



# **STORET Import Module (SIM)**

**Version 2.0.1**

## **User Guide and Reference Manual**

**US Environmental Protection Agency  
Updated June 2, 2004**

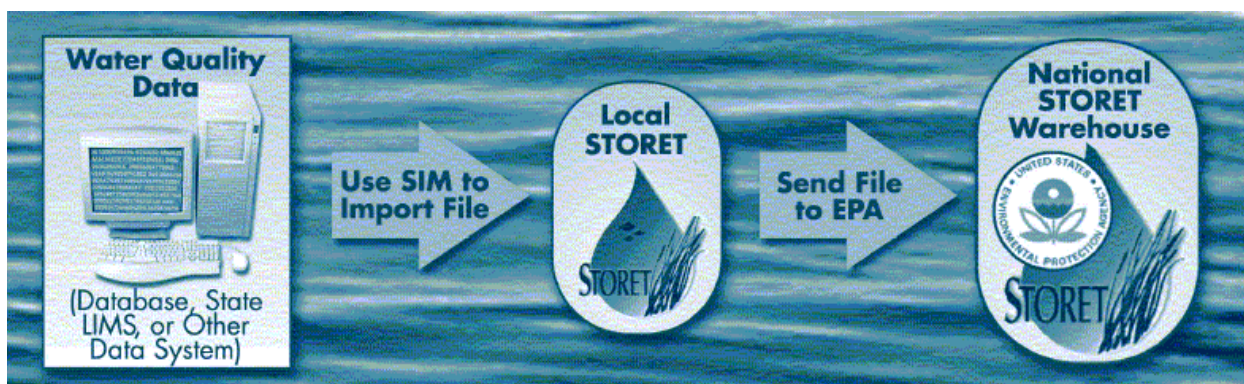
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## Introducing SIM v2.0.1

The STORET Import Module (SIM) Version 2.0.1 is a software program that helps users load data into STORET Version 2.0. STORET is an EPA-maintained database of ambient environmental data. STORET is a distributed system where individual agencies manage their own data at a local level and can use a national data warehouse to share it with others. Both STORET and SIM operate in an Oracle environment and can be implemented on a personal desktop or on a client/server basis.



*SIM lets users import water quality data into STORET from existing data management systems. Once data are migrated into a local copy of STORET, they can be sent to the National STORET Warehouse.*

To use SIM, you must perform the following tasks:

- Organize your data into delimited text files
- Establish SIM Import Configurations that describe the format of your text files
- Import your text files into SIM and migrate the data that passes validation into STORET

This User Guide and Reference Manual will:

- Provide guidance to you as you create your delimited text files
- Teach you how to create a SIM Import Configuration
- Walk you through the process of using SIM to load data into STORET

**The successful use of SIM is dependant on your clear understanding of STORET. You should establish all relevant metadata defaults in STORET before you begin to use SIM.**

## Formatting Your Data

Before using SIM, you must organize your data into delimited text files. Most organizations use common software products such as Excel, Access, or Lotus 1-2-3 to create data tables, which can be saved and exported as delimited text files. Larger organizations may produce these files as exports from existing Data Management or Laboratory Information Management Systems (LIMS). SIM accepts six different file types (See Appendix A for more details):

### 1. Project Descriptions

Initiatives or reasons why data was collected.

### 2. Station Descriptions

Points or areas where field measurements are made or samples are collected.

### 3. Additional Locations

Points that define boundaries, sample locations, or observation sites within a station.

### 4. Wells

Wells that are constructed to gather samples or field measurements.

### 5. Field Measurements and Non-biological Samples

Results of field measurements or the analysis of non-biological samples.

### 6. Biological Samples

Results associated with biological samples.

The data elements or fields in each file type are organized in a tabular format where the column delimiter is either a Tab ( ), Pipe (|), Tilde (~), or Comma (,).<sup>1</sup> Additionally, using a Back Slash (\) as a sub-delimiter is available for columns that can accept multiple values.<sup>2</sup> The required and optional elements for each file type are described in Appendix A. Note that many of these data elements have a list of valid values that the user must select from. The order in which you place the data elements in your delimited text files is not important as SIM allows you to define that order before you import your file. ***Do not include a header row in the delimited text files that you create.***

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<sup>1</sup> If any of these characters appear in your data, you should NOT use that character as a delimiter since there is no way for SIM to tell which is the delimiter and which is simply part of the data.

<sup>2</sup> Certain fields such as Project ID in the 'Field Measurements and Non-Biological Samples' can accept multiple values in a single column and row of the import file. See Appendix A for a list of columns that support loading multiple values.

There are several example text files in the C:\STORET\orasto2\SIM\SIM201\_EXAMPLES directory that may help you as you organize your data.

## **Import Order**

The data imported under each of the file types complements each other, and the order in which you migrate data files to STORET is important. Station Descriptions should always be loaded before Additional Locations and Wells. Project Descriptions and all the Station files should always be loaded before your Result files. This ensures that the key data elements will be registered in STORET and are ready for results to be associated with them. Likewise, similar rules apply when removing these files from STORET and SIM. As such, it is recommended that when possible, files be removed in reverse chronological order.

## **Quick Tutorial**

This tutorial is designed to provide you with basic “hands on” instruction for using SIM. Each lesson focuses on different pieces of functionality included in SIM. There are text descriptions of the functions and associated concepts, and then there are step-by-step instructions for using the tools. The step-by-step instructions for you to follow on your PC are called out into text boxes, separate from the text. For additional training, please refer to the SIM Training Manual available on the STORET website.

1. This is an example of a text box that contains instructions for using SIM with the sample data.

## Tutorial I. Defining an Import Configuration

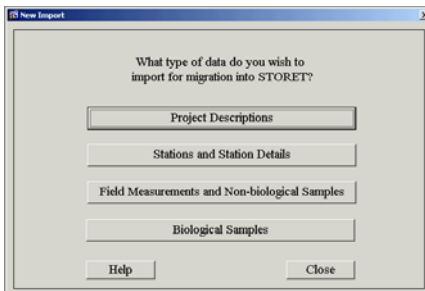
The following lesson will show you how to create a custom Import Configuration that will describe the format of your text files.

### 1. Begin by starting SIM.



2. From this screen, you can either start a new import of data or access an existing import that you may have brought into SIM but have yet to migrate to the STORET database.

Click **New Import**.



3. From this New Import menu, you select the type of file that you wish to import into SIM. If you choose Stations and Station Details, you will be prompted to select a secondary type.

Click **Field Measurements and Non-biological Samples**.



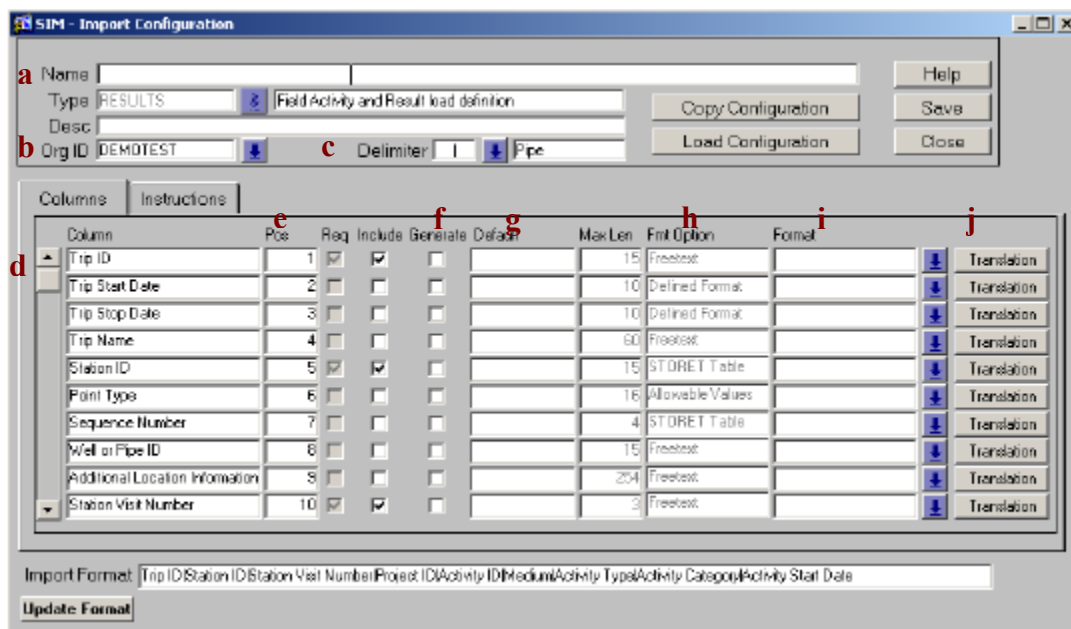
4. This menu allows you to specify the Import Configuration and the path to the text file that you want to import.

Click **Define New Import Configuration**.

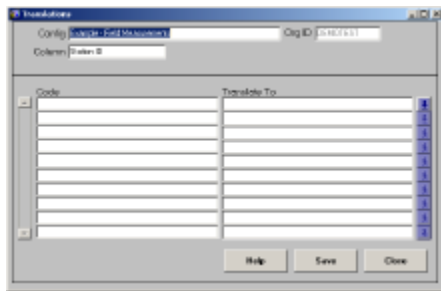


5. From this SIM Import Configuration menu, you can:

- Provide a name and description for the Import Configuration
- Define the organization that this data will load into.
- Indicate the delimiter that will be used in the text file.
- Select the data elements that will be included in the text file.
- Define the position or order in which the data elements will appear in the file.
- Select a column to generate a value, which is not included in the import file.
- Establish default values for the data elements in the import file that are left null or blank.
- View the format that each row in the import file must adhere to if this configuration is used.
- Establish how individual data elements will be additionally formatted (if appropriate).
- Establish translation parameters that change values while a file is being imported.

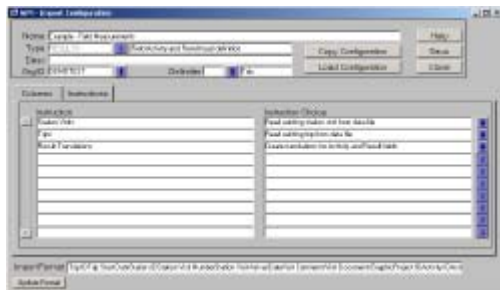


6. Click any **Translation**.



7. You can establish a translation by defining the “Code” that should be translated and the value that it should be “Translated To”. Users can use the arrows at the end row of each data elements to translate to valid STORET values (if they exist). For instance, a user could translate a CAS number to an appropriate STORET “Characteristic” name.

Click **Close** and then the **Instructions** tab on the Import Configuration menu.



8. You can use this menu to establish general import instructions. Change an instruction by highlighting a row and clicking the relevant arrow. If you choose to “create translations...”, the software will populate the “Code” field on the Translations menu with any values that do not match required valid values. You must then fill in the “Translate To” field and re-import the file for the changes to take place. Other instructions allow you to auto-generate Trip IDs and Visit Numbers.

## **Summary**

The purpose of an import configuration is to set up a pattern to translate your source data file into STORET by using SIM. SIM import configurations can help you set up the order of fields, format data, and perform simple data translations.

In Tutorial I. Defining an Import Configuration, you learned how to:

- Define a new import configuration
- Use translations to change values while a file is being imported.



## Tutorial II. Using SIM to Import & Migrate Data to STORET

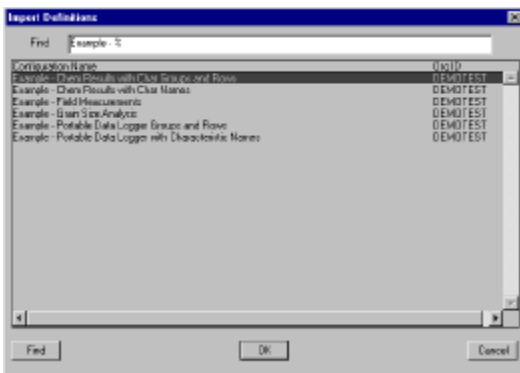
This tutorial illustrates the following:

- The Import of a text file into SIM so that it can be validated.
- The Migration of data that passes validation from the temporary SIM tables into STORET.

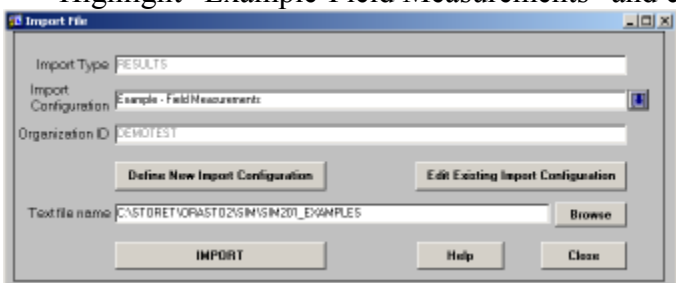
1. From the SIM Welcome screen, click **New Import** then click **Field Measurements and Non-biological Samples** to reach the Import File menu for Field Measurements and Non-Biological Samples.



2. You must first select an existing Import Configuration. Click the down-turned arrow at the end of the line labeled “Import Configuration”.

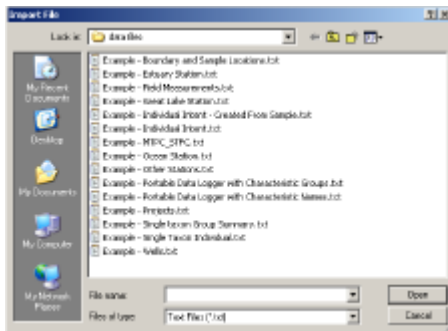


3. This screen provides a list of Import Configurations that have been created in SIM. Highlight “Example-Field Measurements” and click **OK**.



4. The name of the Import Configuration and the Organization to which the data will be associated should now appear on the Import File menu. You can review the configuration details by clicking the button labeled “Edit Existing Import Configuration”.

You must now define the path to the file that you want to import. From the Import File menu, click **Browse**.



5. This menu allows you to navigate your drives and directories to locate the appropriate file.

Select “C:\STORET\orasto2\SIM\SIM201\_EXAMPLES\Example - Field Measurements” and click **Open**. Note – This is the default path for a stand-alone installation. Based on your original installation parameters, the example files may be located on a different path on your system.



6. The name of the text file should now appear on the Import File menu.

Now click **IMPORT** and then **OK** when the import is complete.

7. SIM checked the file for errors that would prevent the data from being loaded to STORET and it has imported the data into a series of temporary tables.

From this Import Status menu, you can:

- a) Review the number of records that that SIM imported, the number of those records that had errors, and the number of those records that are ready to be migrated to STORET.
- b) View import errors for the entire file and/or preview records with errors on a record-by-record basis.
- c) Delete an import from SIM's temporary tables. All data remains in the SIM temporary tables until the import is deleted. You should delete your imports after migration once you are satisfied that your data has been accurately loaded to STORET.
- d) Export records with errors after an *Export Path* and an *Export File Name* have been designated.
- e) Reference and/or edit the Import Configuration that was used for this import.
- f) Click **Migrate Records to STORET** and move the data you imported from the SIM to STORET.

**Import Status**

Import ID: 106517    Import Type: R  
 Org ID: DEMOTEST  
 Import File: C:\orasta2\SIM\Example - Field Measurements.txt  
 Import Configuration: Example - Field Measurements  
 Edit Import Configuration

**Import Status**

Date Imported: 04-16-2004  
 Rows Read: 15  
 Rows with Errors: 0  
 Results Ready to Migrate: 15  
 Activities Ready to Migrate: 2

**Export to Text**

Export Path: c:\  
 Export File: unmigrec.txt  
 Export Records with Errors

Buttons: View Import Errors, Preview Records with Errors, Migrate Records to STORET, Delete Import From SIM, Export Records with Errors, Help, Close

## **Summary**

In Tutorial II, Using SIM to Import and Migrate Data to STORET, you learned how to:

- Import files to SIM using a pre-defined import configuration and text file.
- Migrate data into STORET.

## Tutorial III. Advanced Functions

This tutorial illustrates the following:

1. Reordering field positions in an Import Configuration
2. Saving and Loading Import Configurations
3. Viewing data that has been imported to SIM
4. Viewing the status of import files brought into SIM but not migrated or deleted
5. Removing (undo) a migration of data from STORET
6. Generating an error report to print or save

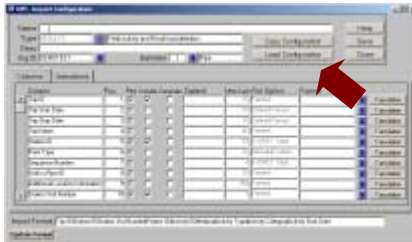
### 1. Reordering field positions in an Import Configuration

Field or column positions can be reordered from the Import Configuration menu. Suppose Start Date needs to be in the second position instead of the third. You can change the position number from 3 to a number between 1 and 2 (such as 1.5) and click **Save** to reorder the columns.



## 2. Saving and Loading Import Configurations

From the Import Configuration menu: you can save import configurations to a external file and load copied configurations using the **Copy Configurations** and **Load Configurations** buttons.



## 3. Viewing Data that has been imported to SIM

View data that is in SIM using the View...List capability that can be found under the Projects, Stations, or Results and Activities menus. Double-click an individual record to recall and view the data. Each record will have a status of:

Approved for migration to STORET

Not approved for migration to STORET

Exported (migrated) from SIM to STORET

Uploaded if SIM copied data from STORET itself



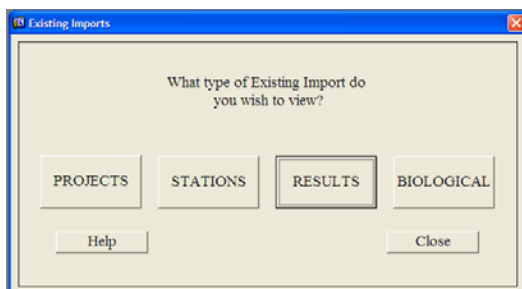
#### 4. View the status of an import that was brought into SIM but was not migrated or deleted

There may be cases where you have previously imported files to SIM, but did not migrate them to STORET. This may occur because you had to stop your session, you wanted to review a file, or for another reason. Other times, you may not recall whether you migrated a particular file to STORET, or removed the imported data from STORET. The following outlines reviewing your imports to determine their status.

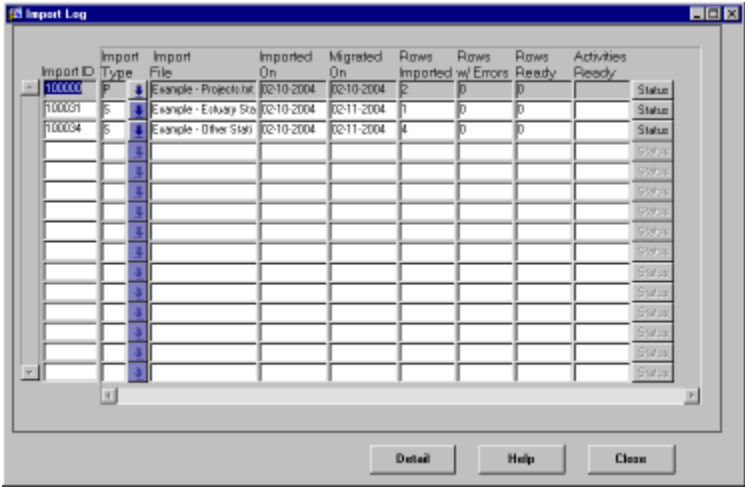
From the SIM Welcome menu, click **Existing Imports**.



There are four different categories of imports that you can access: Projects, Stations, Results, and Biological. To review the status of the import that was performed in Tutorial II, click **RESULTS**.



Click on the row that represents the relevant import and click **Status** at the end of the line. You will return to the Import Status menu that you saw in Step 4 of Tutorial II where depending on the status of the import, a variety of actions can be performed.



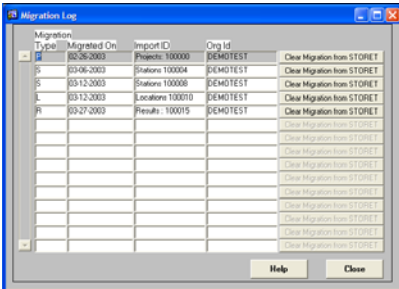
**5. Remove or undo a migration of data from STORET**

Select “Advanced” then “Migration Log” from the SIM windows menu.



Highlight the migration that you would like to remove from STORET and click the appropriate

**Clear Migration from STORET** button.





**\*\*Note** that SIM cannot undo a migration once the import has been deleted from SIM. Additionally, you cannot undo a migration once any changes or additions have been made to the migrated data through the STORET Data Entry Module.

Although you can unmigrate files in any order, it is recommended that possible files be removed in reverse chronological order to avoid complications with parent/child relationships between files.

## 6. Generate an error report file to print or save

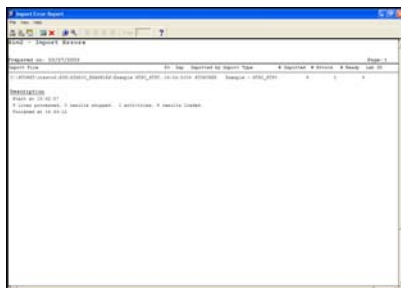
Select “Advanced” then “Import Error Report” from the SIM windows menu.



Use the down-turned arrow to select the file that was imported. Next, click **Run Report**.



A report of errors that occurred during import is displayed. From this screen, you can print the report or save it to a file.



## SIM v2.0.1 New Features

### New Data Elements

SIM v2.0.1 has been enhanced to support the following data elements.

#### 1. Project Descriptions

Data Element	Required	Allowed Values
Document/Graphic		

#### 2. Station Descriptions

Data Element	Required	Allowed Values
Document/Graphic		
Primary Estuary State	Conditional	Yes

#### 3. Additional Locations

Data Element	Required	Allowed Values

No new additions

#### 4. Wells

Data Element	Required	Allowed Values

No new additions

#### 5. Field Measurements and Non-biological Samples

Data Element	Required	Allowed Values	Multiple Allowed
Visit Document/Graphic			
Parent Sample ID	Conditional	Must exist in STORET or in same data file	Yes. Separate with “\” for Composites with Parents
Cooperating Organization		Must Exist in STORET	Yes. Separate with “\”
Activity Document/Graphic			
Particle Size Basis			
Result Document/Graphic			
Lab Remark Codes		Yes	Yes. Separate with “\”
PDL Line Number			
PDL Line Name			

#### 6. Biological Samples

Data Element	Required	Allowed Values	Multiple Allowed
Visit Document/Graphic			
Parent Sample ID	Conditional	Must Exist in STORET or Current Data File	Yes. Separate with “\” for Composites with Parents
Cooperating Organization		Must Exist in STORET	Yes. Separate with “\”
Activity Document/Graphic			
Particle Size Basis			
Result Document/Graphic			
Lab Remark Codes		Yes	Yes. Separate with “\”

Instructions on the use of many of these new data elements are outlined in the paragraphs below.

- Document/Graphics

Document or graphic files can now be imported into SIM and migrated to STORET for Projects, Stations, Station Visits, Activities, and Results. To add documents to your import:

1. In the SIM Import Configuration form, select to include the Document/Graphic column(s).
2. Place your documents in the SIM201\_Documents folder. For Personal Oracle Installations this will be located under your STORET/Orasto2/SIM folder. For Client/Server installation, the documents folder will be located on the Server. As such, you should contact your STORET administrator for the full name and location of this folder.
3. Include the complete file name, without the path, of each image to your import file.
4. Initiate the standard import process.
5. Note: The images must remain in the SIM201\_Documents folder until they have been migrated into STORET.

- Composites with Parents

Composite with Parents data can now be imported into SIM and migrated to STORET for either Chemical or Biological Results. To import composite with parents results:

1. Parent Activity samples must either be contained in the same data file as the Child records or must exist in STORET.
2. Add the Parent Sample ID column to the import configuration for Child samples.
3. Add multiple Parent Sample ID's to the data file separated by a '\'
4. Initiate the standard import process.

- Cooperating Organizations

Multiple Cooperating Organizations can now be associated with an Activity. To add cooperating organizations to your imports:

1. Add the new Cooperating Organization column to a results import configuration
2. Add Cooperating Organization to the import file.
3. If importing multiple cooperating organizations for an activity, use '\'
4. Initiate the standard import process.

- Lab Remark Codes

Multiple Lab Remark Codes can now be associated with a result. To add lab remark codes to your imports:

1. Add the new Lab Remark Code column to a results import configuration
2. Add Lab Remark Codes to the import file.
3. If importing multiple lab remark codes for a result, use '\'
4. Initiate the standard import process.

- **Portable Data Loggers**

Portable Data Logger (PDL) data can now be imported into SIM and migrated to STORET.

To import portable data logger results:

1. Add the new PDL Line Number and PDL Line Name columns to the import configuration.
2. Add the Data Logger Line Numbers and Line Names to your import file.
3. Set the Activity Type to 'Field Msr/Obs' in the import file.
4. Set the Activity Category to 'Portable Data Logger' in the import file.
5. Initiate the standard import process.

For a working example of loading PDL results, access the Portable Data Logger configurations and example files provided with the SIM application.

## **New Features:**

In addition to the new data elements and their processes, SIM v2.0.1 has added other new features. These are described below:

- **New in Configuration Settings: Generation of Columns not included in the import file**  
When an import configuration is created, users now have the option to generate columns that the user has not included in the import file. To generate columns during import:

1. Open the Import Configuration Window.
2. Check the Generate Check box for all columns that will be imported into SIM but not included in the import file.
3. Enter the default value that SIM will use for each generated column.
4. For Station Visits and Trips, the default column can be left blank if an instruction has been chosen that will generate these values automatically.
5. Save your configuration and initiate the standard import process.

- **Export of Additional Locations and Wells Errors to a file**

During the data import process, the Import Status form displays the number of lines with errors. In SIM v2.0 and earlier, an option exists for Project, Station, and Results to export these error records into a text file, correct the records, and re-import the data into SIM. New to SIM v2.0.1, this functionality has been added to the Location and Wells import processes.

To export records with errors:

1. Access the Import Status window.
2. Enter the desired output file name in the Export File field.
3. Enter the desired output file path in the Export Path field.
4. Click the 'Export Records with Errors' button.

- **System-Defined Habitat Assessments**

In SIM v2.0.1, System-Defined Habitat Assessments may be migrated to STORET in much the same manner as the User-Defined Habitat Assessments that were already supported by SIM in previous versions. To import Habitat Assessments:

1. First create a Habitat Assessment Characteristic Group in STORET.

2. Include an activity type of 'Field Msr/Obs' and an activity category of 'Routine Habitat Assessment' or 'Replicate Habitat Assessment' in the data file.
  3. Include the Habitat Assessment Characteristic Group and Row Ids along with the appropriate result values in the data file.
  4. Initiate the standard import process.
- Updated example files and configurations are available to test the new features that SIM v2.0.1 provides.
  - The SINGLE\_USER\_ENVIRONMENT system configuration setting was removed. SIM is now always able to handle multiple users.
  - SIM will now accept Well ID's that are alphanumeric.
  - Free text values can now be translated in SIM.
  - Primary Estuary State is now needed in addition to Primary and Secondary Estuary in order to determine the exact area.
  - The short name for Sample Matrix is required in the data file or translation in place of the code.
  - Imports for Created from Sample are available for both Chemical and Biological samples.
  - The layout to view activity data in SIM has been rearranged so that Activity Depth and Activity Parent data are now on separate forms.
  - The SIM time format of HHMM is now equivalent to a twenty-four hour day to provide consistency with the STORET Data Entry Application.

## **System Configuration Definitions**

Under the Advanced/System Config menu option in SIM v2.0.1, there are several user-defined settings used to configure your system. The definitions for each of the configuration settings are listed below.

### **BUILD\_NUMBER**

The Build Number configuration item displays the four-digit release number for this installation for SIM. This number is displayed in the description column. The value column is not used.

### **DFLT\_ORG**

The Default Organization configuration item allows the user to identify a STORET organization that will default throughout the SIM application when the user is prompted to enter an organization. This will not prohibit the user from selecting another valid organization if desired. Value is set to organization “DEMOTEST” by default.

### **IMPORT\_PATH**

The Import Path configuration item allows the user to set a path to a directory where text files are located for import into SIM. When the user clicks the Browse button in the Import File form, the user will automatically be directed to the directory named in the Import Path configuration item value. If the ALLOW\_LONG\_LINES configuration item is set to “Yes”, the import path must be entered as it would be mapped from the database server and the browse button will be disabled.

### **DFLT\_EXPORT\_PATH**

The Default Export Path configuration item allows the user to set a path to a directory where files will be created if errors were found in the import. In the Import Status window, the user can view/edit the export path and click the Export Records with Errors button to create the export file.

### **DFLT\_EXPORT\_FILE**

The Default Export File configuration item allows the user to define the default name of a file, which will be created if errors were found in the import. In the Import Status window, the user can view/edit the export filename and click the Export Records with Errors button to create the export file.

### **HELP\_PATH**

The Help Path configuration item allows the user to point to a directory that contains the files needed to access the general help window. The chosen directory path must contain the files sim2\_gen.gid and sim2\_gen.hlp. In a standard SIM v2.0.1 installation, the files will be contained in the directory where the software was installed.

#### **COPY\_PATH**

The Copy Path configuration item allows the user to set a default path to a directory where the copy/load utility will read/write the import configuration files. In the Copy and Load Configuration forms, the user can view/edit the default copy path and file name.

#### **ALLOW\_LONG\_LINES**

The Allow Long Lines configuration item allows the user to configure the system to read ASCII files with very long lines. When the configuration value is set to “Yes”, the user can import files with lines longer than 1000 characters. When the system is configured to allow long lines, the import file is parsed by the database rather than the client machine. As a result, the browse button is disabled and you must enter the full path and file name as it could be found from the database server. Value is set to “No” by default.

**Appendix A:  
Listing of Available STORET Data Elements  
for Each File Type**



**Overview:**

The SIM v2.0.1 application supports imports for Projects, Stations, Additional Locations, Wells, Field Measurements and Non-Bio Results, and Biological Results. The tables below list all of the STORET data elements supported by each of these import types.

The Required column indicates for each data element if it is required by SIM /STORET, is conditionally required, or is optional.

The Allowable Values column indicates if there is a set of valid values for the data element, which are enforced by STORET. For additional information on the STORET Tables and Allowable Values by column, review the *Data Structure List with definitions.pdf* included in the documentation on the STORET v2.0 CD.

For the result imports, an additional column has been added to the tables to indicate where multiple values can be imported separated by a Back Slash (\) for a single data element on a single data line.

**1. Project Descriptions**

Data Element	Required	Allowed Values
Project ID	Yes	
Name	Yes	
Start Date	Yes	
Duration	Yes	
Purpose	Yes	
Contact		
Document/Graphic		

**2. Station Descriptions**

Data Element	Required	Allowed Values
Station ID	Yes	
Station Name		
Primary Type	Yes	Yes
Secondary Type	Yes	Yes
Establishment Date		
Point Name		
Water Depth		
Water Depth Units	Conditional	Yes
Station Description		
Document/Graphic		
EPA Key Identifier		
Point Name		
Latitude	Yes	
Latitude Direction	Defaults to "N"	Yes
Longitude	Yes	
Longitude Direction	Defaults to "W"	Yes
Lat/Long Measurement Date		
Geopositioning Datum	Yes	Yes
Geopositioning Method	Yes	Yes
Scale	Conditional	
State	Yes	
County	Yes	
HUC		
Ecoregion Name		
NRCS Watershed ID		
Influence Area		

Data Element	Required	Allowed Values
Travel Directions		
ZID Relation		Yes
Native American Land Name		
Native American Land State		
Elevation		
Elevation Units	Conditional	Yes
Elevation Method	Conditional	
Elevation Datum	Conditional	
Elevation Measurement Date		
Ocean Name	Conditional	Yes
Shore Relation	Conditional	Yes
Additional Ocean Name		
Ocean Station Dist to Shore		
Ocean Station Dist to Shore Units	Conditional	Yes
Ocean Station Ref Point		
Ocean Station Bottom Topography		
Primary Estuary	Conditional	
Primary Estuary State	Conditional	Yes
Secondary Estuary		
Other Estuary		
Additional Estuary Name		
Estuary Distance to Shore		
Estuary Dist to Shore Units	Conditional	Yes
Estuary Reference Point		
Great Lake	Conditional	Yes
Additional Great Lake Name		
Great Lake Dist to Shore		
Great Lake Dist to Shore Units	Conditional	Yes
Great Lake Reference Point		

### 3. Additional Locations

Data Element	Required	Allowed Values
Station ID	Yes	Must exist in STORET
Point Type	Yes	Yes
Point Name		
Sequence Number	Yes	
Latitude	Yes	
Latitude Direction	Defaults to "N"	Yes
Longitude	Yes	
Longitude Direction	Defaults to "W"	Yes
Lat/Long Measurement Date		
Geopositioning Datum	Yes	Yes
Geopositioning Method	Yes	Yes
Elevation		
Elevation Units	Conditional	
Elevation Method	Conditional	Yes
Elevation Datum	Conditional	Yes
Elevation Measurement Date		
Scale	Conditional	

#### 4. Wells

Data Element	Required	Allowed Values
Station ID	Yes	Must Exist in STORET
Well Number	Yes	
Well Name	Yes	
Well Status	Yes	Yes
Well Use	Yes	Yes
Well Head Latitude		
Well Head Latitude Direction	Conditional. Defaults to "N"	Yes
Well Head Longitude		
Well Head Longitude Direction	Conditional. Defaults to "N"	Yes
Well Head Geopositioning Datum	Conditional	Yes
Well Head Geopositioning Method	Conditional	Yes
Well Head Scale	Conditional	
Well Head Measurement Date		
Well Head Elevation		
Well Head Elevation Units	Conditional	Yes
Well Head Elevation Method	Conditional	Yes
Well Head Elevation Datum	Conditional	Yes
Elevation Measurement Date		

#### 5. Field Measurements and Non-biological Samples

Data Element	Required	Allowed Values	Multiple Allowed
Trip ID	Yes	Must Exist in STORET	
Trip Start Date			
Trip Stop Date			
Trip Name			
Station ID	Yes	Must Exist in STORET	
Point Type		Must Exist in STORET	
Sequence Number	Conditional		
Well or Pipe ID	Conditional		
Additional Location Information			
Station Visit Number	Yes		
Station Visit Arrival Date			
Visit Comments			
Visit Document/Graphic			
Project ID	Yes	Must Exist in STORET	Yes. Separate with "\"
Activity ID	Yes		
Medium	Yes	Yes	
Activity Type	Yes	Yes	
Activity Category	Conditional	Yes	
Trip QC Type	Conditional	Yes	
QC Indicator		Yes	
Sample Matrix		Yes	
Chain of Custody ID			
Replicate Number	Conditional		
Parent Sample ID	Conditional	Must exist in STORET or in same data file	Yes. Separate with "\" for Composites with Parents
Activity Start Date	Yes		
Activity Start Time			
Activity Start Time Zone	Conditional	Yes	
Activity End Date			
Activity End Time			
Activity End Time Zone	Conditional	Yes	
Total Sample Weight			
Total Sample Weight Units	Conditional	Yes	
Depth to Activity			
Depth to Activity Units	Conditional	Yes	

Data Element	Required	Allowed Values	Multiple Allowed
Relative Depth		Yes	
Depth Measured From			
Lower Depth			
Upper Depth			
Upper/Lower Depth Units	Conditional	Yes	
Depth Zone Type		Yes	
Thermocline		Yes	
Halocline		Yes	
Pycnocline		Yes	
Personnel		Must Exist in STORET	Yes. Separate with "\
Cooperating Organization		Must Exist in STORET	Yes. Separate with "\
Activity Comments			
Activity Document/Graphic			
Sample Collection Procedure ID	Conditional	Must Exist in STORET	
Gear ID	Conditional	Yes	
Gear Configuration ID		Must Exist in STORET	
Gear Deployment Comments			
Sample Preservation, Transport & Storage ID		Must Exist in STORET	
Sample Transport and Storage Comments			
Field Set Name	Conditional		
Field Set ID	Conditional		
Detection Condition		Yes	
Characteristic Group ID	Conditional	Must Exist in STORET	
Characteristic Row ID	Conditional	Must Exist in STORET	
Characteristic Name	Conditional	Yes	
Result Value	Conditional	Yes*	
Result Value Units	Conditional	Yes	
Result Status	Defaults to "F"	Yes	
Sample Fraction	Conditional	Yes	
Statistic Type		Yes	
Value Type	Defaults to "Actual"	Yes	
Precision			
Confidence Level		Yes	
Bias			
CL Corrected for Bias		Yes	
Duration Basis		Yes	
Temperature Basis		Yes	
Weight basis		Yes	
Particle Size Basis			
Result Comment			
Result Document/Graphic			
Laboratory ID		Must Exist in STORET	
Field/Lab Procedure	Conditional	Must Exist in STORET	
Field/Lab Procedure Source	Conditional	Yes	
Laboratory Certified		Yes	
Laboratory Batch ID			
Lab Remark Codes		Yes	Yes. Separate with "\
Analysis Date			
Analysis Time			
Analysis Time Zone	Conditional	Yes	
Lab Sample Prep Procedure		Must Exist in STORET	
Lab Sample Prep Procedure Source	Conditional	Yes	
Quantification Low			
Quantification High			
Detection Limit			
Detection Limit Unit	Conditional	Yes	
Detection Limit Comment			
PDL Line Number			
PDL Line Name			

\*Result values can be numbers or, in some cases they are chosen from lists of allowable values.

## 6. Biological Samples

Data Element	Required	Allowed Values	Multiple Allowed
Trip ID	Yes		
Trip Start Date			
Trip Stop Date			
Trip Name			
Station ID	Yes	Must Exist in STORET	
Point Type		Must Exist in STORET	
Sequence Number	Conditional		
Well or Pipe ID	Conditional		
Additional Location Information			
Station Visit Number	Yes		
Station Visit Arrival Date			
Visit Comments			
Visit Document/Graphic			
Project ID	Yes	Must Exist in STORET	Yes. Separate with "\
Activity ID	Yes		
Medium	Yes	Yes (Biological)	
Activity Type	Yes	Yes	
Activity Category	Yes	Yes	
QC Indicator		Yes	
Sample Matrix		Yes	
Chain of Custody ID			
Replicate Number	Conditional		
Intent	Yes	Yes	
Parent Sample ID	Conditional	Must Exist in STORET or Current Data File	Yes. Separate with "\ for Composites with Parents
Community	Conditional	Yes	
Bio Part	Conditional	Yes	
Subject Taxon	Conditional	Yes	
Subject Taxon Species Number		Yes	
Total Sample Weight			
Total Sample Weight Units	Conditional	Yes	
Activity Start Date	Yes		
Activity Start Time			
Activity Start Time Zone	Conditional	Yes	
Activity End Date			
Activity End Time			
Activity End Time Zone	Conditional	Yes	
Depth to Activity			
Depth to Activity Units	Conditional	Yes	
Relative Depth		Yes	
Depth Measured From			
Lower Depth			
Upper Depth			
Upper/Lower Depth Units	Conditional	Yes	
Depth Zone Type		Yes	
Thermocline		Yes	
Halocline		Yes	
Pycnocline		Yes	
Personnel		Must Exist in STORET	Yes. Separate with "\
Cooperating Organization		Must Exist in STORET	Yes. Separate with "\
Activity Comments			
Activity Document/Graphic			
Sample Collection Procedure ID	Conditional	Must Exist in STORET	
Gear ID	Conditional	Yes	
Gear Configuration ID		Must Exist in STORET	
Gear Deployment Comments			

Data Element	Required	Allowed Values	Multiple Allowed
Sample Preservation, Transport & Storage ID		Must Exist in STORET	
Sample Transport and Storage Comments			
Field Set ID	Conditional		
Field Set Name	Conditional		
Distance Fished			
Distance Fished Units	Conditional	Yes	
Fished Duration			
Fished Duration Units	Conditional	Yes	
Trap or Net Sampling Duration			
Trap or Net Sampling Duration Units	Conditional	Yes	
Relative Current Direction			
Relative Wind Direction			
Orientation to Current		Yes	
Trap or Net Comments			
Bio Results Group ID	Conditional		
Bio Results Type	Conditional	Yes	
Bio Results Group Description			
Bio Group Count Type	Conditional	Yes	
Total Number in Group	Conditional		
Frequency Analysis Type	Conditional	Yes	
Primary Class Descriptor	Conditional	Yes	
Secondary Class Descriptor		Yes	
Primary Class Value	Conditional		
Secondary Class Value			
Common Class Descriptor	Conditional	Yes	
Common Class Descriptor Units	Conditional	Yes	
Sex		Yes	
Life Stage		Yes	
Frequency Class Count	Conditional		
Lower Class Bound	Conditional		
Upper Class Bound	Conditional		
Number of Individuals in Group	Conditional		
Individual Number	Conditional		
Detection Condition		Yes	
Characteristic Group ID	Conditional	Must Exist in STORET	
Characteristic Row ID	Conditional	Must Exist in STORET	
Characteristic Name	Conditional	Yes	
Characteristic Species Number			
Result Value	Conditional	Yes*	
Result Value Units	Conditional	Yes	
Result Status	Defaults to "F"	Yes	
Sample Fraction	Conditional	Yes	
Statistic Type		Yes	
Value Type	Defaults to "Actual"	Yes	
Precision			
Confidence Level		Yes	
Bias			
CL Corrected for Bias		Yes	
Duration Basis		Yes	
Temperature Basis		Yes	
Weight basis		Yes	
Particle Size Basis			
Cell Form		Yes	
Cell Shape		Yes	
Habit		Yes	
Voltinism		Yes	
Taxon Pollution Tolerance			
Trophic Level			
Functional Feeding Group			

\*Result values can be numbers or, in some cases they are chosen from lists of allowable values.

<b>Data Element</b>	<b>Required</b>	<b>Allowed Values</b>	<b>Multiple Allowed</b>
Result Comment			
Result Document/Graphic			
Laboratory ID		Must Exist in STORET	
Field/Lab Procedure	Conditional	Must Exist in STORET	
Field/Lab Procedure Source		Yes	
Laboratory Certified		Yes	
Laboratory Batch ID			
Lab Remark Codes		Yes	Yes. Separate with “\”
Analysis Date			
Analysis Time			
Analysis Time Zone	Conditional	Yes	
Lab Sample Prep Procedure		Must Exist in STORET	
Lab Sample Prep Procedure Source		Yes	
Quantification Low			
Quantification High			
Detection Limit			
Detection Limit Unit	Conditional	Yes	
Detection Limit Comment			

**Appendix B:**  
**SIM v2.0.1 Example Files**



**Overview:**

The SIM v2.0.1 application contains eighteen examples of various import types listed as follows: Projects, Stations, Locations, Wells, Regular Results, and Biological Results. At least one example of each of these types is included to demonstrate the correct use of the data elements required for valid entry into STORET v2.0.

The data imported under each of the file types complements each other, and the order in which you migrate data files to STORET is important. Station Descriptions should always be loaded before Additional Locations and Wells. Project Descriptions and all the Station files should always be loaded before your Result files. This ensures that the key data elements will be registered in STORET and are ready for results to be associated with them. Likewise, similar rules apply when removing these files from STORET and SIM. As such, it is recommended that when possible, files be removed in reverse chronological order.

**Getting Started:**

In order to import example data into SIM and STORET, a valid import configuration and data file is required as shown in Tutorial II of this document. The SIM v2.0.1 installation pre-loads the import configurations for each of these examples into SIM.

The SIM v2.0.1 installation also installs the associated import data files in the following directory for Personal Oracle users: C:\STORET\Orasto2\SIM\SIM201\_EXAMPLES. The SIM v2.0.1 installation process sets the IMPORT\_PATH System Configuration setting to this path so that the example data files are readily accessible for use. The directory path may be slightly different for use on the server. Contact your Database Administrator for the correct example file path and directory if the Server installation was completed.

All of the import configurations are created to utilize the DEMOTEST organization which is pre-loaded in the STORET v2.0 database and will not impact your actual water quality data. Please note that if your server installation of the STORET database was converted from version 1.2 to version 2.0, the DEMOTEST organization will not automatically be updated. In such cases, the SIM example files may generate error messages during the import process. If desired, scripts to update the DEMOTEST data are provided on the STORET v2.0 CD.

A breakdown of each example by file type, import configuration, and data file is displayed below.

No	File Type	Import Configuration	Import Data File
1	Project	Example – Projects	Example – Projects.txt
2	Station	Example – Estuary Station	Example – Estuary Station.txt
3	Station	Example – Great Lake Station	Example – Great Lake Station.txt
4	Station	Example – Ocean Station	Example – Ocean Station.txt
5	Station	Example – Other Stations	Example – Other Stations.txt
6	Location	Example – Additional Sample Points	Example – Additional Sample Points.txt
7	Well	Example – Wells	Example – Wells.txt
8	Results	Example – Field Measurements	Example – Field Measurements.txt
9	Results	Example – Portable Data Logger with Characteristic Groups	Example – Portable Data Logger with Characteristic Groups.txt
10	Results	Example – Portable Data Logger with	Example – Portable Data Logger with

		Characteristic Names	Characteristic Names.txt
11	Results	Example – Chem Results with Char Groups and Rows	Example – Chem Results with Char Groups and Rows.txt
12	Results	Example – Chem Results with Char Names	Example – Chem Results with Char Names.txt
13	Results	Example – Grain Size Analysis	Example – Grain Size Analysis.txt
14	Biological	Example – Individual Intent	Example – Individual Intent.txt
15	Biological	Example – Individual Intent – Created from Sample	Example – Individual Intent – Created from Sample.txt
16	Biological	Example – MTPC_STFC	Example – MTPC_STFC.txt
17	Biological	Example – Single Taxon Group Summary	Example – Single Taxon Group Summary.txt
18	Biological	Example – Single Taxon Individuals	Example – Single Taxon Individuals.txt

## Example File Overview:

### Projects

*Example – Projects*

Things to note:

- All three projects are required for the Results and Biological example files.
- One of the projects contains a Document/Graphic called Chesapeake\_Bay\_EMAP.pdf.

### Stations

*Example – Estuary Station*

Things to note:

- Illustrates the usage of the Primary Estuary, Secondary Estuary, and Estuary State. Since the names of certain Primary and Secondary Estuaries can be the same in multiple areas, the inclusion of Estuary State ensures that the correct combination of three is migrated to STORET.
- Illustrates the use of specific formats for latitude, longitude, date, and time.
- The station contains a Document/Graphic called Station\_CBC050.jpg.

*Example – Great Lake Station*

Things to note:

- Illustrates the usage of required data elements needed to define a Great Lake Station.
- The station contains a Document/Graphic called Station\_CBC051.jpg.

*Example – Ocean Station*

Things to note:

- Illustrates the usage of required data elements needed to define an Ocean Station.
- The station contains a Document/Graphic called Station\_CBC052.jpg.

*Example – Other Stations*

Things to note:

- Illustrates the usage of required data elements needed to define a River/Stream, Well, and Lake Station.
- Two of the stations contain Document/Graphics called Station\_CBC053.jpg and Station\_CBC056.jpg.

### **Additional Station Locations**

*Example – Additional Sample Points*

Things to note:

- Illustrates the usage of required data elements needed to define the additional sampling or boundary locations for a station.
- The Other Station example file must be migrated to STORET before this example file can be imported to SIM.

### **Wells**

*Example – Wells*

Things to note:

- Illustrates the usage of required data elements needed to define additional wells and their usage for a station.
- The Other Station example file must be migrated to STORET before this example file can be imported to SIM.

### **Results**

*Example - Chem Results with Char Groups and Rows*

Things to note:

- Illustrates the usage of required data elements needed to define a User-Defined Habitat Assessment and Routine Sample when accessing a STORET Characteristic Group and Row to provide additional information.
- Both the Projects and Other Stations example files must be migrated to STORET before importing this example to SIM.

*Example - Chem Results with Char Names*

Things to note:

- Illustrates the usage of required data elements needed to define a Routine Sample with characteristics details loaded in the file. No STORET characteristic group is needed to load this file.
- Illustrates the usage of required data elements for a single trip with multiple visits to a station.
- Illustrates the entry of multiple lab remark codes.
- Both the Projects and Other Stations example files must be migrated to STORET before importing this example to SIM.

*Example - Field Measurements*

Things to note:

- Illustrates the usage of required data elements needed to define a Field Measurement and Observation using a STORET Characteristic Group and Row.
- Illustrates the use of choice list Characteristics and corresponding Result Values.
- No example files need to be migrated to STORET before the example is imported to SIM.

*Example - Grain Size Analysis*

Things to note:

- Illustrates the usage of required data elements needed to define Routine Sample with a medium of Sediment using a STORET Characteristic Group and Row.
- Both the Projects and Ocean Station example files must be migrated to STORET before importing this example to SIM.

*Example - Portable Data Logger with Groups and Rows*

Things to note:

- Illustrates the usage of required data elements needed to define a Portable Data Logger category using a STORET Characteristic Group and Row.
- Both the Projects and Other Stations example files must be migrated to STORET before importing this example to SIM.

*Example - Portable Data Logger with Char Names*

Things to note:

- Illustrates the usage of required data elements needed to define a Portable Data Logger import.
- Both the Projects and Ocean Station example files must be migrated to STORET before importing this example to SIM.

**Biological Results**

*Example - Individual Intent*

Things to note:

- Illustrates the usage of required data elements needed to define a Routine Sample for a medium of Biological and intent of Individual.
- Both the Projects and Other Stations example files must be migrated to STORET before importing this example to SIM.
- The example contains the parent activities for another example file.

Related Business Rules:

- When importing parent and child activities in separate data files, the parent activities must always be migrated to STORET before the children can be imported to SIM.

- In order to clear a migration of parent activities from STORET, the child activities must be completely removed from STORET and SIM if they have been added through a separate data file or direct use of the STORET interface.
- When importing parent and child activities in the same data file, the parent activities must always precede the child activities.

*Example - Individual Intent - Created From Sample*

Things to note:

- Illustrates the usage of required data elements needed to define a Created from Sample for a Biological Sample. Note the use of the Parent Sample ID column, which references the parent activity created in the Individual Intent example file.
- Both the Projects and Other Stations example files must be migrated to STORET before importing this example to SIM.
- The example contains the child activities created from the parent activities in the Individual Intent example file.

Related Business Rules:

- When importing parent and child activities in separate data files, the parent activities must always be migrated to STORET before the children can be imported to SIM.
- When importing parent and child activities in the same data file, the parent activities must always precede the child activities.

*Example - MTPC\_STFC*

Things to note:

- Illustrates the usage of required data elements needed to define intent of Taxon Abundance and bio results type of Multi-Taxon Population Census and Single Taxon Frequency Classes.
- Illustrates the use of frequency analysis type of both Biological and Physical for Single Taxon Frequency Class.
- Both the Projects and Estuary Station example files must be migrated to STORET before importing this example to SIM.

*Example - Single Taxon Group Summary*

Things to note:

- Illustrates the usage of required data elements needed to define intent of Taxon Abundance and bio results type of Single Taxon Group Summary.
- Both the Projects and Other Stations example files must be migrated to STORET before importing this example to SIM.

*Example - Single Taxon Individual*

Things to note:

- Illustrates the usage of required data elements needed to define intent of Taxon Abundance and bio results type of Single Taxon Individuals.

- Both the Projects and Estuary Station example files must be migrated to STORET before importing this example to SIM.