

Apache NiFi 3

## Using Data Flow Templates

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## Templates

DFMs have the ability to build very large and complex DataFlows using NiFi. This is achieved by using the basic components: Processor, Funnel, Input/Output Port, Process Group, and Remote Process Group. These can be thought of as the most basic building blocks for constructing a DataFlow. At times, though, using these small building blocks can become tedious if the same logic needs to be repeated several times.

To solve this issue, NiFi provides the concept of a Template. A Template is a way of combining these basic building blocks into larger building blocks. Once a DataFlow has been created, parts of it can be formed into a Template. This Template can then be dragged onto the canvas, or can be exported as an XML file and shared with others. Templates received from others can then be imported into an instance of NiFi and dragged onto the canvas.

### Creating a Template

To create a Template, select the components that are to be a part of the template, and then click the "Create



Template" ( ) button in the Operate Palette (See *NiFi User Interface* for more information on the Operate Palette).

Clicking this button without selecting anything will create a Template that contains all of the contents of the current Process Group. This means that creating a Template with nothing selected while on the Root Process Group will create a single Template that contains the entire flow.

After clicking this button, the user is prompted to provide a name and an optional description for the template. Each template must have a unique name. After entering the name and optional description, clicking the "Create" button will generate the template and notify the user that the template was successfully created, or provide an appropriate error message if unable to create the template for some reason.



**Note:** It is important to note that if any Processor that is Templated has a sensitive property (such as a password), the value of that sensitive property is not included in the Template. As a result, when dragging the Template onto the canvas, newly created Processors may not be valid if they are missing values for their sensitive properties. Additionally, any Connection that was selected when making the Template is not included in the Template if either the source or the destination of the Connection is not also included in the Template.

### Importing a Template

After receiving a Template that has been exported from another NiFi, the first step needed to use the template is to import the template into this instance of NiFi. You may import templates into any Process Group where you have the appropriate authorization.

From the Operate Palette, click the "Upload



Template" ( ) button (see *NiFi User Interface* for more information on the Operate Palette). This will display the Upload Template dialog. Click the find icon and use the File Selection dialog to choose which template file to upload. Select the file and click Open. Clicking the "Upload" button will attempt to import the Template into this instance of NiFi. The Upload Template dialog will update to show "Success" or an error message if there was a problem importing the template.

## Instantiating a Template

Once a Template has been created (see *Creating a Template*) or imported (see *Importing a Template*), it is ready to be instantiated, or added to the canvas. This is accomplished by dragging the Template icon (



) from the Components Toolbar (see *NiFi User Interface*) onto the canvas.

This will present a dialog to choose which Template to add to the canvas. After choosing the Template to add, simply click the "Add" button. The Template will be added to the canvas with the upper-left-hand side of the Template being placed wherever the user dropped the Template icon.

This leaves the contents of the newly instantiated Template selected. If there was a mistake, and this Template is no longer wanted, it may be deleted.

## Managing Templates

One of the most powerful features of NiFi Templates is the ability to easily export a Template to an XML file and to import a Template that has already been exported. This provides a very simple mechanism for sharing parts of a DataFlow with others. You can select Templates from the Global Menu (see *NiFi User Interface*) to open a dialog that displays all of the Templates that are currently available, filter the templates to see only those of interest, export, and delete Templates.

### Exporting a Template

Once a Template has been created, it can be shared with others in the Template Management page. To export a Template, locate the Template in the table. The Filter in the top-right corner can be used to help find the appropriate Template if several are available. Then click the "Download" button



( ).

This will download the template as an XML file to your computer. This XML file can then be sent to others and imported into other instances of NiFi (see *Importing a Template*).

### Removing a Template

Once it is decided that a Template is no longer needed, it can be easily removed from the Template Management page. To delete a Template, locate it in the table (the Filter in the top-right corner may be used to find the appropriate Template if several are available) and click the "Delete" button (



). This will prompt for confirmation. After confirming the deletion, the Template will be removed from this table and will no longer be available to add to the canvas.