Infor CloudSuite Industrial Migration Utility User Guide

Release 10.x

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Contents

Contacting Infor....5
Migration Utility Overview....6
Migrating External Data....9
Behind the Scenes: Data Flow and Intermediate Tables....12
Planning for the Migration....14
Creating and Configuring the Migration Database....16
Specifying Import Parameters....17
Viewing Existing Mappings and Sequences....19
Updating Existing Mappings and Sequences....20
Adding a New Mapping and Sequence....21
Changing the Data Transfer Status....22
Defining Import Rules....23
Creating Manual Rules....25
Automatically Generating Table Column Rules....26
Applying Import Rules to Table Column Transformations....27
Reviewing Inventory Balances....29
Reviewing Job Material Transactions....30
Generating the Data Assessment Report....31
Performing the Preliminary Data Transfer....32
Performing the Final Data Transfer....33
Analyzing the Data Transfer Log....34

Troubleshooting the Data Transfer.....36

Handling Transfer Errors.....38

Copying the Table to a New Site.....39

Example Migration: VISUAL.....40

Data Transfer Overview.....41

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Migration Utility Overview

Use the CloudSuite Industrial migration utility to map, transform and import data from another application's SQL database tables into CloudSuite Industrial database tables in a migration database. From there, the migrated, validated tables can be copied into other CloudSuite Industrial databases.

The migration focuses on the master data and open transactions of the external application, as well as the integrity of the data. This ensures that you can resume business activity with minimal disruption.

These forms are used in the migration:

- **Import Parameters**
- **Import Source Tables**
- **Import Target Tables**
- **Import Steps**
- **Import Rule Definition**
- **Import Table Column Rule Definition**
- **Import Data Transfer**
- **Import Inventory Balances**
- **Import Job Material Transactions**

Requirements

The source database for the external application must use SQL Server 2008 or later. This database must be able to communicate with the target database.

The target CloudSuite Industrial database must be a new, initialized database. This database must have the CloudSuite Industrial Migration Utility pack installed.

You must have appropriate licenses and authorizations for the CloudSuite Industrial forms that you will access during the migration. See the Form-License and Form-Group-Authorizations spreadsheets in the DataMap.

Caution: You must plan carefully before you start. Refer to the Planning for the Migration topic in the list below.

Source and Target Tables

The **Import Source Tables** form defines the tables and columns in the external database that can be imported. Many tables and columns are already predefined for the migration process. However, you can select additional tables or columns from the external database, which are then included in the Source Table and Column drop-down fields on the **Import Steps** form.

The **Import Target Tables** form defines the tables and columns in the target database that can be used to hold the imported data. Only tables whose data can be modified are included in the drop-down lists. Many tables and columns are already predefined for the migration process. However, you can select additional tables or columns from the target database, which are then included in the Target Table and Column drop-down fields on the **Import Steps** form.

Import Steps

The **Import Steps** form maps the source table and column to the target table and column, and specifies the sequence in which this mapping should be performed. Many sequences, or steps, of source to target mappings are predefined for the migration process. You can specify additional mappings and sequences here.

For more information, see Viewing Existing Mappings and Sequences on page 19.

The import uses sequence numbers to specify the order in which you import tables and columns. The order in which data is imported is important because of data dependencies: certain data must exist in the database before other data can be loaded. Otherwise, errors occur during the data transfer. For example, **Unit of Measure Codes** must be defined before you can add **Unit of Measure Conversion** data. We recommend that you perform the preliminary data transfers using the sequences that are predefined in the **Import Steps** form. You must perform the final data transfers in the specified sequence. If you add sequences to transfer additional data, ensure that they take into account the data dependencies.

Some target tables are included in more than one sequence, because some columns in the table are prerequisites for other tables, while other columns must wait for prerequisite data from other tables.

Sometimes you want to import only some records from the source table. For example, you only want to import source operation records where the WORKORDER_TYPE value is M into the target job table. To handle this, you can specify a filter for the sequence (WORKORDER_TYPE = "M") in the **Import Steps** form.

Manual Data Entry

Some data in CloudSuite Industrial does not have equivalent data in the external application, so that data cannot be mapped. It must be manually entered in the CloudSuite Industrial forms. We recommend that you perform most of the manual data entry before you start the import process. However, some manual entry forms require data that will be imported in one of the defined sequences. In that case, you will perform the final data transfer for that sequence, then perform the manual data entry, then continue with the next import sequence.

See Example Migration: VISUAL on page 40 for an illustration of this.

Rules

In many cases, just mapping the data is not sufficient, because the data properties are different. For example, both systems have a customer order number, but the field length is different. Or both systems have a flag that indicates whether to include tax in prices, but the source system uses Y and N values, while the target system uses a check box (1 or 0 values in the database). You can specify general types of rules in the **Import Rule Definition** form, and then specific instances of the rules in the **Import Table Column Rule Definition** form.

For more information, see Defining Import Rules on page 23.

Stored Procedures

Stored procedures are predefined in this utility to map tables. The stored procedure name format is SourceDL_*SourceTableName*ImportSp or TargetDL_*TargetTableName*ImportSp. If necessary, you can work with Infor Consulting Services to create a custom stored procedure to move other data that the utility cannot move with the existing stored procedures.

Preliminary and Final Data Transfer

In the **Import Data Transfer** form, you perform a preliminary data transfer to test whether a sequence can be imported. That is, can the data from the source tables and columns defined in the sequence transfer to the target tables and columns defined in that sequence without any errors? If the data transfers successfully, you can proceed directly to the final data transfer.

If there are errors, the migration utility automatically attempts to create a rule that fixes the problem and displays the error in the **Log** tab of the **Import Data Transfer** form. You can supply appropriate values for the new rule in the **Import Table Column Rule Definition** form.

Rerun the preliminary data transfer, continuing to find and fix problems, until no errors are found. Then you can run the final data transfer to commit the data to the target table.

For more information, see Data Transfer Overview on page 41.

Use the Data Assessment Report to validate the data to be imported before it is committed into the target table. This report is a .CSV file that can be shared with the appropriate departments for verification.

For more information, see Generating the Import Data Assessment Report on page 31.

The Data Transfer Log is generated during the data transfer and is displayed on the Log tab of the **Import Data Transfer** form. The log contains the details of transfers from the source table into data load tables and finally into the target table, and it also records errors during the transfer. Use this log to verify the data transfer status and transfer detail, and also to determine whether you can proceed with the transfer.

For more information, see Analyzing the Data Transfer Log on page 34.

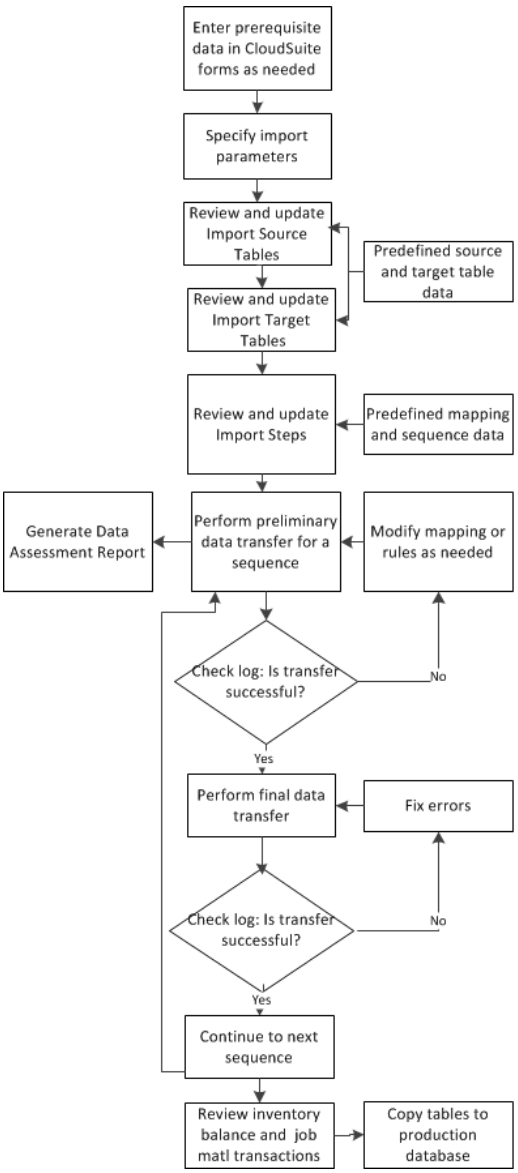
Notes

The migration utilities support these types of mapping:

- One table maps to one table. One record from the source table/column is mapped to one record in the target table/column.
- One table maps to multiple tables. To support this type of mapping, a source table filter string is used to build the source table's data set. The migration utility can then move different data sets from the same source table into different target tables, by using different filter strings and sequences.

Migrating External Data

This diagram shows the process flow:



Use these general steps to migrate data from an external application to CloudSuite Industrial:

1. Plan your migration process.

   See Planning for the Migration on page 14.

2. If there is any prerequisite data that cannot be migrated through this utility, specify it in the appropriate CloudSuite Industrial forms For example, if the source database does not contain tax parameters or billing codes, those must be entered manually.
3. Set up the database.

   See Creating and Configuring the Migration Database on page 16.

4. Specify the import parameters to connect to the external application database.

   See Specifying Import Parameters on page 17.

5. To include tables or fields that are not included in the predefined migration, if necessary:
   - Use the **Import Source Tables** form to specify those tables and columns.
   - Use the **Import Target Tables** form to specify any CloudSuite Industrial tables and columns.
6. On the **Import Steps** form, click the filter-in-place button to review the preconfigured mappings and sequences. These mappings and sequences should only be modified by a qualified consultant. You can add mappings and sequences if you want to include external source tables or columns that are not part of the standard migration or that are part of a custom stored procedure.

   See Viewing Existing Mappings and Sequences on page 19.

   Note: Some of the migration is done by importing mapped tables; however, for required data that has no counterpart in the external application, you must also manually enter data into CloudSuite Industrial forms. The sequence in which data is entered is important, so you must be aware of any manual steps that must take place between the sequenced imports of tables. For a sample migration sequence that takes into account these manual steps, see Example Migration: VISUAL.
7. On the **Import Data Transfer** form, select the first defined sequence, select **Preliminary Data Transfer**, select **Generate Data Assessment Report**, and click **Process**.

   This process assesses the data records and creates applicable new rules for the sequence that attempt to address any problems with the source data or inconsistencies between the source and target data formats.

   For more information, see Data Transfer Overview on page 41.
8. Review the Data Assessment Report with the appropriate people.

   See Generating the Data Assessment Report on page 31.
9. Click the **Log** tab on the **Import Data Transfer** form, click in the grid, and then click the refresh toolbar button to display the most recent transaction. Review the information.

   See Analyzing the Data Transfer Log on page 34.
10. If the transfer was not successful:
    - Check the error message on the Log tab to see if a new rule was created.
    - Click the **Table Column Rule Definition** button to open the **Import Table Column Rule Definition** form and review the rules that were added. You can specify rule values or add rules as needed.

      See Defining Import Rules on page 23.
    - Perform the preliminary data transfer again for the sequence.

- Repeat these steps for this sequence until all mapped columns are successfully transferred to the Target Data Load table.

11 When the preliminary data transfer produces no errors and the Data Assessment Report has been reviewed, select **Final Data Transfer** and click **Process**.

This loads the transformed data into the CloudSuite Industrial table. If errors occur:

- Correct the errors.
- Reset the sequence status to **`Not Started`**.
- Rerun the preliminary data transfer.
- Rerun the final data transfer.

12 Repeat steps 7 - 11 for each sequence.

Note:

- We strongly recommend that you run this utility for one mapped table at a time, in the specified sequence, allowing for any required manual data loads between the mapped table sequences.
- If prerequisite data is required before a sequence, manually enter that data in the appropriate form before proceeding.

  For an example of how the prerequisites and sequencing might be set up, see Example Migration: VISUAL on page 40.

13 Review and correct the source data that will be used to enter inventory into CloudSuite Industrial.

See Reviewing Inventory Balances on page 29.

14 Review and correct the source data that will be used to enter job material issue transactions into CloudSuite Industrial.

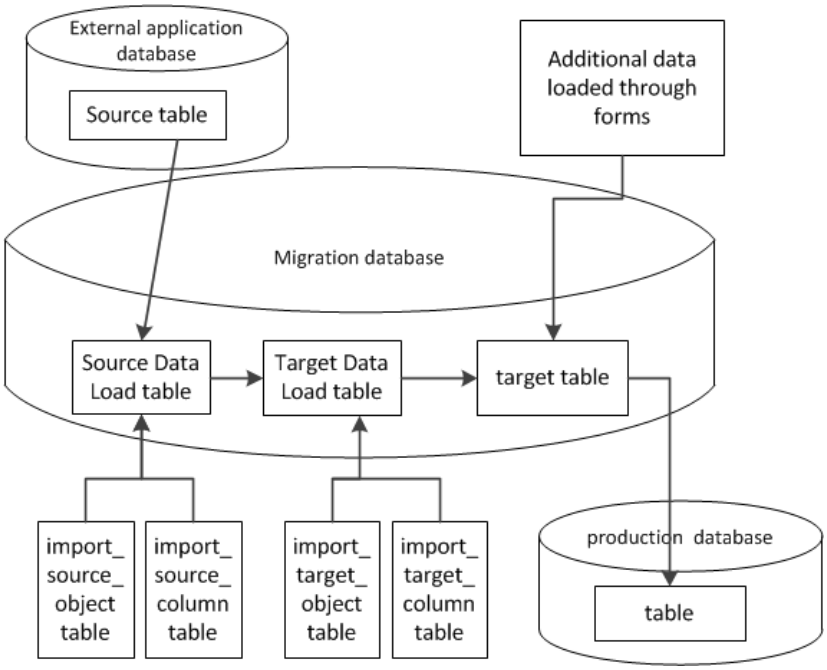
See Reviewing Job Material Transactions on page 30.

15 Copy the CloudSuite Industrial tables from the migration database to the final database or site.

See Copying the Table to a New Site on page 39.

Behind the Scenes: Data Flow and Intermediate Tables

This diagram shows the data flow for migrating data. This information is intended for consultants and others who need to understand the underlying structure that is used in the migration.



These tables are created in the migration database to hold the data during transformations:

- The Source Data Load tables hold the data from the tables in the external application database. The structure of each Source Data Load table is determined by the import_source_object and import_source_column tables. The import_source_object table stores table or view names from the source database. The import_source_column table stores column names from tables in the source database. The information in these tables is predefined by Infor through scripts. You can use the **Import Source Tables** form to manually add other source tables and columns to be mapped, or tables/columns that are used in your custom stored procedures. The first time that you perform a preliminary data transfer, the Source Data Load tables are built.
- The Target Data Load tables are based on the CloudSuite Industrial tables but only contain a subset of the columns. These tables are generated based on the import_target_object and import_target_column tables, whose contents are predefined by Infor through initialized data scripts. You can use the **Import Target Tables** form to manually add other target tables or columns to be mapped. The data in each Target Data Load table is truncated after the data is transferred successfully into the target table.

The import_mapping table is also predefined by Infor. This table stores data from the viewpoint of a target table name, sequence, and target column name. You can transfer data to a given Target Data Load table multiple times, allowing for multiple sequences that include the target table. For each target table/sequence instance, the import_mapping table defines the target columns that are mapped, and it defines which source object/column maps to them. Thus records exist in this table only where a column-to-column mapping actually exists.

Planning for the Migration

Before you begin importing data, ensure that you have performed these planning tasks:

- Determine where to place the external application and migration databases.

  Data will be migrated from the external application database into an CloudSuite Industrial migration database. These databases can exist on the same SQL server or they can reside on different servers. After the migration is complete, you can copy the target table data from the migration database into an CloudSuite Industrial production database.

- Determine what data is required in CloudSuite Industrial.

  Use a spreadsheet to list the forms in CloudSuite Industrial where data must be entered, and, where possible, the CloudSuite Industrial tables underlying those forms. If your external application has a matching table whose data can be mapped to an CloudSuite Industrial table, specify the external table name in the spreadsheet.

  List the CloudSuite Industrial forms in sequential order in the spreadsheet. The sequence indicates the order that the data must be specified because of data dependencies. For example, you must generate lists of certain codes before you can use those codes in master data such as a **Customers** form.

  Note: This spreadsheet might already be available for your external application; check with your Infor consultant.

- Compare external application data to CloudSuite Industrial data.
  Note: For the Infor VISUAL migration, a sample set of mappings, transformations and rules has been predefined.

  Compare the CloudSuite Industrial table schema (column names, data types, and valid values) to your external application table schema:

  - Use the CloudSuite Industrial Database Schema Report (generated through a form in the application) and the CloudSuite Industrial DataMap Schema-Properties spreadsheet (available on the Infor Support Portal site) to see the columns and data types for each table, so that you understand the CloudSuite Industrial schema.
  - For areas where your table data can be mapped to CloudSuite Industrial tables, determine the transformations (changes to data types, length, etc.) that are required. Later, you can use the Preliminary Data Transfer process to help you determine other required transformation rules.
  - For areas where CloudSuite Industrial requires initial data, but the external application does not provide it, you can enter the data manually in the forms. Where possible, you can generate spreadsheets from CloudSuite Industrial form grids, using the **Export to Excel** option. Fill in your data and then paste the updated spreadsheet data back into the form. See the CloudSuite Industrial online help for information about pasting into forms from a spreadsheet.

You are not required to use the migration utility to import data into CloudSuite Industrial tables. You can manually load data into a CloudSuite Industrial table if you want to create new records that are not dependent on the existing data in the external application.

- Determine the migration sequence.

  CloudSuite Industrial data must be loaded in a certain order. Some data is dependent on the existence of other data. See the sequences on the **Import Steps** form. These sequences were tested with a sample database.

  See each mapped target table's dependencies and then set up the import sequence for the mapping tables based on those dependencies. If there is any prerequisite data that must be manually loaded into the target table (because the prerequisite data does not exist in any source table), ensure that the prerequisite data is loaded before you import the source table's data.

- Prepare the external application data before the migration.

  In the external application, you must perform steps to complete and post all transactions before the migration, to ensure that CloudSuite Industrial has the most up-to-date information and that no transactions are missed. For example, post all unposted invoices, vouchers, journals, and job transactions, and print and post A/P and payroll checks.

  After these steps are performed, no new transactions should be created in the external application. Any new transactions should be created in CloudSuite Industrial after the migration is completed.

- Define the future storage environment.

  Determine the SQL Server and CloudSuite Industrial production database/site where the transformed migrated data will reside.

- Develop the pre- and post-migration verification plan.

  A detailed verification plan must be prepared before you proceed with the data migration. This plan should be shared with members of other departments that will use the data.

  Documenting your migration process can help you train your staff and simplify or streamline the next migration you perform, reducing both expense and risk.

  After the data is successfully transferred into the CloudSuite Industrial database, have a plan in place to verify that all of the data was correctly transferred. If some data did not transfer as you expected, analyze the mapping and related functions that were performed in database triggers. Determine any additional configuration or processes that must be performed to complete the migration.

  When the data transfer is verified, perform a backup of the existing database.

Creating and Configuring the Migration Database

Use the instructions in the CloudSuite Industrial product installation guide to create an initialized CloudSuite Industrial database. This database will be used to import the external application data into the source tables and to transform and store the data in the target tables.

The Migration Utility is installed like any industry pack. For more information about installation, use the instructions in the *Installation Guide* to install the Migration Utility industry pack on that database. This pack includes the forms and stored procedures that you need for the migration.

Use the **Import Parameters** form to specify connection information between the external application database and the migration database.

See Specifying Import Parameters on page 17.

If the migration database is created in a separate SQL server from the external application database, the migration database must be able to connect to the external application database server. Connectivity between the servers is tested in the **Import Parameters** form when you save the connection information. You can click the **Test Connection** button to test this. If different servers are involved, the migration utility creates a linked server when you save the parameter settings.

The CloudSuite Industrial migration database and the final target database both support copying the data from multiple sites into a single database. This is not required; if multiple sites exist in separate databases in the external application, they can remain as separate CloudSuite Industrial databases.

You can set up a migration database server on which you create one or more migration databases, and then create an associated migration configuration for each site that you will migrate from an external application to CloudSuite Industrial.

If the table mappings are the same for all sites, you could use one migration database for all migrating sites. This eliminates the need to copy table mappings from one migration database to another migration database for each migrating site. You would just copy the site with the transferred data in the migration database into the target CloudSuite Industrial databases.

Specifying Import Parameters

Use these steps to set up the connection information to the external application database:

1 In the **Import Parameters** form, specify this information about the external database:

Server
Specify the name of the SQL server that contains the external application database.

Source Database
Specify the external application database name.

Schema
Specify the external database schema name. This value defaults to **dbo** but can be modified for your external application.

Login and Password
Specify the user name and password used to log into the SQL server that contains the external application database.

Source Site
Specify the name of the site from which data will be imported into the CloudSuite Industrial target database through the **Import Data Transfer** form.

Source Data Imported
This field indicates whether the source data from this connection has been imported. This field is selected after the initial run of the Preliminary Data Transfer has completed. Wait until the field is selected (indicating that the transfer is complete) before you continue with the next step. Preliminary Data Transfer can be performed only when this field is not selected. If an incorrect rule was applied during a data transfer (and the imported data is therefore wrong), or if any change occurs to data in the source database, clear this field and run the Preliminary Data Transfer again to fetch the source data again.

2 Specify the folder path where the Data Assessment Report is saved when it is generated on the **Import Data Transfer** form.

See Generating the Data Assessment Report on page 31.

3 Click **Test Connection**.

The login connection to the database is tested. If the test succeeds, the message "Test connection succeeded" is displayed. If a failure message is displayed, correct, save and retest the information.

4 Specify a **Miscellaneous Receipt Reason Code** that is applied to all receipt transactions during the preliminary data transfer.

5 Specify a **Miscellaneous Issue Reason Code** that is applied to all issue transactions during the preliminary data transfer.

6 Select the appropriate options to allow during the import:

- Select **Allow Job WIP to add Job Materials on the go** if you want to add new job materials into the job BOM.
- Select **Allow non-inventory Items on Current Materials** if you want to add non-inventory items to the current BOM.
- Select **Allow non-inventory Items on Customer Orders** if you want to add non-inventory items to customer orders.
- Select **Allow non-inventory Items on Job Materials** if you want to add non-inventory items to the job BOM.
- Select **Allow non-inventory Items on Purchase Orders** if you want to add non-inventory items to purchase orders.
- Select **Use Cost on Job Materials** if you want to use the cost from the job materials record, instead of the cost from the item record.
- Select **Vendor required on Purchase Orders** if you want to require a vendor on imported purchase orders.

7 Save your changes.

Viewing Existing Mappings and Sequences

Use the **Import Steps** form to view the predefined steps, or sequences, in the data transfer.

On the **Import Steps** form, click the filter-in-place button. The existing mapping records are listed, showing the source table, target table, the mapped columns in the source and target tables, any filters on the source data, and the sequence in which this mapping is performed.

For the selected source/target table sequence, the grid displays a list of the columns that are defined on the **Import Source Table** and **Import Target Table** forms. The list is sorted by the source column. Non-mapped columns are not displayed.

Updating Existing Mappings and Sequences

Caution: The predefined mappings and sequences listed in the drop-down fields were configured and tested by Infor for the VISUAL migration. These predefined mappings and sequences are stored in migration database tables and should only be modified by a qualified consultant.

To update table mappings:

1. On the **Import Steps** form, select the source table record. You can see the mapped target table and the mapped columns in the source and target. You cannot edit the existing mappings or the sequence number. However, you can add mappings between columns in the tables, or delete existing mappings.
2. Optionally, specify a SQL "Where" clause in the **Source Filter** to use for filtering the source table data, as shown in the Filter Example below.
3. Set the status to **`Not Started`** so that the preliminary data transfer will process this step.
4. When your changes are complete, save the record.

For example, your external application has an OPERATION table that you are mapping to the CloudSuite Industrial job table. However, you only want to import operation records where the WORKORDER_TYPE value is M into the job table. In the sequence record where the OPERATION table is mapped to the job table, specify this in the **Source Filter** field: **`WORKORDER_TYPE="M"`**

Adding a New Mapping and Sequence

1. On the **Import Source Tables** form, select a **Source Table** from your external application that is not already mapped. The list of source tables is determined by the database you specify in the **Import Parameters** form.
2. Select the columns from the table that you want to map.
3. In the **Import Target Tables** form, select a Target Table. Only CloudSuite Industrial tables whose data can be modified are listed.
4. Select the columns from the table that you want to map.
5. On the **Import Steps** form, click the filter-in-place button.
6. Add a new record.
7. Select the **Source Table** you added in step 1 and the **Target Table** you added in step 3.
8. The next available sequence number is assigned. You can change this number; however, use extreme caution if you insert this sequence between two existing sequence numbers.

   Note: The sequence is extremely important and must be planned carefully to avoid problems with missing dependencies in the data.
9. The status is set to **`Not Started`**.

   See Changing the Data Transfer Status on page 22.
10. Optionally, specify a SQL "Where" clause in the **Source Filter** to use for filtering the source table data, as shown in the Filter Example below.
11. For the selected source and target tables, use the grid to select and map the source table columns to the target table columns. Only columns that are defined on the **Import Source Table** and **Import Target Table** forms are listed.
12. When all source columns are mapped, save your changes.

Note: Be aware of any differences in the allowed lengths in mapped columns. If a decimal value imported from the external application contains more decimal places than are allowed in the mapped column in the target database, the data is rounded by SQL Server default precision. If this rounding is not appropriate for this value, you must correct it in the target database after the final data transfer is complete.

Your external application has an OPERATION table that you are mapping to the CloudSuite Industrial job table. However, you only want to import operation records where the WORKORDER_TYPE value is M into the job table. In the sequence record where the OPERATION table is mapped to the job table, specify this in the **Source Filter** field: **`WORKORDER_TYPE="M"`**

Changing the Data Transfer Status

Initially, the status of a data transfer is shown on the **Import Steps** form as **`Not Started`**. The data from this step has not been processed in the **Import Data Transfer** form.

When this step has been processed in the **Import Data Transfer** form, its status changes to one of these values: In Progress, Preliminary Success, Preliminary Failed, or Final Failed.

When the data has been successfully moved from the source to the target during a final data transfer, the sequence is marked as Completed.

If you need to perform the final data transfer again for a step, change its status to **`Not Started`**.

Defining Import Rules

Import rules are used to transform data from the external application to a format that is appropriate in CloudSuite Industrial.

Table column rules can be created automatically or manually:

- Rules are created automatically when you perform a preliminary data transfer. The migration utility compares the source table column attributes such as length and data type with the target table column attributes. If the utility determines that the existing data cannot be moved into the target table column because of a mismatch in attributes, the utility tries to create a rule based on the properties of the Source and Target columns that allows it to move the data.

  These types of rules can be automatically created by the migration utility, as needed:

  - 1: Renew value. This rule is set when the existing value in the external application table column is not appropriate for the mapped CloudSuite Industrial table column's data type. A new value is created when the data is saved in CloudSuite Industrial. For this type of rule, the existing values from the source table/column are displayed in the **Import Table Column Rule Definition** form, and you specify replacement values for each existing value.
  - 2: Default value. This rule is set when the data in the external application table column is not required but data is required in the mapped CloudSuite Industrial table column. For this type of rule in the **Import Table Column Rule Definition** form, you specify a default value to use in the target table column when a value is not provided by the external application.
  - 3: Update references to modified data. This rule is used to update columns that reference data in another table. If the original value is changed, then all reference values can be changed to the new value. For example, an account number is used in multiple tables. When you update the account number in the acct table, the referenced table column's value is also updated if it is defined in this rule.
  - 4: Set up account number and unit codes. This rule is used to define the mappings to the CloudSuite Industrial account number and unit codes.

  During the preliminary data transfer, if a possible problem is discovered while mapping external application data into the target table, the table column is flagged and one of the three system import rules is assigned to rectify the offending data. You can see the new rule in the **Import Table Column Rule Definition** form. If the **System Default** flag is selected for a rule on the **Import Rule Definition** form, that rule was generated by the system during the preliminary data transfer.
- If the generated system rule does not solve the problem, repeating the data transfer will not be possible. In that case, you can create an additional import rule manually on the **Import Rule Definition** form, and then define the specific table columns that the rule applies to in the **Import Table Column Rule Definition** form. In order to support the transfer when you create a manual rule, you must also provide additional custom stored procedures to handle the new rule. Then

execute your stored procedures inside the specified block of the ApplyImportRuleSp stored procedure. Contact Infor Consulting Services to create new custom stored procedures to support the new rule.

In this example, the utility attempts to transfer data from Table A, Column A to the mapped Table B, Column B:

Source data (Column A)	Column A data type	Target data (Column B)	Column B data type	Transfer successful?
CO1	nvarchar(10)	CO1	nvarchar(5)	Yes
CO2	nvarchar(10)	CO2	nvarchar(5)	Yes
CO11111	nvarchar(10)		nvarchar(5)	No

Because it could not transfer all of the data from Column A to Column B, the transfer for this sequence fails and generates a rule of type 1. In the **Import Table Column Rule Definition** form, you then provide a replacement value that will work. In this example, you would rename the CO11111 value to something that is five characters or less. Ensure that no other record uses that value and that it is not a primary or unique key column.

Creating Manual Rules

If system default rules could not be generated or are not successful in allowing the data transfer, use the **Import Rule Definition** form to create additional import rules. Then apply those rules on the **Import Table Column Rule Definition**form.

Note: We strongly recommend that you contact Infor Consulting Services for assistance in creating additional rules and their underlying custom stored procedures.

1 For system default rules, these fields on the **Import Rule Definition** form are read-only. For manually created rules, you can specify this information:

Rule and Rule Description
Specify the rule number and a description for this rule.

System Default
This field is selected if the rule is system-generated.

Column
This field is used in the stored procedure to set up the column list, for example, charfld1-5, for the transformation rule.

Label
Specify the label string to display in the **Import Table Column Rule Definition** form. This string is used to display the label in different languages.

2 Save your changes.

3 Set values for instances of the new rules, as described in the Applying Import Rules to Table Column Transformations topic.

Automatically Generating Table Column Rules

1. On the **Import Data Transfer** form, specify the starting and ending sequence numbers for the tables you want to load.
2. Select **Preliminary Data Transfer** and click **Process**.
3. Review the log. If the data transfer was not successful, new rules have been generated.
4. In the **Import Table Column Rule Definition** form, you can view any table column rules that were generated automatically for a particular table-column mapping during the preliminary data transfer. Modify the target table values.

   See Applying Import Rules to Table Column Transformations on page 27.

Applying Import Rules to Table Column Transformations

After the preliminary data transfer completes, the grid of the **Import Table Column Rule Definition** form is populated with the external application and CloudSuite Industrial values for the table columns that were flagged. The CloudSuite Industrial value is determined in part by the rule that is assigned. You can review and change the data transformations in this form before you rerun the preliminary data transfer and, when that completes successfully, the final data transfer.

1 Use the **Import Table Column Rule Definition** form to determine the columns where each import rule is applied. New rules can be automatically generated during the preliminary data transfer. View or specify this information:

Source Table
Specify the table name in the external application database. The mapping of this table to the target table must be defined in the **Import Steps** form.

Source Column
Specify the column name of the table in the external application database.

Seq
For new rules, specify the sequence used to generate the rules for the table column. `-1` indicates a system-generated rule that cannot be edited.

Rule
Specify the rule to apply to this column in order to transform the data. The rule must be defined on the **Import Rule Definition** form.

Target Table
The target table that is mapped to the source table is displayed. The mapping is defined on the **Import Steps** form.

Target Column
The target table column that is mapped to the source column is displayed. The mapping is defined on the **Import Steps** form.

Data Type
The data type of the mapped target column is displayed. If more than one mapped target column is found, the data type of the first one that is found is displayed.

Precision
If the target column's data type is numeric, the target column precision is displayed. The precision value is the total number of digits that can be stored. For decimal numbers, this includes the digits both to the left and to the right of the decimal point, for example 1.2345 has a precision of 5.

Length
If the target column's data type is non-numeric, such as char or nvarchar, the target column length is displayed.

Decimals
If the target column's data type is Decimal, the number of decimal digits that are stored to the right of the decimal point is displayed.

Nullable
This field indicates whether the column accepts null values.

[Detail grid]
The data values for the rule are displayed and the target values can be edited.

2 Save your changes and rerun the preliminary data transfer.

Reviewing Inventory Balances

The item, warehouse, and location quantity on-hand values from the source system are imported into CloudSuite Industrial through miscellaneous issues or miscellaneous receipts, using the default reason codes and the settings that are specified in the **Import Parameters** form.

This allows the corresponding material transactions and journal entries to be created in CloudSuite Industrial. The corresponding costing, lot and serial data for the items is also created.

After the source data is imported through the preliminary data transfer, you can use the **Import Inventory Balances** form to review and correct this item data as it will appear in CloudSuite Industrial. Do this before you run the final transfer.

1. On the **Import Parameters** form, ensure that a **Miscellaneous Receipt Reason Code** and a **Miscellaneous Issue Reason Code** are specified. These codes are applied to all receipt or issue transactions.
2. On the **Import Data Transfer**form, perform the preliminary data transfer of source tables that contain item, warehouse, and location on-hand quantities.
3. On the **Import Inventory Balances** form, review these values for each of the listed items:
   - Item number, description and unit of measure
   - Warehouse and location where the item will be placed, and the quantity on-hand in that location
   - Lot or serial number of the item
   - Material, labor, fixed overhead, variable overhead, and outside cost of the item
   - Unit cost of the item
   - Inventory account used for the item
4. Save any changes.

At this point, you can perform the final data transfer on the **Import Data Transfer**form.

Note: Because the journal entries created through these processes already exist in the source system, these accounts should not be included in the beginning balances. An Opening Balance account ensures that accounts are balanced after all data has been migrated. Also, the inventory balances that are migrated into CloudSuite Industrial already contain the changes caused by the issue or receipt of items for released jobs.

Reviewing Job Material Transactions

If released jobs are imported from the source system into CloudSuite Industrial, the material issue transactions must be re-created in CloudSuite Industrial, so that the correct material transactions, journal entries and supporting data such as WIP are also created.

After the source data is imported through the preliminary data transfer, you can review and correct this job data as it will appear in CloudSuite Industrial. Do this before you run the final transfer.

1. On the **Import Parameters** form, ensure that a **Miscellaneous Receipt Reason Code** and a **Miscellaneous Issue Reason Code** are specified. These codes are applied to all receipt or issue transactions.
2. On the **Import Data Transfer** form, perform the preliminary data transfer of source tables that contain data that will be used to add job material issue transactions.
3. On the **Import Job Material Transactions** form, review these values for each of the listed items:
   - Transaction date
   - Job and job suffix to which the material is issued
   - Job operation and sequence number for the material
   - Item number, description, and unit of measure of the material that is issued
   - Quantity issued
   - Lot from which the item is issued
   - Serial number that is issued for the item
   - Warehouse and location from which the item is issued
   - Material, labor, fixed and variable overhead, and outside cost of the item
   - Cost of the item, which is the sum of the above costs
   - Planned material cost
   - If the material is a non-inventory item, the account associated with the item, and the unit codes for that account
4. Save any changes.

At this point, you can perform the final data transfer on the **Import Data Transfer** form.

Generating the Data Assessment Report

Use the Data Assessment Report to assess the mapping of the external application database table to the target database table. This report actually shows the mapping of the source Data Load table to the target Data Load table. One report is generated for each mapped table, and each report is one worksheet in the spreadsheet. The report is saved under a file name that uses this format:

[Task_Number][Source_Table_Name][Target_Table_Name][DateTime].csv

For example, a typical file name is 1001_PART_item_201407120212.csv.

The first and second rows of the report display the source and target columns, respectively. The other rows show the data that is to be transferred.

To generate this report:

1. Set up source and target table mappings on the **Import Steps** form. Include the sequence numbers for loading the tables.
2. On the **Import Data Transfer** form, specify the starting and ending sequence numbers for the tables you want to transfer.

   The source and target tables for each selected sequence are displayed in the grid.
3. Select **Generate Data Assessment Report**.
4. Select **Preliminary Data Transfer**.
5. Click **Process**. You are prompted to open the report folder, where you can view the report.

The .CSV file is placed in the folder path that is specified in the **Import Parameters** form.

Performing the Preliminary Data Transfer

Use this process to test the transfer and determine what additional rules need to be created to move the data from the source table into the target table. During the preliminary transfer, the source table column properties such as length and data type are compared to the properties in the target table column. If the data cannot be moved from source to target due to incompatible properties, the system tries to create a rule for the column transfer, based on the available system rules. These rules show how the source data must be transformed in order to be accepted in the target database. You must update the values in the **Import Table Column Rules Definition** form for the newly applied rules, and then rerun the preliminary data transfer to apply the rule. Continue this until no errors are encountered.

In the preliminary data transfer, no data is moved to the target table.

To perform the preliminary data transfer:

1. In the **Import Data Transfer** form, select the starting and ending sequence numbers of the tables you want to transfer. The sequence numbers are defined on the **Import Steps** form.

   Note: You can specify a range of tables. However, we strongly recommend that you transfer one sequence at a time.
2. Select **Generate Data Assessment Report** to generate a report for data validation. Send this report to the appropriate department for validation.
3. Specify the **On Error** setting:
   - **`Stop`**: If multiple sequences are imported at one time and an error occurs, the utility stops the import at the sequence that encountered an error.
   - **`Continue`**: If multiple sequences are imported at one time and an error occurs, the utility tries to import the later sequences.

   In either case, the Final Data Transfer option is disabled until all of the specified sequences are imported successfully.
4. Select **Preliminary Data Transfer**.
5. Click **Process**.

   The prompt Task Submitted is displayed, and you are prompted to open the report folder and view the Data Assessment Report.
6. Check the Log tab during processing for messages. Processing might take several minutes to complete.
7. After correcting all errors, rerun the Preliminary Data Transfer until all mapped columns have a status of Preliminary Success.
8. After the preliminary data transfer is completed successfully, you can run the final data transfer.

Performing the Final Data Transfer

The **Final Data Transfer** option is disabled for a sequence until the preliminary data transfer runs without errors.

To perform the final transfer of data from the source table to the target table:

1. In the **Import Data Transfer** form, select the starting and ending sequences of the tables you want to import. The sequence numbers are defined on the **Import Steps** form.

   Note: You can specify a range of tables. However, we strongly recommend that you transfer one table at a time.
2. Use the **On Error** field to specify whether to stop or continue if an error occurs.
3. Select **Final Data Transfer**.
4. Click **Process**.

   Any errors that are raised here are related to business requirements, so each error should be carefully handled. If some data was missed in attempting to transfer the current table data, you must add a new mapping or create a new rule. If you see the error message **`Data is invalid`**, check for problems.

   See Troubleshooting the Data Transfer on page 36.
5. After all errors in the final data transfer of a sequence are resolved, reset the status for that sequence in the **Import Steps** form to **Not Started**. Then rerun the preliminary data transfer and the final data transfer for the sequence.
6. After the final data transfer completes successfully, verify that all of the data was correctly transferred into the target database. If some data did not transfer as you expected, analyze the mapping and related functions that were performed in database triggers. Determine any additional configuration or processes that must be performed to complete the migration.
7. After all sequences have been successfully transferred and verified, perform a backup of the existing database.

Analyzing the Data Transfer Log

When you perform either a **Preliminary Data Transfer** or a **Final Data Transfer** on the **Import Data Transfer** form, the Log tab contains the transfer status and details about the transfer, as well as messages that are generated during processing.

1. Select **View History** to see details of previous transfers.
2. Click the grid and then click the refresh button on the tool bar to display the most recent information.
3. View the records for the selected sequences to check the transfer status and look for errors. If the status is Failed, select the sequence in the log to display the related error messages in the Error grid.

   The log includes this information:

   Task Number
   Number of the background task from the **Background Task History** form that was used to run the utility.

   Seq
   Sequence number from the **Import Steps** form.

   Source Table
   Table name in the source database.

   Target Table
   Table name in the target database.

   Status
   One of these values:
   - Not Started: The data transfer has not been performed for the current step.
   - In Progress: Data is transferring from the source to the target.
   - Failed: The data transfer failed.
   - Success: The data transfer succeeded.

   Percentage
   Percentage of records that were successfully migrated. This value is calculated as number of records transferred / number of records processed x 100.

   Transfer Type
   One of these values:
   - Preliminary indicates preliminary data transfer.
   - Final indicates final data transfer.

User Name
User who performed the utility transaction.

Source
Total number of records in the source table.

Target
Total number of records in the target table.

Processed
Number of records that were processed.

Transferred
Number of records that were successfully transferred into the target table.

Error
Number of records that encountered errors. The grid at the bottom of the form includes this information about the errors that occurred for a selected sequence in the Log:

Line
Line number in the grid.

Source Column
Column name in the source table where the error occurred.

Target Column
Column name in the target database where the error occurred..

Error Message
Message that indicates the transfer detail of the current table import transaction. During final data transfer, if you see the error message **`Data is invalid`**, refer to the Troubleshooting the Data Transfer topic in the list below.

4 Select a row from the Error grid and click **Table Column Rule Definition** to open the **Import Table Column Rule Definition** form, filtered on the table for the selected error.

Troubleshooting the Data Transfer

Use these procedures to correct problems that occur during the data transfer.

1 Correct values that were entered with an import table column rule.

If a rule was used in the **Import Table Column Rule Definition** form to enter incorrect values for a sequence, and the Preliminary Data Transfer has been successfully run for that sequence, then the incorrect values have been applied to the Source Data Load table. To recover the source table data and run the transfer again:

a Delete the transferred data in the appropriate target table, if partial data was transferred.

b Run this script against the source database to reload the data into the Source Data Load table. Set @SourceObjectName to the appropriate source table.

```
DECLARE @return_value int,
  @Infobar InfobarType
EXEC @return_value = [dbo].[FetchSingleSourceTableDataSp]
  @isTruncateTable = 1,
  @BGTaskID = NULL,
  @SourceObjectName = '', --Set your source table name
  @Infobar = @Infobar OUTPUT
SELECT @Infobar as N'@Infobar'
SELECT 'Return Value' = @return_value
GO
```

c Correct the data for the rule and sequence in the **Table Column Rule Definition** form.

d Clear the **Source Data Imported** field in the **Import Parameters** form.

e Run the preliminary data transfer again for that sequence in the **Import Data Transfer** form.

2 Find and correct invalid data during final data transfer.

If the final data transfer fails and the **`Data is invalid`** error message is displayed, this usually indicates that the business logic validation in the target application found invalid data. For example, if you are transferring item data to the target table, and an item from the source database has a product code that is not defined in the target application, the transfer fails and this message is displayed. You must find and correct the data in the Target Data Load table in order to successfully complete the final data transfer.

Use this SQL query statement to find the invalid data:

```
SELECT *
FROM TargetDL_[target-table-name]Load
WHERE ErrCode <> 0
```

For example, if the error occurred during final data transfer into the item table, use this query:

```
SELECT *
FROM TargetDL_itemLoad
WHERE ErrCode <> 0
```

After you find the list of columns where data is invalid, you must modify the data in the TargetDL_[*target-table-name*]Load table. Then clear the **Source Data Imported** field in the **Import Parameters** form and run the **Final Data Transfer** again.

Caution: In this case, you must run the Final Data Transfer, not the Preliminary Data Transfer. If you run the Preliminary Data Transfer, the TargetDL_[target table name]Load data is deleted and your modifications are lost.

Handling Transfer Errors

1. On the **Import Data Transfers** form, select a row from the Error grid.
2. Click **Table Column Rule Definition** to open the **Import Table Column Rule Definition** form, filtered on the table for the selected error.
   - If the error message states that new rules were created, use the **Import Table Column Rule Definition** form to view the new rules and verify that they will handle the problem correctly. Provide appropriate default or replacement values to be used with the rules.
   - If the error message states that a new rule could not be created for the sequence, look at the rules that were generated in the **Import Table Column Rule Definition** form for the specified tables. Create an appropriate rule type and/or set values that allow the rule to correct the problem.
   - If you have the appropriate SQL permissions, look at the Data Load tables to see where the data transfer stopped. Otherwise, contact Infor Support for assistance.

Copying the Table to a New Site

After the migration is completed and the results are verified as correct, the final step is to copy the new data in the CloudSuite Industrial migration database to the production database. The steps to copy a site are described in the *Multi-Site Implementation Guide*. The method described there produces a clean database without the migration work data.

If additional databases from the application are to be migrated, change the **Import Parameters** settings to point to the other database and repeat all the steps in the Migrating External Data to CloudSuite Industrial topic.

Example Migration: VISUAL

A sample migration procedure is described in the *CloudSuite Industrial Infor VISUAL Migration Example*, available on the Infor Support Portal site.

This sample migration process applies to a specific version of Infor VISUAL and CloudSuite Industrial. The migration is not intended to bring all data from VISUAL into CloudSuite Industrial; it migrates only data that is pertinent to continue business operations in CloudSuite Industrial.

Data Transfer Overview

The data transfer is handled through background tasks. As each sequence is processed, a background task is created that moves the data from the external application database into the target database, validates the data, applies any import rules, and logs any problems that were encountered.

Use the preliminary data transfer process to test and correct the mapping of data.

See Performing the Preliminary Data Transfer on page 32.

Then use the final data transfer process to actually transfer the data from the external application database to the target database.

See Performing the Final Data Transfer on page 33.