



LogChief Administrator Configuration Mapping Quick Guide

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Version History

Version	Date	Person	File Name
1.0	Sept 2021	N Verma	LogChiefConfigurationMapping_QuickGuide

1.0 Overview

LogChief is a data logging tool which uses data / field mapping to log data and encourage discipline data logging. Mapping is the key for LogChief. Mapping helps to generate logging screen, dropdowns and other key aspects of data logging. Using the mapping we establish a relationship between the database tables, where a table will act as parent and one, or more tables can act as children. This relationship enables LogChief to log data in a hierarchical pattern.

This guide is applicable to LogChief Administrators. If you are a LogChief User only, this guide is not applicable.

2.0 Mapping

Mapping data is the key part of data logging. It consists of two parts:

- 1) establishing the relationship between the tables and
- 2) establishing the relationship between the columns from the selected tables.

LogChief uses these relationships to generate hierarchy between the tables and allow users to log hierarchical and managed data.

2.1 Mapping Parent and Child relationship

In common mapping;

- a) tblDHColl will act as parent and tblDHALteration, tblDHLithology, tblDHSamp will act as children.
- b) DataSet and HoleID from tblDHColl table will flow towards tblDHALteration, tblDHLithology, tblDHSamp tables i.e. user will first log DataSet and HoleID in tblDHColl table and then based on DataSet and HoleID, other related data will be logged in tblDHALteration, tblDHLithology, tblDHSamp tables.
- c) For the Parent table few columns will act as "DropDown Headers" and few will act as "Primary Fields" e.g.
- d) for tblDHColl, DataSet will act as "DropDown Header" and HoleID will act as "Primary Field".

All mapped columns from Parent will become "DropDown Headers" for children tables and we need to establish new "Primary Fields" for children. e.g.

- For tblDHALteration, DataSet and HoleID will act as "DropDown Headers" and Depth_From field can be mapped as "Primary Field 1" & Depth_To field can be mapped as "Primary Field 2"
- For tblDHSamp, DataSet and HoleID will act as "DropDown Headers" and SampleID field can be mapped as "Primary Field 1" and Depth_From field can be mapped as "Primary Field 2" or we may not need to map "Primary Field 2" based on primary key of the table tblDHSamp.

2.2 Mapping Parent and Child Tables

LogChief incorporates;

- Three “DropDown Headers” for Parent Table - HeaderID 01, HeaderID 02, HeaderID 03.
- There are two “Primary Fields” and they are called FieldID 01 and FieldID 02.
- Among these only Header 01 and Field 01 are required fields i.e. you need at-least one “DropDown Header” and one “Primary Field”.
- If you want more than one “DropDown Header”, you need to make sure they have a single foreign key from one table i.e. if you want to map HeaderID 01, HeaderID 02 and HeaderID 03, their values must come from the same library table.

Example One:

tblFSSamp as Parent-Table

DataSet as HeaderID 01

Site_ID as HeaderID 02

Line_ID as HeaderID 03

Because their foreign key is:

```
ALTER TABLE [dbo].[tblFSSamp] WITH NOCHECK ADD CONSTRAINT
[FK_tblFSSamp_tblFSSite_DataSet_Site_ID_Line_ID] FOREIGN KEY([DataSet], [Site_ID], [Line_ID])
REFERENCES [dbo].[tblFSSite] ([DataSet], [Site_ID], [Line_ID])
```

Example Two:

If you map tblFSSite as Parent-Table,

```

└─ [dbo].tblFSSite
  └─ Columns
    └─ DataSet (PK, FK, nvarchar(30), not null)
    └─ Site_ID (PK, nvarchar(100), not null)
    └─ Line_ID (PK, nvarchar(25), not null)
    └─ Drive_ID (FK, nvarchar(25), null)
    └─ Direction_To_Face (nvarchar(25), null)
    └─ Face_Number (int, null)

```

You can only map;

DateSet as HeaderID 01

Site_ID as FieldID 01

Line_ID as FieldID 02

There is a field “Drive_ID” with foreign key in tblFSSite but we can’t map it as “HeaderID 02” because it’s library table is different than “DataSet” field’s library table

```
ALTER TABLE [dbo].[tblFSSite] WITH NOCHECK ADD CONSTRAINT
[FK_tblFSSite_tblSYSDataSet_DataSet] FOREIGN KEY([DataSet])
REFERENCES [dbo].[tblSYSDataSet] ([DataSet])
```

```
ALTER TABLE [dbo].[tblFSSite] WITH NOCHECK ADD CONSTRAINT
[FK_tblFSSite_tblLIBDriveID_Drive_ID] FOREIGN KEY([Drive_ID])
REFERENCES [dbo].[tblLIBDriveID] ([Code])
```

For children tables LogChief provides five “DropDown Headers” and they are called HeaderID 01, HeaderID 02, HeaderID 03, HeaderID 04 and HeaderID 05 along with two “Primary Fields” and they are called FieldID 01 and FieldID 02.

Number of “DropDown Headers” for Child-Table is directly proportional to number of fields mapped for Parent-Table. e.g. if you have mapped all five columns in Parent-Table, Child-Table will have five “DropDown Headers”.

Parent-Table	Child-Table
HeaderID 01	HeaderID 01
HeaderID 02	HeaderID 02
HeaderID 03	HeaderID 03
FieldID 01	HeaderID 04
FieldID 02	HeaderID 05

As explained, these combinations will change based on parent column mappings e.g.

Parent-Table	Child-Table
HeaderID 01	HeaderID 01
HeaderID 02	HeaderID 02
FieldID 01	HeaderID 03

OR

Parent-Table	Child-Table
HeaderID 01	HeaderID 01
FieldID 01	HeaderID 02
FieldID 02	HeaderID 03

You need to map FieldID 01 and / or FieldID 02 as per the requirement for Children tables.

Please remember the column mappings are based on the datatype of the column not column name. e.g.

- For Parent-Table, “DataSet” is mapped as “HeaderID 01”. For Child-Table, you can map any column as “HeaderID 01” who can hold “NVARCHAR (30)” value which is the datatype of “DataSet” column in Parent-Table.

Another important note: **For Child-Table columns mapping, foreign-key is not required to map the columns as “DropDown Header”**. LogChief will directly pass the values from Parent-Table to Child-Table for mapped “DropDown Header” columns using hierarchical “DropDown List” and this list is based on all the columns mapped for Parent Table.

Example Three:

Database Tables Structures

dbo.tblFSSamp

Columns

- DataSet (PK, FK, nvarchar(30), not null)
- SampleID (PK, nvarchar(50), not null)
- Site_ID (FK, nvarchar(100), not null)
- Line_ID (FK, nvarchar(25), not null)
- Depth_From (decimal(18,2), not null)
- Depth_To (decimal(18,2), not null)
- Interval_Length (Computed, decimal(19,2), null)
- Sample_Type (FK, nvarchar(25), not null)
- Sample_Method (FK, nvarchar(25), null)
- Sample_Category (FK, nvarchar(25), not null)
- Sample_Condition (FK, nvarchar(25), null)

Keys

- PK_tblFSSamp_DataSet_SampleID
- FK_tblFSSamp_tblFSSite_DataSet_Site_ID_Line_ID
- FK_tblFSSamp_tblLIBPerson_Sampled_By
- FK_tblFSSamp_tblLIBSampleCategory_Sample_Category
- FK_tblFSSamp_tblLIBSampleCondition_Sample_Condition
- FK_tblFSSamp_tblLIBSampleMethod_Sample_Method
- FK_tblFSSamp_tblLIBSampleType_Sample_Type
- FK_tblFSSamp_tblLIBShift_Shift
- FK_tblFSSamp_tblSYSRSRSCoordinateSystem_Grid_ID
- FK_tblFSSamp_tblSYSUnits_Sample_Area_UnitCode
- FK_tblFSSamp_tblSYSUnits_Sample_Weight_UnitCode

Constraints

dbo.tblFSSampQC

Columns

- DataSet (PK, FK, nvarchar(30), not null)
- SampleID (PK, nvarchar(50), not null)
- Orig_SampleID (nvarchar(50), not null)
- QC_Category (FK, nvarchar(25), not null)
- Site_ID (FK, nvarchar(100), not null)
- Line_ID (FK, nvarchar(25), not null)
- Depth_From (decimal(18,2), not null)
- Depth_To (decimal(18,2), not null)
- Interval_length (Computed, decimal(19,2), null)
- Sample_Type (FK, nvarchar(25), null)
- Sample_Method (FK, nvarchar(25), null)

Keys

- PK_tblFSSampQC_DataSet_SampleID
- FK_tblFSSampQC_tblFSSite_DataSet_Site_ID_Line_ID
- FK_tblFSSampQC_tblLIBPerson_Sampled_By
- FK_tblFSSampQC_tblLIBSampleMethod_Sample_Method
- FK_tblFSSampQC_tblLIBSampleType_Sample_Type
- FK_tblFSSampQC_tblSYSQCCategory_QC_Category

Constraints

Proposed LogChief columns mapping

Parent Table	Child Table
tblFSSample	tblFSSampleQC
Header 01 DataSet	Header 01 DataSet
Header 02 Site_ID	Header 02 Site_ID
Header 03 Line_ID	Header 03 Line_ID
Field 01 SampleID	Header 04 Orig_SampleID
Field 02	Header 05
	Field 01 SampleID
	Field 02 Depth_From

Outcomes from the example above:

01. There are four columns mapped in Parent-Table, three Headers and one Field, so Child-Table will have four Header-Columns and Field-Columns will be based on Primary-Key of the table
02. There are no foreign-key for "Orig_SampleID", however we mapped as "Header 04"
03. "FieldID 01" name in Parent-Table is "SampleID" but "HeaderID 04" field name for Child-Table is "Orig_SampleID" so the name doesn't matter only the Data-Type matters and they must be the same

04. LogChief will generate dummy foreign-key for Child-Table tblFSSampleQC which will have four columns and it will look like

```
ALTER TABLE [dbo].[tblFSSampQC] WITH NOCHECK ADD CONSTRAINT
[FK_tblFSSampQC_tblFSSamp_DataSet_Site_ID_Line_ID_Orig_SampleID] FOREIGN
KEY([DataSet], [Site_ID], [Line_ID], [Orig_SampleID])
REFERENCES [dbo].[tblFSSamp] ([DataSet], [Site_ID], [Line_ID], [SampleID])
```

05. User will not see this foreign-key on database

06. User can still map "FieldID 02" for Child-Table if that is the requirement of "Primary Key" of database table

On LogChief, it will look like:

01. Table Mapping: Establishing the relationship between the table

Table Objects	Table Type
Parent	
dbo.tblFSSamp	Parent
Child	
dbo.tblFSSampQC	Child

02. Columns Mappings

Table	Dataset	Depth From	Depth To	HeaderID 01	HeaderID 02	HeaderID 03	FieldID 01	FieldID 02	Autolncreme...	FieldPhoto
Face Sample Mapping										
Parent										
dbo.tblFSSamp	DataSet	Depth_From	Depth_To	DataSet	Site_ID	Line_ID	SampleID			
Child										

Table	Dataset	Depth From	Depth To	HeaderID 01	HeaderID 02	HeaderID 03	HeaderID 04	HeaderID 05	FieldID 01	FieldID 02
Face Sample Mapping										
Parent										
Child										
dbo.tblFSSampQC	DataSet	Depth_From	Depth_To	DataSet	Site_ID	Line_ID	Orig_SampleID		SampleID	Depth_From

03. On Logging Screen

For Parent Table:

FS Sample	FS Sample QC
SampleID	Depth From
	Depth To
	Interval Length
	Sample Type
	Sample Method
	Sample Category
	Sample Condition
	Sample Recovery pct

SampleID	Depth From	Depth To	Interval Length	Sample Type	Sample Method	Sample Category	Sample Condition	Sample Recovery pct
SM-FS-20210917-0001	0.00	11.00	11.00	SPOIL		ORIG		
SM-FS-20210917-0002	11.00	22.00	11.00	SPOIL		ORIG		
SM-FS-20210917-0003	22.00	33.00	11.00	SPOIL		ORIG		

For Child Table:

SampleID	QC Category	Depth From	Depth To	Interval length	Sample Type	Sample Method	Sampled By	Sampled Date	Comments
Click here to add a new row									

SampleID	QC Category	Depth From	Depth To	Interval length	Sample Type	Sample Method	Sampled By	Sampled Date	Comments
SM-FS-QC-20210917-0001	DUP	22.00	33.00	11.00					

In most cases you don't need to map "Primary Field 2" for children tables unless it is mentioned in "Primary Keys" of the database table

2.3 Mapping Parent Tables Only

When a Child-Table is not required, still you need **minimum two columns** where one column can act as "DropDown Header" and another one as "Primary Field" e.g.

If you need to map tblContractHeader as Parent-Table, the structure of the table would be as follows;

3.0 Example Case Study

Mapping for Sample Dispatch Submission Plugin by Naresh Verma

I was working on “Sample Dispatch Submission Plugin” and needed to create the following mapping to send data from Configuration maxgeo Data Schema (MDS) to Master MDS:

Parent Table	Child Tables
dbo.tblSYSAssDispatchHeader	dbo.tblSYSAssDispatchConsignment
	dbo.tblSYSAssDispatchDetails
	dbo.tblSYSAssDispatchGroupDetails
	dbo.tblSYSAssDispatchSampleRegister

To design the mapping, I looked at the table structure.

When I looked at tblSYSAssDispatchHeader table, I found it perfectly fit for Parent-Table as it’s primary-key has one column called **DispatchID** and there is another “NOT NULL” column with foreign-key called **ContractID**.

However, when I looked at the Child-Tables structure, I didn’t find ContractID column in any Child-Tables. Hence the chances of making ContractID as “HeaderID 01” become zero.

Now I looked at the structure of all five tables to find out at-least two common columns in all the tables; and I ended up with “DispatchID” and “Data_Source” columns, one problem solved. However, as we all know, Data_Source column doesn’t have foreign-key in any table in MDS. Foreign-key is the main requirement to map any column as “HeaderID 01” for Parent-Table.

Now I am only left with one option

01. Add a column with foreign-key in Parent-Table, tblSYSAssDispatchHeader and add the same column in all Child-Tables, without foreign-key.

Note: *In this kind of situation, we are safe to add “LG_SD” column in Parent-Table and set foreign-key to “tblSYSLGSD” table. In all the Child-Tables, we can simply add “LG_SD” column. No need to add foreign-key for Child-Tables.*

Instead of going through option 1, I did a detailed study of the requirement and found that it will work if;

- I add a new library table
- insert all the possible values for the “Data_Source” column
- create a foreign-key to tblSYSAssDispatchHeader
- use “Data_Source” as “HeaderID 01.

So I added tblLIBDataSource table and added the following possible values

```

    ▾ dbo.tblLIBDataSource
      ▾ Columns
        ▾ Code (PK, nvarchar(255), not null)
        ▾ Description (nvarchar(100), not null)
        ▾ Is_Active (bit, not null)
        ▾ Sort_Order (smallint, null)
        ▾ Load_Date (datetimeoffset(0), not null)
        ▾ Loaded_By (nvarchar(50), not null)
        ▾ Modified_Date (datetimeoffset(0), null)
        ▾ Modified_By (nvarchar(50), null)
        ▾ ts (timestamp, not null)
      ▾ Keys
  
```

```

SELECT [Code],[Description],[Is_Active],[Sort_Order]
FROM [NEW_Demo_Base_465].[dbo].[tblLIBDataSource]
  
```

	Code	Description	Is_Active	Sort_Order
1	LogChief	Only for SampleDispatch App: LogChief	1	NULL
2	LogChief Data Entry	Only for SampleDispatch App: LogChief Data Entry	1	NULL
3	Sample Dispatch	Only for SampleDispatch App: Sample Dispatch	1	NULL
4	Sample Dispatch Data Entry	Only for SampleDispatch App: Sample Dispatch Data...	1	NULL
5	SampleDispatchSubmission.NET	Only for SampleDispatch App: SampleDispatchSubmi...	1	NULL

And then I added foreign-key to tblSYSAssDispatchHeader table:

```

ALTER TABLE [dbo].[tblSYSAssDispatchHeader] WITH CHECK ADD CONSTRAINT
[FK_tblSYSAssDispatchHeader_tblLIBDataSource_Data_Source] FOREIGN KEY([Data_Source])
REFERENCES [dbo].[tblLIBDataSource] ([Code])
  
```

After making these changes, I was successfully able to create the desired mapping:

Mapping Name:

Table Objects	Table Type
<ul style="list-style-type: none"> Parent <ul style="list-style-type: none"> dbo.tblSYSAssDispatchHeader Child <ul style="list-style-type: none"> dbo.tblSYSAssDispatchConsignment dbo.tblSYSAssDispatchDetails dbo.tblSYSAssDispatchSampleRegister dbo.tblSYSAssDispatchGroupDetail 	<ul style="list-style-type: none"> Parent Child Child Child Child

Table	HeaderID 01	HeaderID 02	HeaderID 03	FieldID 01	FieldID 02	AutoIncreme...	FieldPhoto
Sample Dispatch Mapping							
Parent							
dbo.tblSYSAssDispatchHeader	Data_Source			DispatchID			
Child							

Table	HeaderID 01	HeaderID 02	HeaderID 03	HeaderID 04	HeaderID 05	FieldID 01	FieldID 02	A
Child								
dbo.tblSYSAssDispatchConsignment	Data_Source	DispatchID				ConID		
dbo.tblSYSAssDispatchDetails	Data_Source	DispatchID				Company		
dbo.tblSYSAssDispatchSampleRegister	Data_Source	DispatchID				DispatchID_Group	SampleID	
dbo.tblSYSAssDispatchGroupDetail	Data_Source	DispatchID				DispatchID_Group	ContractID	

This solution is working, and the user can synchronise data from LogChief Configuration to MDS using LogChief or MxSync-Utility.