

Cleo Integration Cloud™ | Clarify

Chapter	Transforming single-format flat files
Overview	This topic demonstrates how to transform a delimited flat file to a fixed-length flat file. Both are single-format.
Contents	Scenario _____ 2 Resources _____ 3 Project: com.training.demo01.singlefftoff _____ 4 File Adapter: ReadCsvFA _____ 5 File Adapter: WriteTxtFA _____ 8 Schema: DelimitedFF _____ 9 Schema: FixedFF _____ 14 Transformation Settings: CommaDelimitedSourceTS _____ 16 Code Table: ColorToCodeCT _____ 17 Ruleset: DelimitedFfToFixedFfRS _____ 19 Business Process: DelimitedFfToFixedFfBPS _____ 27 Deploy, Launch, Audit _____ 33

Scenario

The source data is read from a CSV file with five pieces of comma-delimited data.

Those pieces (or, fields) are **FirstName**, **LastName**, **Quantity**, **Color**, and **UnitPrice**.

The source data is represented here.

```
Adam, Douglass, 15, green, 1.5  
Becky, Earnhardt, 6, yellow, 2  
Chris, Franklin, 20, purple, 4.5
```

The target data is written to a TXT file with four fixed-length fields:

FullName, **TotalPrice**, **ColorCode**, and **Units**.

Accepted one-character color code values are **O** (orange), **R** (red), **B** (blue), **G** (green), and **Y** (yellow).

All other color values are to be a **Z**.

So, the target data must appear as here.

```
Adam Douglass  
0022.50G00015  
Becky Earnhardt  
0012.00Y00006  
Chris Franklin  
0090.00Z00020
```

Some obvious differences between the two formats are:

- the source data has the first name and the last name in separate fields, while the target data has one field that combines those elements
- the total price is indicated in the target data, although the source data does not offer that amount
- the source data spells out the color, while the target data requires a one-character code

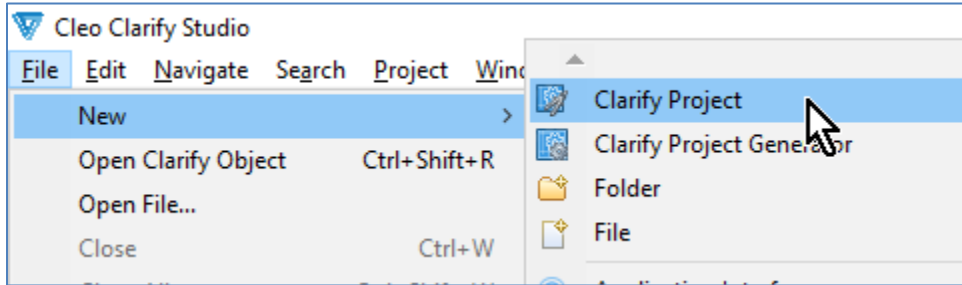
Resources

The resources needed to accomplish this transformation are meant to provide a basic understanding of how Clarify objects work together. All resources are created and defined on the *Clarify Workbench / Project Explorer*.

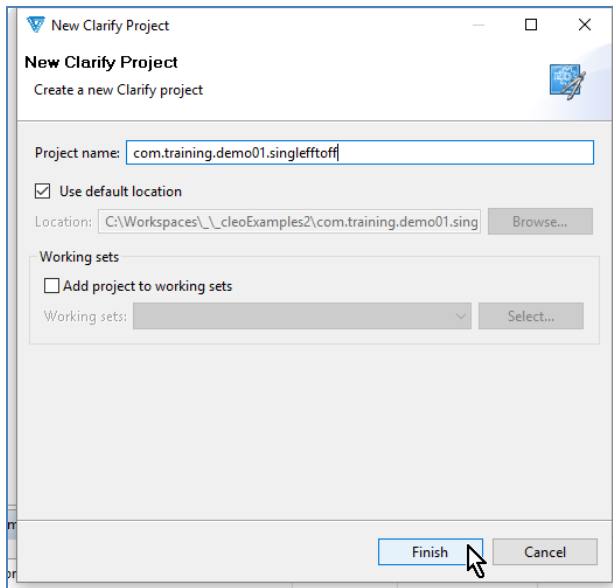
- Project [**com.training.demo01.singlefftoff**] – A Project is a directory within the Workspace.
 - Package [**com.training.demo01.singlefftoff**] – A Package is a directory within a Project.
 - File Adapter [**ReadCsvFA**] – This File Adapter brings the source data to Clarify.
 - File Adapter [**WriteTxtFA**] – This File Adapter sends the target data out of Clarify.
 - Flat File Schema [**DelimitedFF**] – This Schema describes the delimited flat file data.
 - Flat File Schema [**FixedFF**] – This Schema describes the fixed-length flat file data.
 - Transformation Settings [**CommaDelimitedSourceTS**] – This Transformation Settings object informs the Business Process of the delimiter to use when reading the source file. No delimiter is necessary for writing the target file, as it has a fixed-length format.
 - Code Table [**ColorToCodeCT**] – This Code Table converts the source data’s full-word color names to single-character codes. It also designates a value to return if a value in the source data is not found in the Code Table.
 - Ruleset [**DelimitedFfToFixedFfRS**] – This Ruleset transforms the data from the source format to the target format.
 - Business Process [**DelimitedFfToFixedFfBPS**] – This Business Process sequences three user-defined objects to read the source data, transform it to the target format, and write that out to a file on the local file system.
-
-
-
-

Project: com.training.demo01.singlefftoff

Select *File* | *New* | *Clarify Project*.



Type the name for the Project (**com.training.demo01.singlefftoff**) in the *Project name* field.



Click **Finish**.

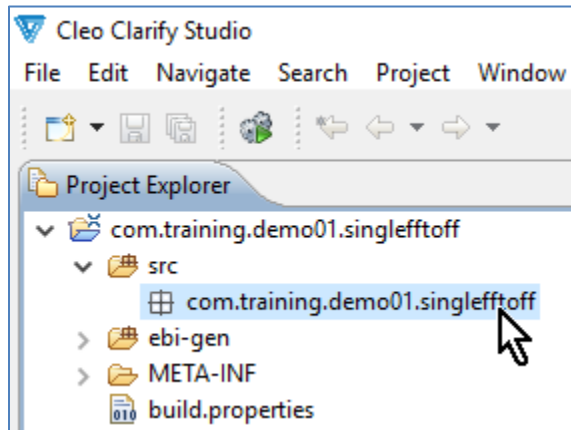


When a Project is created, so too is a Package named the same as the Project.

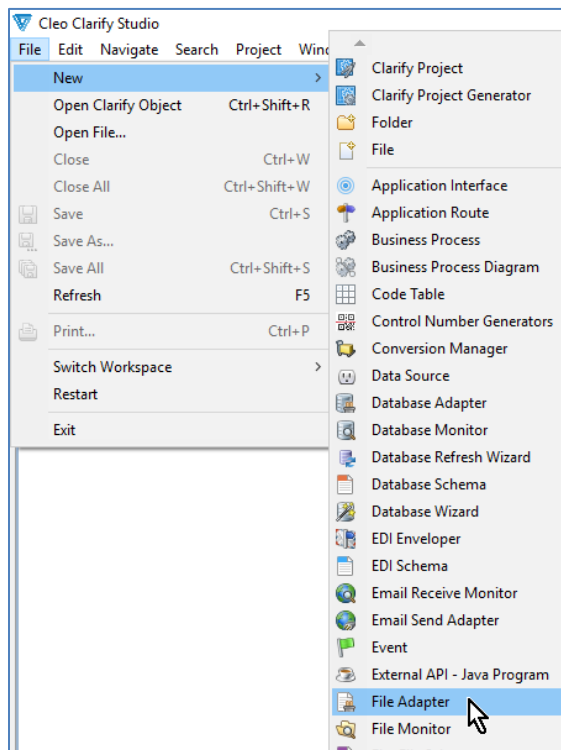
All resources for this Project are created in its *com.training.demo01.singlefftoff* Package.

File Adapter: ReadCsvFA

Select the Package.

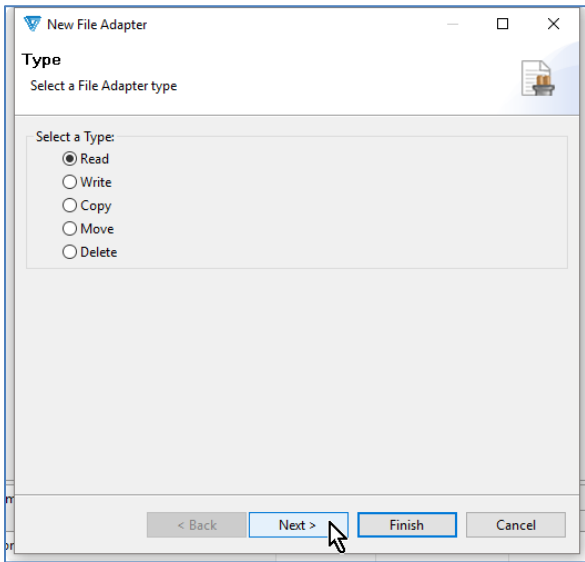


Select *File* / *New* / *File Adapter*.



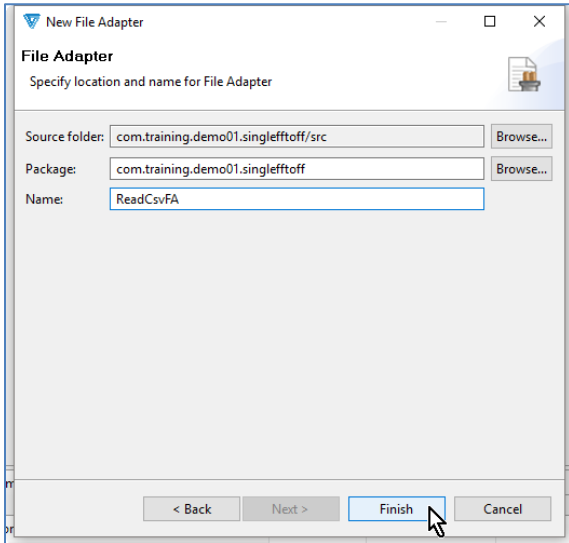
Choose *Read*.

Click **Next**.



Type **ReadCsvFA** in the *Name* field.

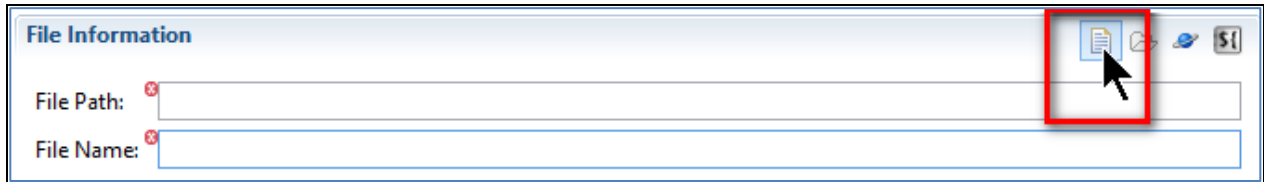
Click **Finish**.



The object is created, and its editor appears.

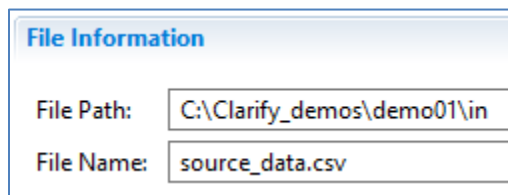
Click in the *File Name* field.

Click the **Open** button.



Locate/select the *source_data.csv* file in the *C:\Clarify_demos\demo01\in* folder and click **Open**.

The *File Path* and *File Name* fields reflect this selection.



Save the object and close the editor.

File Adapter: WriteTxtFA

Select the Package.

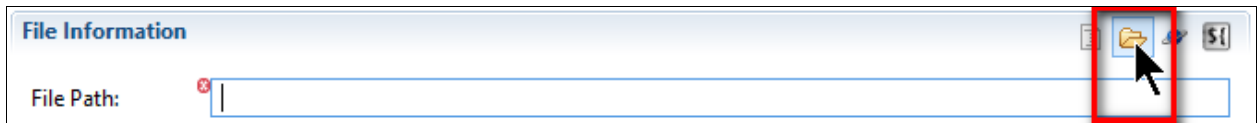
Select *File* / *New* / *File Adapter*.

Choose *Write* and click **Next**.

Type **WriteTxtFA** in the *Name* field and click **Finish**.

The object is created, and its editor appears.

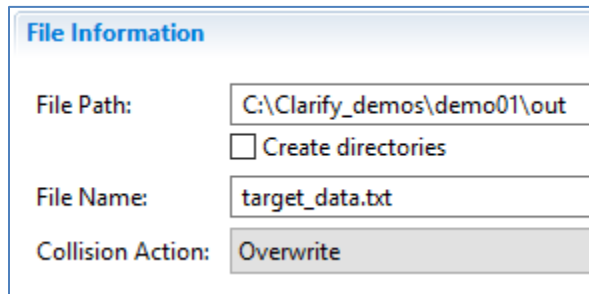
Click in the *File Path* field, and then click the **Browse For Folder** button.



Locate/select the *C:\Clarify_demos\demo01\out* folder and click **OK**.

The *File Path* field reflects this selection.

Type **target_data.txt** in the *File name* field.



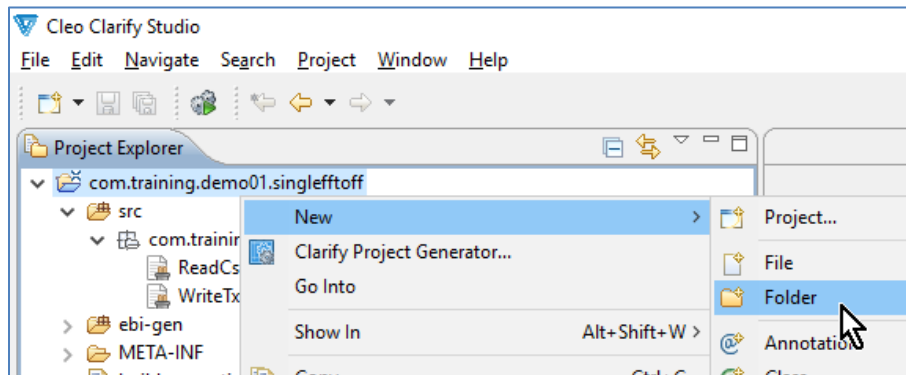
Save the object and close the editor.

Schema: DelimitedFF

To create a Schema from a sample file, the sample must reside in the Project.

Bring the sample file to Clarify

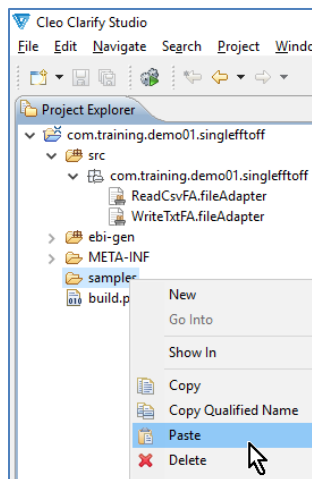
Right-click the Project and select *New | Folder*.



Type **samples** in the *Folder name* field and click **Finish**.

Using your system's file explorer tool, copy the *source_data.csv* file in the *C:\Clarify_demos\demo01\in* folder.

Right-click the Project's *samples* folder and select *Paste*.



Create the Schema

Select the Package.

Select *File | New | Flat File Schema*.

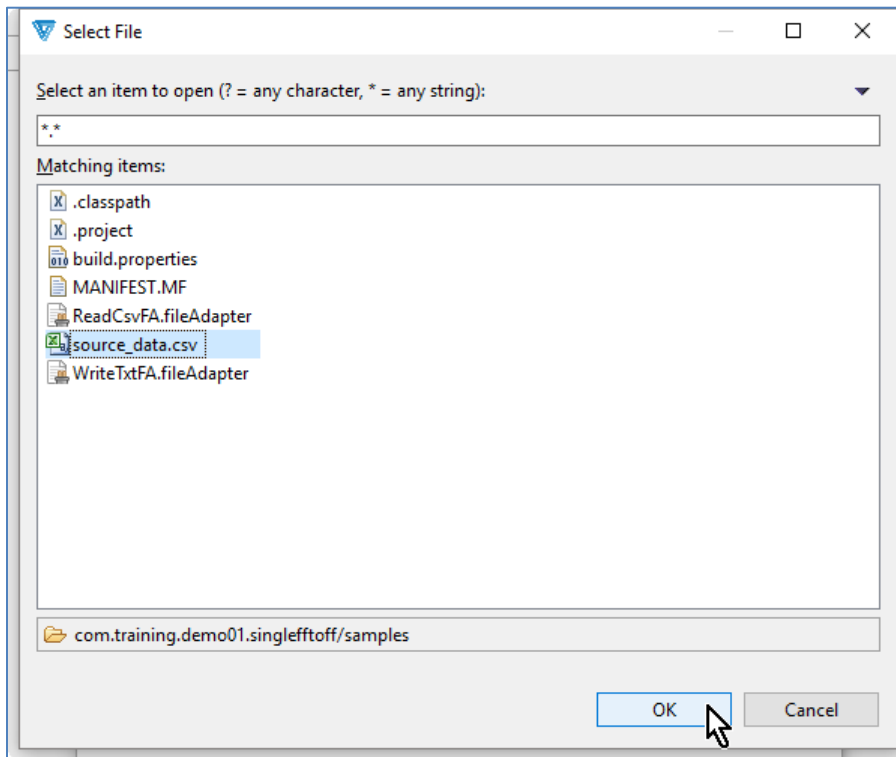
A wizard assists with creating and defining this object.

The *Create* panel allows for using a sample flat file or creating an empty Schema.

Choose *Create From Sample* and click **Next**.

The *Create From Sample* panel allows for selecting the flat file to use.

Click **Browse**, select the *source_data.csv* file, and click **OK**.



Click **Next**.

The *Fixed Length or Delimited* panel allows for changing the detected *Flat File Type* and *Delimited Settings*.

As Clarify has correctly determined that this file is comma-delimited, no changes are necessary.

New Flat File Schema

Fixed Length or Delimited
Indicate if this flat file is fixed length or delimited

Flat File Type
 Fixed Length
 Delimited

Delimited Settings
 Delimiter: <
 Escape Wrap Character:

Field1	Field2	Fi...	Field4	Fiel...
Adam	Douglass	15	green	1.5
Becky	Earnhardt	6	yellow	2
Chris	Franklin	20	purple	4.5

Click **Next**.

The *Record ID* panel allows for indicating this Schema as multi-format and, if so, which column serves as the record ID.

This is not a multi-format Schema.

New Flat File Schema

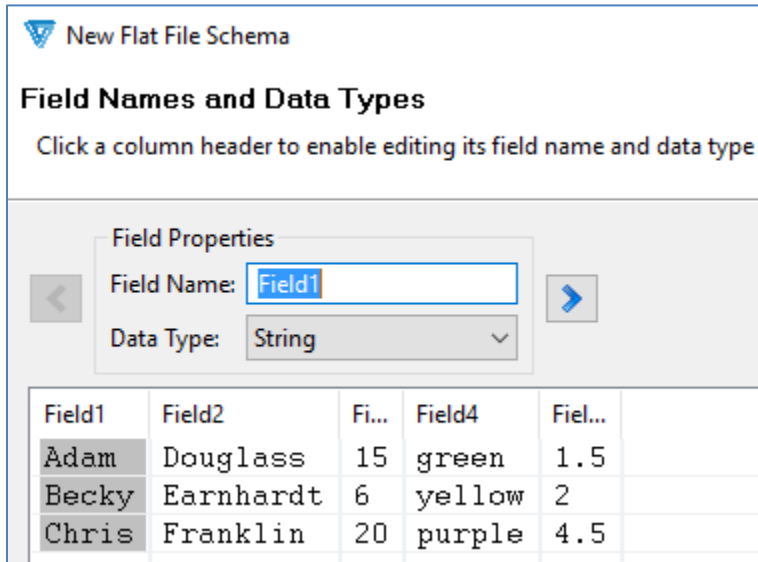
Record ID
Check and select the Record ID if this flat file is multiformatted

Record ID
 MultiFormatted Flat File
 Record ID:

Field1	Field2	Fi...	Field4	Fiel...
Adam	Douglass	15	green	1.5
Becky	Earnhardt	6	yellow	2
Chris	Franklin	20	purple	4.5

Click **Next**.

The *Field Names and Data Types* panel allows for changing field names from the default values (*Field1*, *Field2*, etc.).



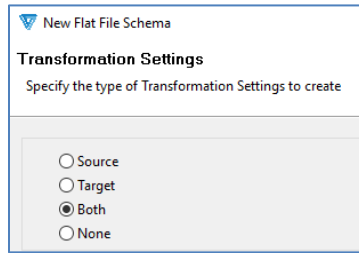
One at a time, select each of the five column headers and change the *Field Name* values as indicated below. Clarify properly determines the data type for each field, so there is no need to change that value.

You may click the **Next Field** button to advance through the fields.

Default	Field Name	Data Type
Field1	FirstName	String
Field2	LastName	String
Field3	Quantity	Integer
Field4	Color	String
Field5	UnitPrice	Decimal

Click **Next**.

The *Transformation Settings* panel allows for automatic creation at this time of the Transformation Settings object.



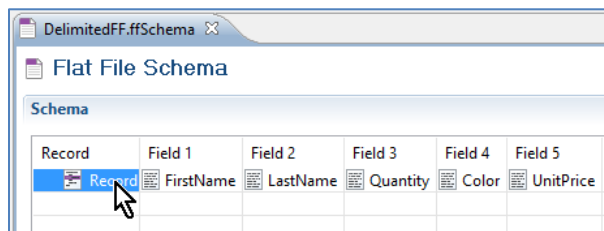
Choose *None* (as we'll create it manually later) and click **Next**.

The *Flat File Schema* panel allows for specifying the object's location and name.

Type **DelimitedFF** in the *Name* field and click **Finish**.

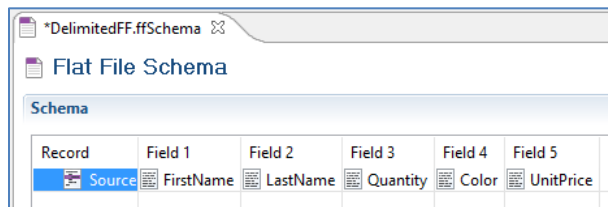
The object is created, and its editor appears.

Click the *Record* node.



In the *Properties* view's *Properties* tab, click in the *Name* field, type **Source**, and click **OK**.

The editor displays the new name for the node.



Save the object and close the editor.

Schema: FixedFF

Select the Package.

Select *File | New | Flat File Schema*. A wizard assists with creating and defining this object.

The *Create* panel allows for using a sample flat file or creating an empty Schema.

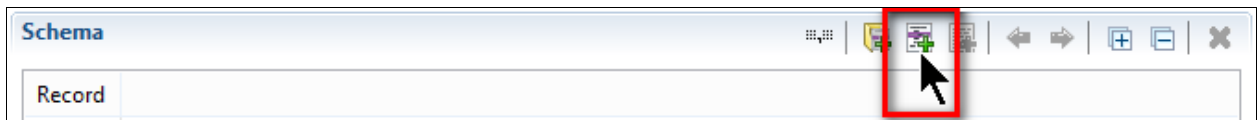
Choose *Create Empty* and click **Next**.

The *Flat File Schema* panel allows for specifying the object's location and name.

Type **FixedFF** in the *Name* field and click **Finish**.

The object is created, and its editor appears.

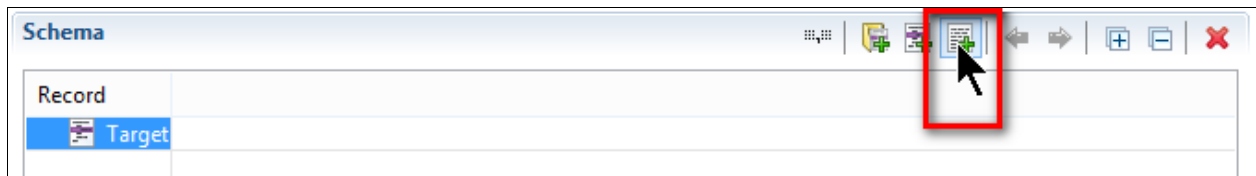
Click the **Add Record** button.



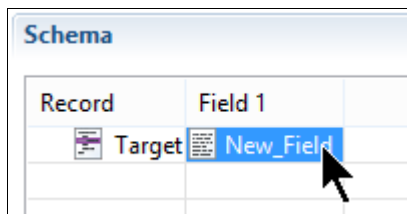
In the *Properties view's Properties* tab, click in the *Name* field, type **Target**, and click **OK**.

Four fields must be added to this record.

Select the *Target* node and click the **Add Field** button.



A new column appears. Its header (*Field 1*) indicates the sequence of the fields in the Schema. Select its *New_Field* entry.

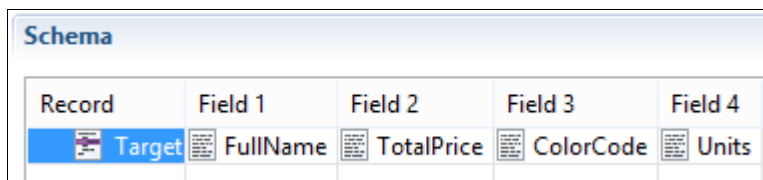


In the *Properties* view, replace the value in the *Name* field, indicate the *Length*, and specify the *Type*.

Repeat until all four fields are created and defined, as indicated here. Select the *Target* node and click the **Add Field** button each time.

Name	Length	Type
FullName	20	String
TotalPrice	7	Decimal
ColorCode	1	String
Units	5	Integer

Click the *Target* node to refresh the display.



Save the object and close the editor.

Transformation Settings: CommaDelimitedSourceTS

Select the Package.

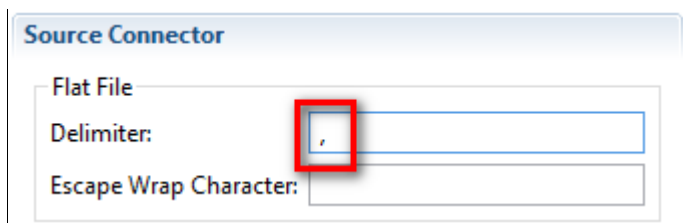
Select *File* / *New* / *Transformation Settings*.

Type **CommaDelimitedSourceTS** in the *Name* field.

Click **Finish**.

The object is created, and its editor appears.

Type a comma in the *Delimiter* field of the *Source Connector* section.



Save the object and close the editor.

Code Table: ColorToCodeCT

Select the Package.

Select *File | New | Code Table*.

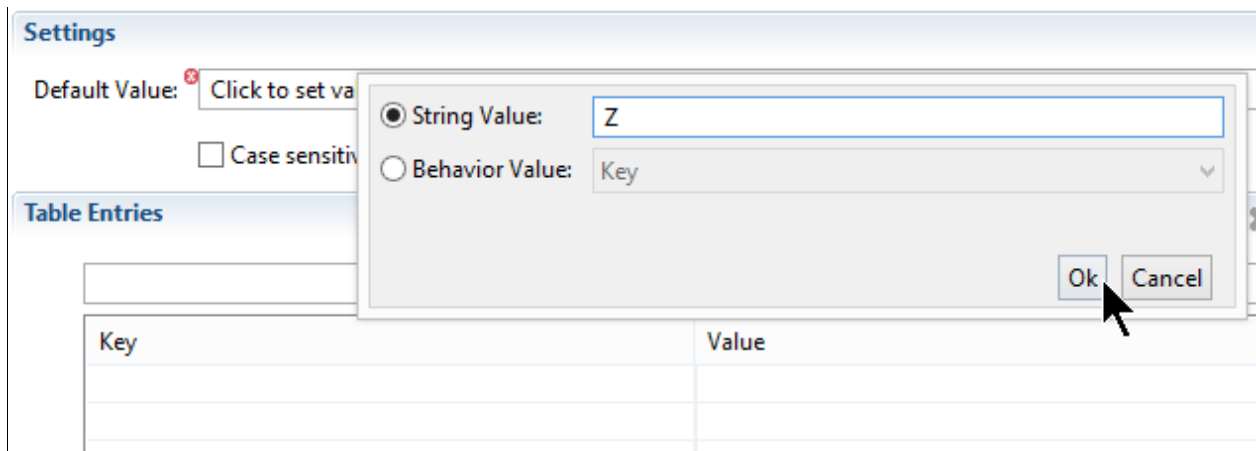
Choose *Single Input Code Table* and click **Next**.

Type **ColorToCodeCT** in the *Name* field.

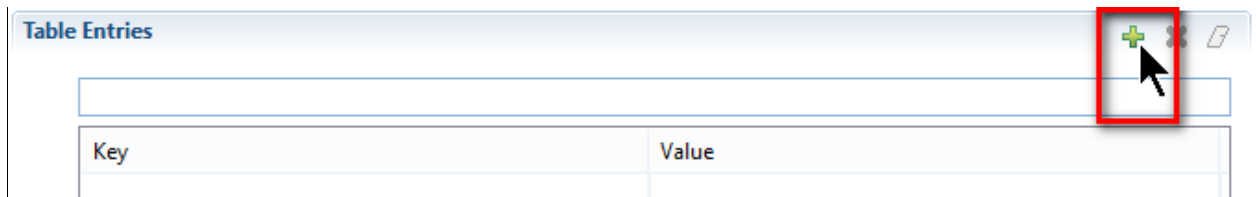
Click **Finish**.

The object is created, and its editor appears.

Click in the *Default Value* field, choose *String Value*, type **Z** in the associated field, and click **Ok**.



Click the **Add** button in the *Table Entries* section five times, once for each of the five codes needed.



One at a time, starting at the top, click each line's *key* value.

Table Entries	
Key	Value
key	Click to set value...
key	Click to set value...
key	Click to set value...
key	Click to set value...
key	Click to set value...
key	Click to set value...

Replace it with the source data's full-word name, click in that line's *Value* column, choose *String Value*, type the corresponding single-character code (as indicated below), and click **Ok**.

Word	Code
orange	O
red	R
blue	B
green	G
yellow	Y

Table Entries	
Key	Value
orange	"O"
red	"R"
blue	"B"
green	"G"
yellow	"Y"

Save the object and close the editor.

Ruleset: DelimitedFfToFixedFfRS

Select the Package.

Select *File | New | Ruleset*.

Type **DelimitedFfToFixedFfRS** in the *Name* field.

Click **Next**. A wizard assists with defining this object.

The *Schema Types* panel allows for selecting both the source and target Schemas.

Choose *Flat File* for each, and then click **Next**.

The *Source Schema* panel allows for selecting an existing Schema.

Click **Browse**, select *DelimitedFF*, and click **OK**. Click **Next**.

The *Target Schema* panel allows for selecting an existing Schema.

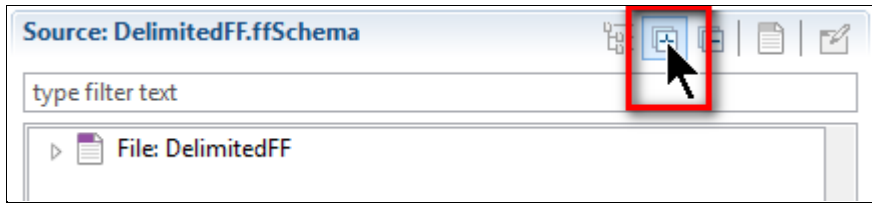
Click **Browse**, select *FixedFF*, and click **OK**.

Accept **Version 2** for the *Ruleset Version*.

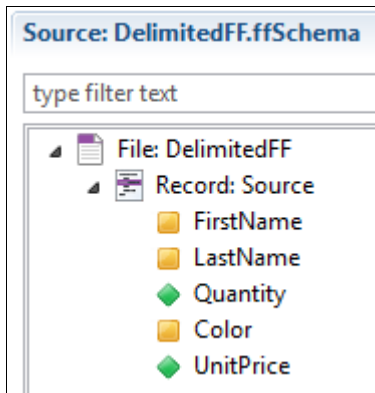
Click **Finish**.

The object is created, and its editor appears.

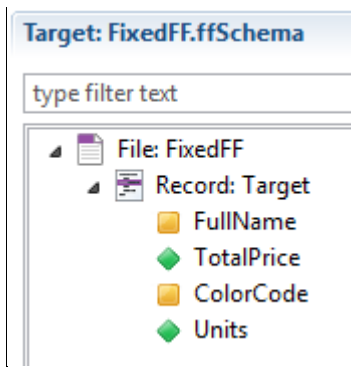
Click the **Expand All** button in the *Source* section.



All nodes of the Schema are displayed.



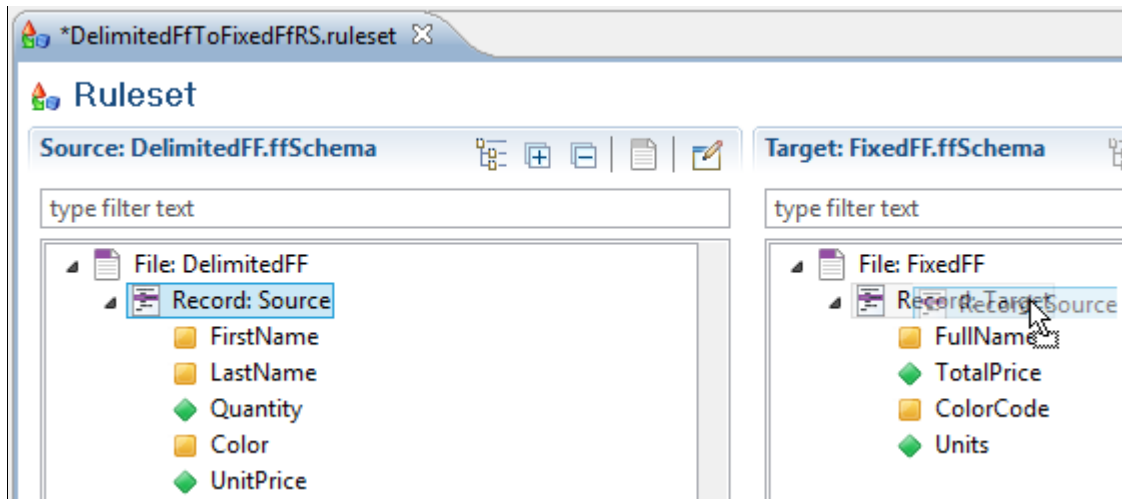
Click the **Expand All** button in the *Target* section to display all of its nodes.



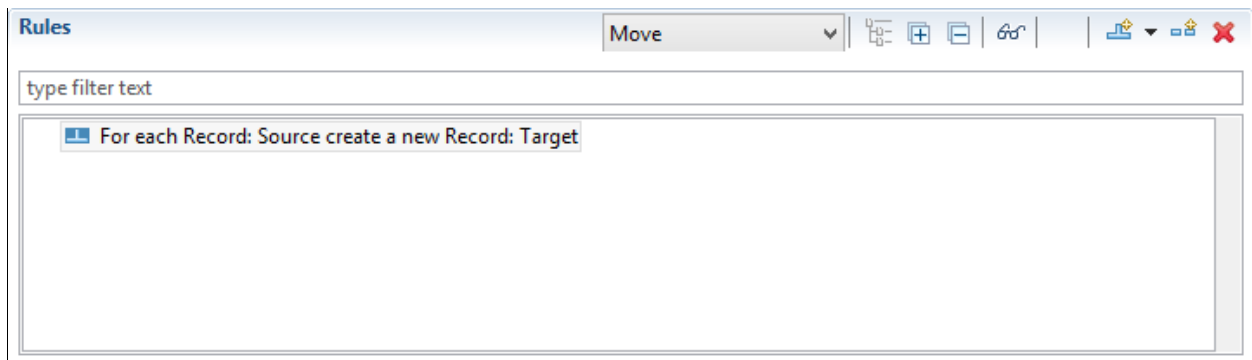
This Ruleset requires one Composite Rule and four Simple Rules. Simple Rules that merely move a source node to a target node (as is the case with the first Simple Rule) may be both created and defined via drag-and-drop. This Ruleset's remaining three Simple Rules, however, require separate create and define steps.

Composite Rule: Drag-and-drop to relate the Source and Target records

Drag the source's *Record: Source* node and drop it on the target's *Record: Target* node.



This Composite Rule, displayed in the *Rules* section, relates the source and target Schemas at the record levels.



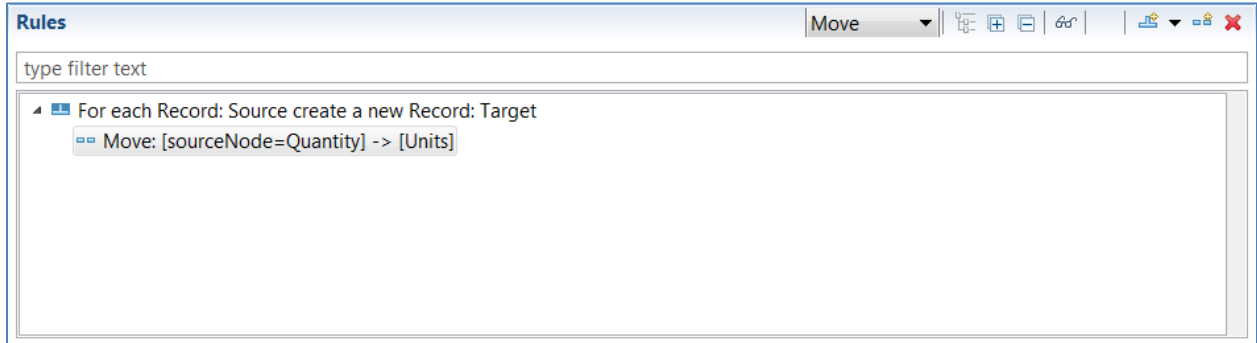
Ensure that this Composite Rule is selected before creating each of its child Simple Rules.

Rule 1: Drag-and-drop

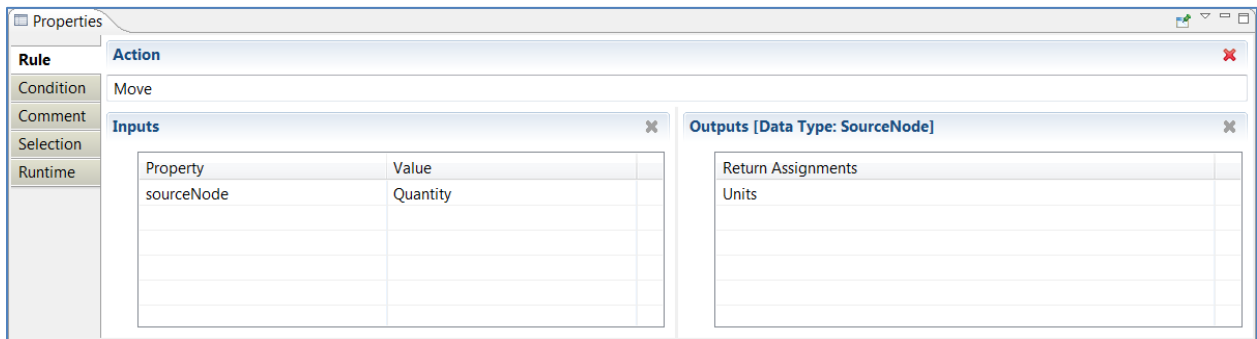
This Simple Rule associates the respective Schema nodes that indicate the number of items ordered.

To create and define this rule, drag the source's *Quantity* node to the target's *Units* node.

The rule appears in the *Rules* section.



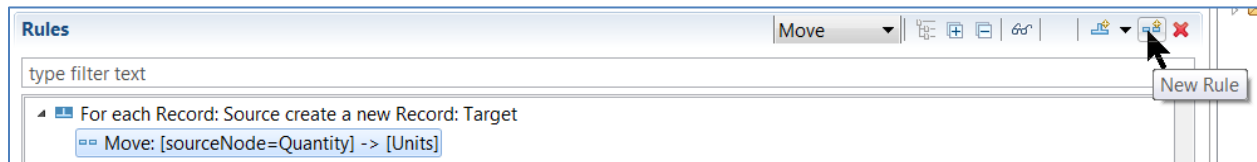
The *Properties* view's *Rule* tab displays this rule's *Inputs* and *Outputs* values.



Rule 2: Click the New Rule button

The target Schema has only one node for name, while the source Schema has two name nodes. This difference is addressed by stringing together the source's *FirstName* and *LastName* nodes (with a space between) and moving that resulting string to the target's *FullName* node.

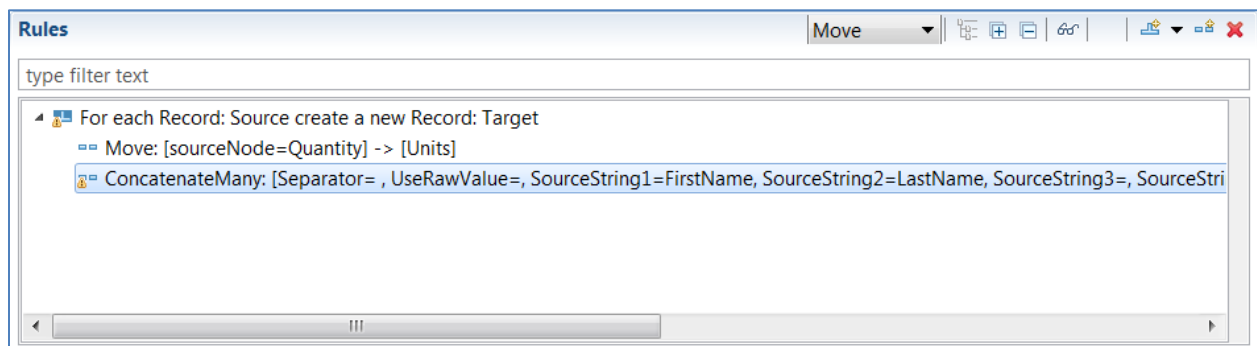
To create this Simple Rule, click the **New Simple Rule** button.



In the list of available actions, type **conc** in the *Filter* field to restrict the display to actions containing that text. Double-click *ConcatenateMany* to select that action. The undefined rule appears in the *Rules* section.

To define this rule in the *Properties* view, type a space character as the *Separator* property, and drag the source's *FirstName* and *LastName* nodes to the *SourceString1* and *SourceString2* properties, respectively. Drag the target's *FullName* node to the *Return Assignments* area.

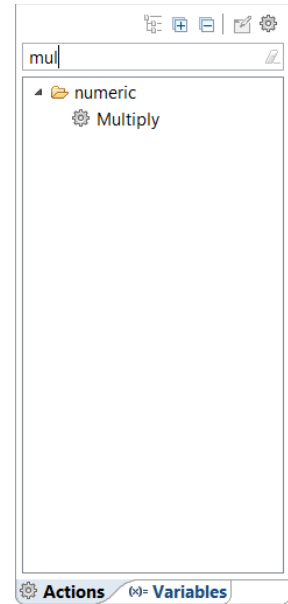
The defined rule appears in the *Rules* section.



Rule 3: Select a Cleo-supplied action

The target Schema requires the total price for each line item, although the source data does not provide that value. But by multiplying each line item's unit price by its quantity ordered, that amount can be calculated.

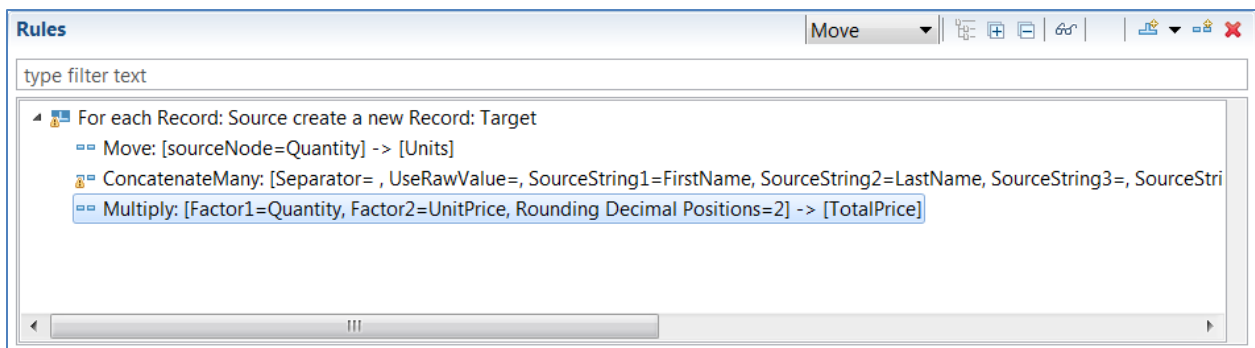
To create this Simple Rule, type **mul** in the *Actions* panel's filter field to restrict the display to actions containing that text.



Drag the *Multiply* action to the Composite Rule. The undefined rule appears in the *Rules* section.

To define this rule, drag the source's *Quantity* and *UnitPrice* nodes to the *Factor1* and *Factor2* properties, respectively. Type **2** for the *Rounding Decimal Positions* property and press **Enter**. Drag the target's *TotalPrice* node to the *Return Assignments* area.

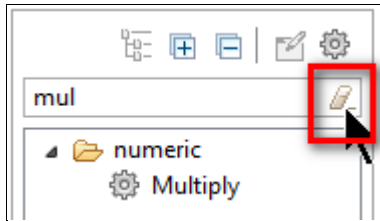
The defined rule appears in the *Rules* section.



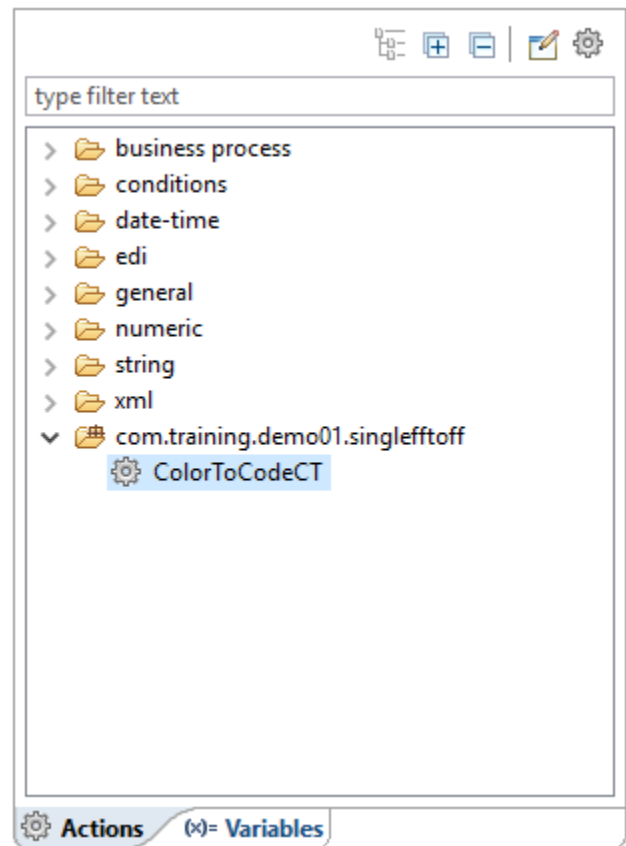
Rule 4: Select a user-defined action

The target Schema requires a single-character color code, while the source data has full-word descriptions. This conversion is done by referencing the Code Table previously created. User-created objects available for use in a Ruleset are displayed in the *Actions* panel.

To create this Simple Rule, ensure that the *Actions* panel is selected, and click the **Clear** button in its filter field.



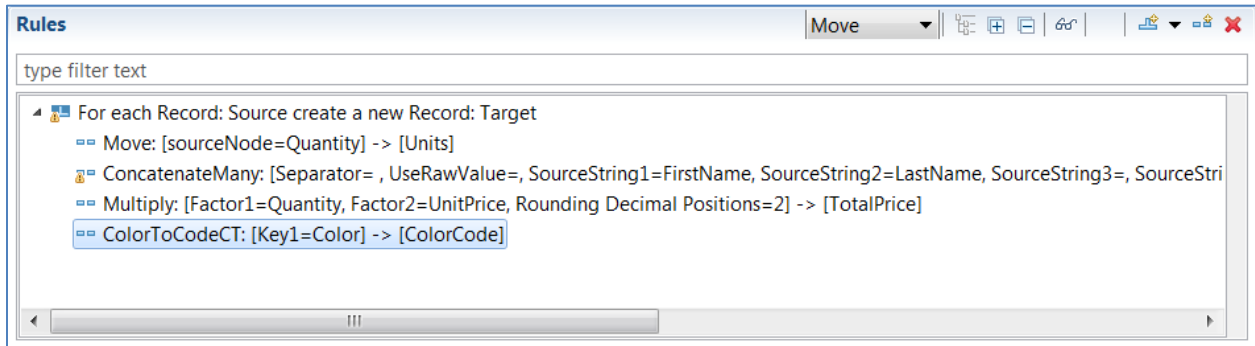
Expand the *com.training.demo01.singlefftoff* node to reveal its lone user-defined object-specific action.



Drag the *ColorToCodeCT* node to the Composite Rule. The undefined rule appears in the *Rules* section.

To define this rule, drag the source's *Color* node to the *Key1* property. Drag the target's *ColorCode* node to the *Return Assignments* area.

The defined rule appears in the *Rules* section.



Save the object and close the editor.

Business Process: DelimitedFfToFixedFfBPS

Select the Package.

Select *File* | *New* | *Business Process*.

Choose *No Template* and click **Next**.

Type **DelimitedFfToFixedFfBPS** in the *Name* field.

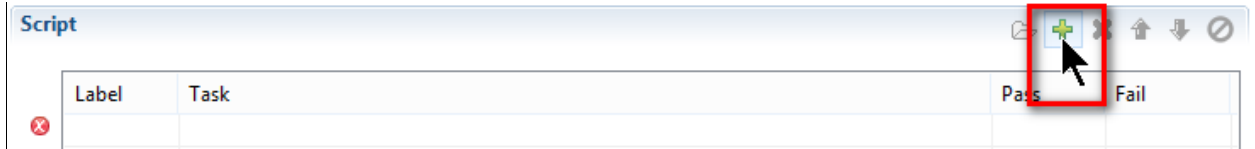
Click **Finish**.

The object is created, and its editor appears.

This Business Process requires three tasks to (1) read the source data, (2) transform the data, and (3) write the target data.

Task 1: Read the source data

To create this task, click the **Add** button in the *Script* section.



Click that step's *Click to select task* entry. In the list of available tasks, type **read** in the *Filter* field to restrict the display to tasks containing that text.

Double-click the *ReadCsvFA* user-defined object to select it.

That task is displayed on the first line.

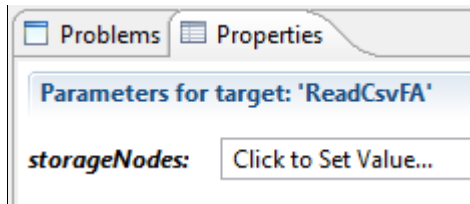
Label	Task	Pass	Fail
	ReadCsvFA	next	end



To define this task, click the *Properties* view tab.

This task has one parameter.

Click in the *storageNodes* field. This parameter represents the AdapterPayload (the data of the source file). The bold-italic text indicates that this is a mandatory parameter.



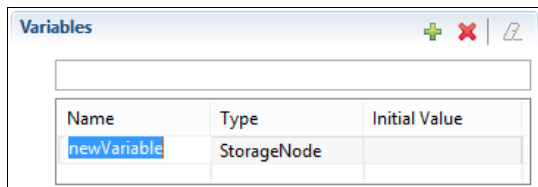
A list of available parameters and variables appears. As none yet exist, that list is empty.

Click **New Variable**.

An AdapterPayload may be an Array, Object, or StorageNode.

Double-click *StorageNode* to indicate it as the type for this variable.

newVariable appears in the *Properties* view and in the *Variables* section, with its name pre-selected, ready for a name change.



Type **source** and press **Enter** to rename this variable.

Task 2: Transform the data

To create this task, click the **Add** button in the *Script* section.

Click that step's *Click to select task* entry. In the list of available tasks, type **rs** in the *Filter* field.

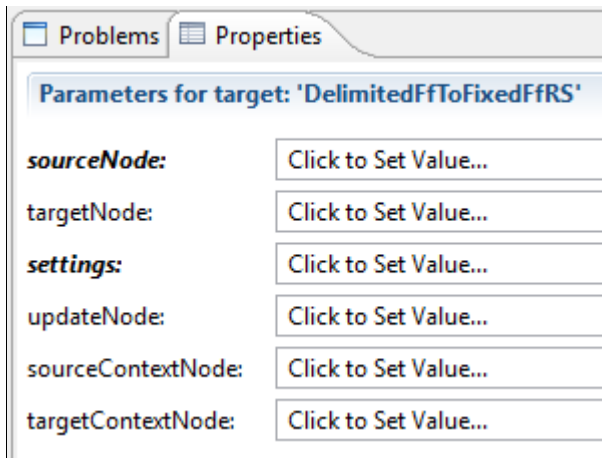
Double-click the *DelimitedFfToFixedFfRS* user-defined object to select it.

That task is displayed on the second line.

Label	Task	Pass	Fail
	ReadCsvFA	next	end
	DelimitedFfToFixedFfRS	next	end

To define this task, click the *Properties* view tab.

This task has several parameters. Provide values for the first three; the last three are not necessary here.



Click in the *sourceNode* field. This parameter represents the StorageNode containing the data to be transformed.

Double-click the previously-defined *source* variable, as the data read by the first task is the data to be transformed.

Click in the *targetNode* field. This parameter represents the StorageNode containing the transformed data.

Click **New Variable**.

newVariable appears in the *Properties* view and in the *Variables* section, with its name pre-selected, ready for a name change.

Type **target** and press **Enter** to rename this variable.

Click in the *settings* field. This parameter represents the Transformation Settings object to be used during transformation.

Click the *TransformationSettings Literal* tab and double-click the previously-defined *CommaDelimitedSourceTS* object to select it.

Task 3: Write the target data

To create this task, click the **Add** button in the *Script* section.

Click that step's *Click to select task* entry. In the list of available tasks, type **wri** in the *Filter* field.

Double-click the *WriteTxtFA* user-defined object to select it.

That task is displayed on the third line.

Label	Task	Pass	Fail
	ReadCsvFA	next	end
	DelimitedFfToFixedFfRS	next	end
	WriteTxtFA	next	end

To define this task, click the *Properties* view tab.

This task has only one parameter.

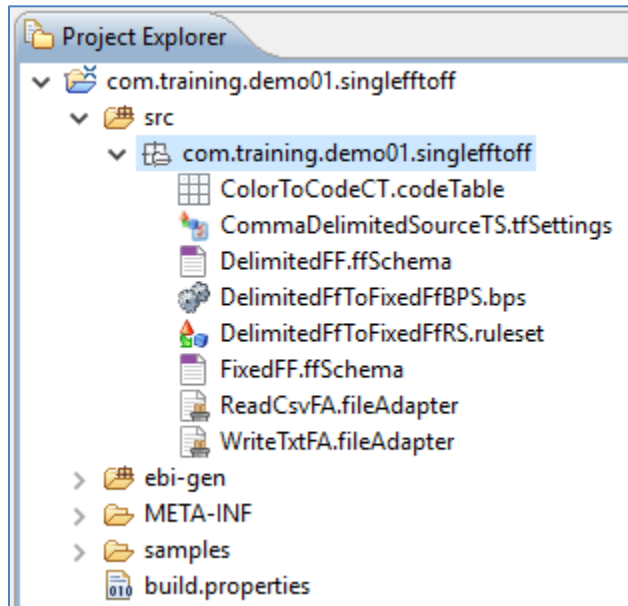
Click in the *storageNodes* field. This parameter represents the AdapterPayload (the data to be written to the target file).

Double-click the previously-defined *target* variable, as the data transformed by the second task is the data to be written.

Save the object and close the editor.

Deploy, Launch, Audit

Now that the Project's resources are created on the *Clarify Workbench | Project Explorer* (as pictured here), the remaining activities take place on various views of the *Admin Console* perspective.

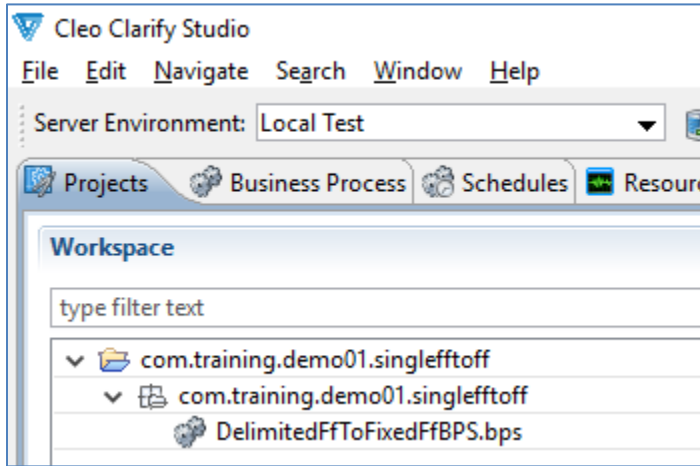


The Project's top-level object – in this case, the Business Process – must be deployed to the *Local Test* server. Then, that Business Process can be launched and the result audited.

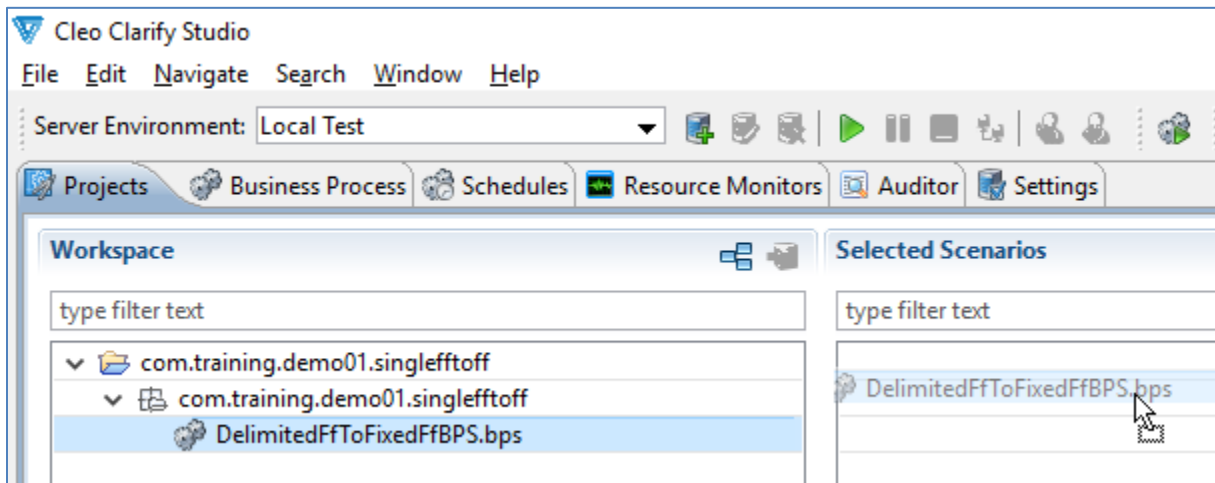
Deploy

Access *Admin Console | Projects*.

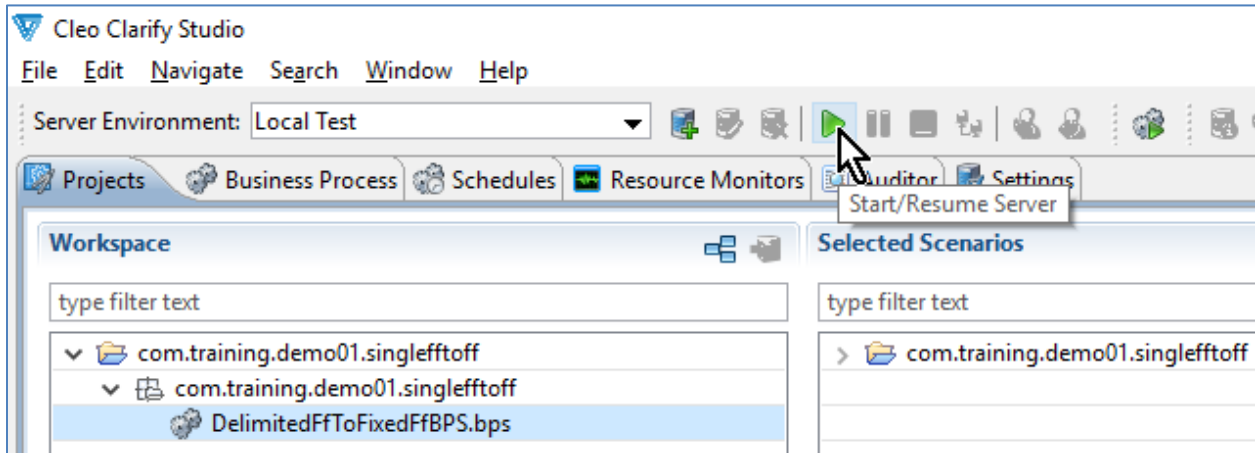
In the *Workspace* section, expand the *com.training.demo01.singlefftoff* Project, and then expand its *Package* node.



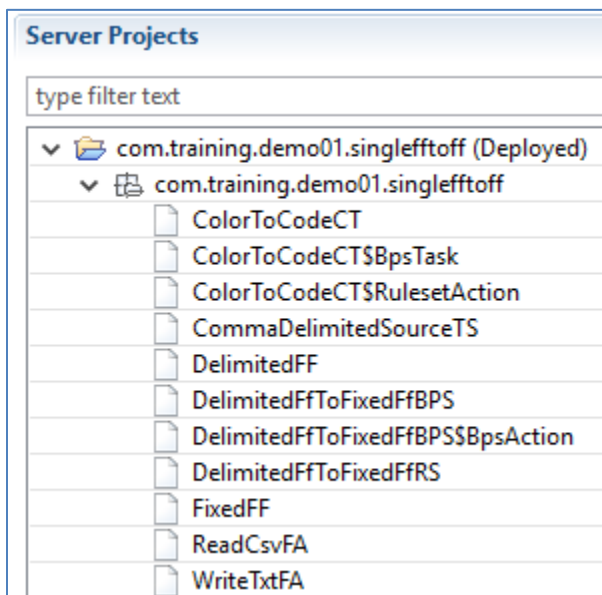
Drag the *DelimitedFfToFixedFfBPS* object to the *Selected Scenarios* section.



Start the *Local Test* server by ensuring that it is displayed in the *Server Environment* dropdown and then click the **Start** button.



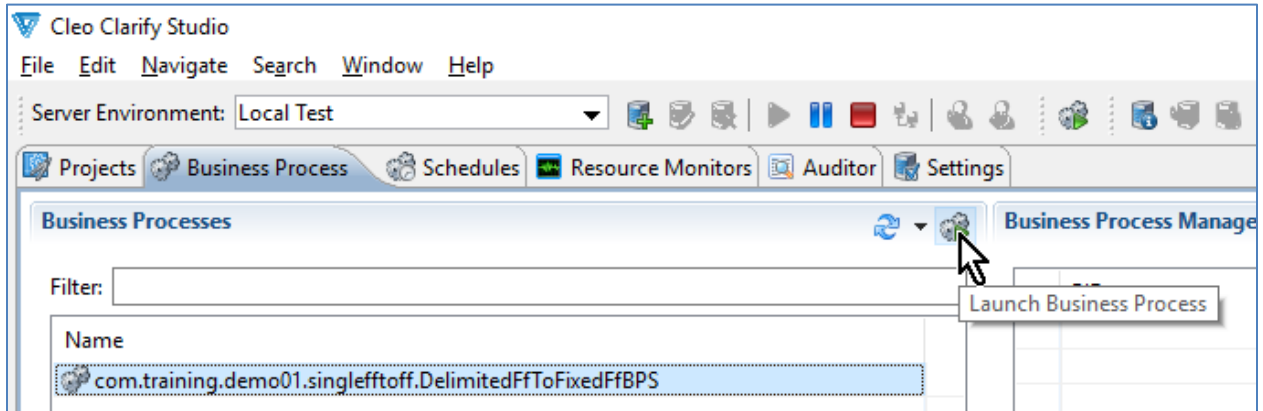
When fully-expanded, the *Server Projects* section shows all installed objects.



Launch

Access *Admin Console | Business Process*.

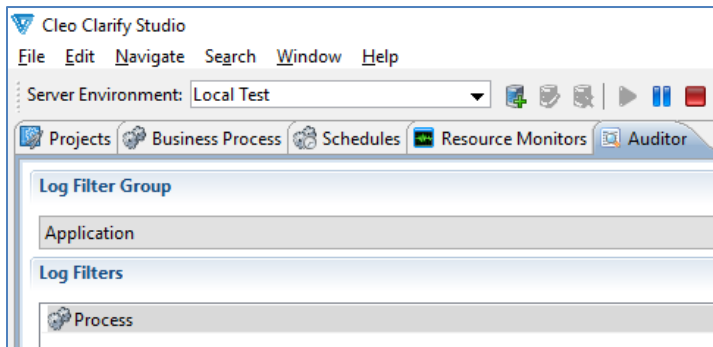
Select *com.training.demo01.singlefftoff.DelimitedFfToFixedFfBPS* and click the **Launch** button.



Audit

Access *Admin Console | Auditor*.

By default, the *Application* Log Filter Group and its *Process* Log Filter are selected.



The *Log Entries* section shows the results.

Status	Date	Process Number	Business Process Script Name
Completed	12/02/2016 02:16 PM	321	com.training.demo01.singlefftt...