): status field (Hour_x) in [AllHistoricalLogs] table. If (Hour_x) is true, then the hour index (z) is set to that hour.
- c) Sub data tables set: [HistLogTimeIndex_y_z] and [HistLog_y_z]
- d) [HistLogTimeIndex_y_z]|(Date/TimeIndex) = [HistLog_y_z]|(Date/TimeIndex)

3) Limits

- a) Date Index (y): [AllLimitsLogs]|(LogTablesIndex)
- b) Sub data table: [LimitsLog_y]
- c) Limit settings: [LimitsLog_y]|(Index) = [LimitsLogDataItem]|(Index), [LimitsLog_y]|(LinkIndex)
=LimitsLogDataItem|(LinkIndex), [LimitsLog_y]|(DataID) = [LimitsLogDataItem]|(DataID).

4) PQs

- a) Date index (y): [AllPQLogs]|(LogTablesIndex)
- b) Sub data table: [PQLog_y]
- c) PQ setting: [PQLog_y]|(Index) = [PQWaveLogDataItem]|(Index)
Linked waveforms: If there are waveform records associated with a PQ record, the value for [WaveformLink] field in the [Pqlog_y] table should be True. To obtain the waveform data, follow the steps for retrieving waveform data. But some additional criteria should be used.
C1) Find the waveform data using the retrieve waveform data steps. Additional criteria are:
 - [WaveformLog_y]|(Date/Time) should be in the range of [PQLog_y]|(StartDate/Time) and [PQLog_y]|(EndDate/Time).
 - The [PQLog_y]|(Index) = [WaveformLog_y]|(Index).
 - [WaveformLog_y]|(OrigWNumber) should be in the range of [PQLog_y]|(SWnumber) and [PQLog_y]|(EWnumber).

5) Waveforms:

- a) Date index (y): [AllWaveformLogs]|(LogTablesIndex)
- b) Sub data table: [WaveformLog_y]
- d) Waveform setting: [WaveformLog_y]|(Index) = [PQWaveLogDataItem]|(Index)