ElectricFlow 5.1
User Guide

Electric Cloud, Inc.
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Document Rev. 1

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Published 7/31/2014

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ElectricFlow Overview

ElectricFlow™ accelerates the continuous delivery of software. It provides domain-specific capabilities to automate Build, Test, Deploy, and Release processes across many delivery pipelines. ElectricFlow includes ElectricCommander, a powerful platform which natively integrates these domain specific capabilities to provide Enterprise level continuous delivery. ElectricFlow makes software delivery processes repeatable, visible, scalable, and efficient.

ElectricCommander® is a powerful automation platform that provides distributed DevOps teams shared control and visibility into infrastructure, tool chains, and processes. ElectricCommander accelerates and automates the software delivery process, enabling agility, availability, predictability, and security across many Build-Test-Deploy pipelines.

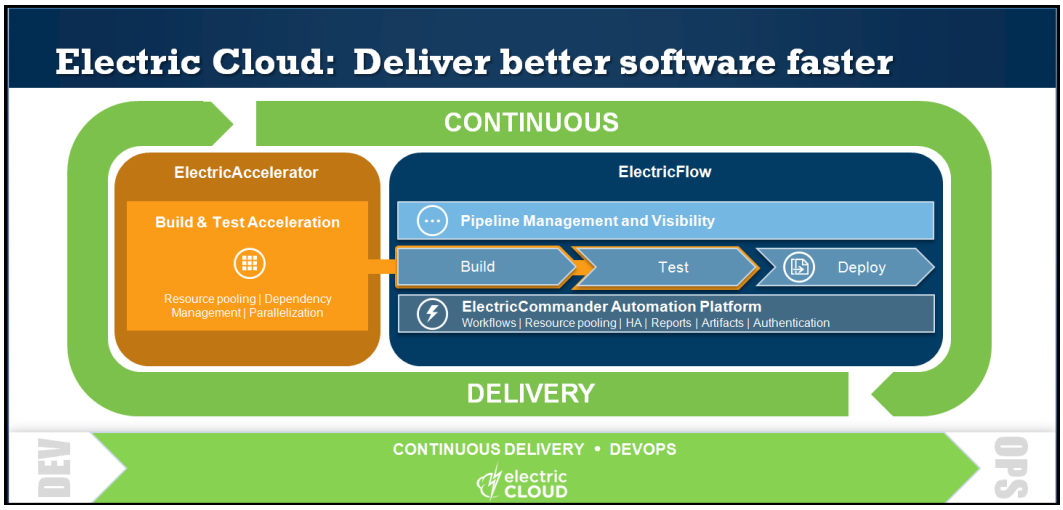
The following diagram shows how ElectricFlow provides continuous delivery.

- ElectricFlow provides management and visibility of the Build, Test, Deploy, and Release phases.

  It provides tracking and pipelines for continuous delivery using deployment application processes.

- ElectricFlow is built on the proven ElectricCommander platform, which automates the software Build and Release process using procedures.

- ElectricAccelerator performs the Build and Test phases of the continuous delivery process using procedures.



Terminology

The following objects and concepts apply to ElectricFlow:

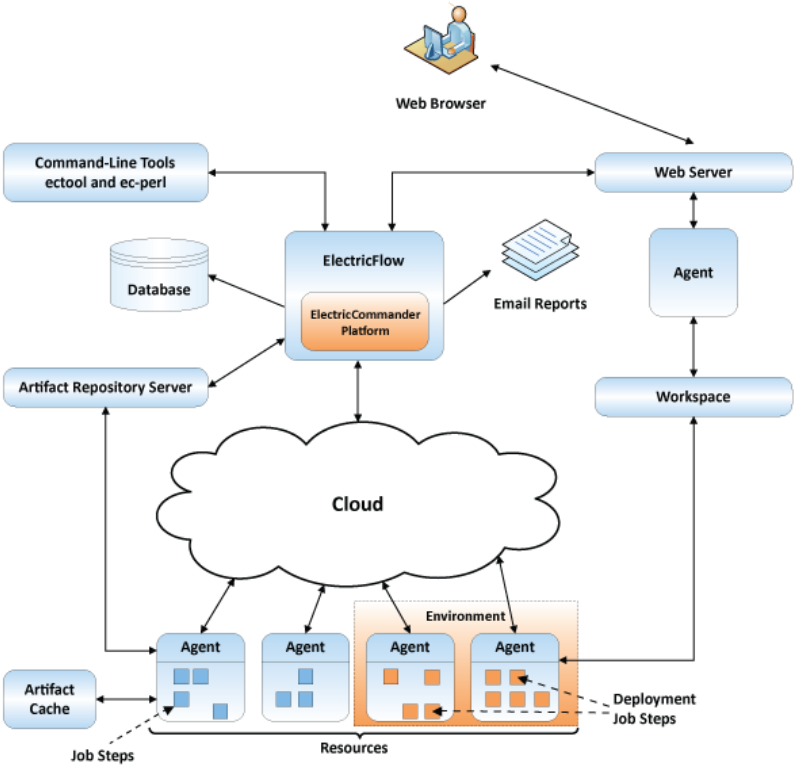
- **Application** – A software program consisting of components to deploy your software by automating the deployment processes (build, test, and deploy). To run the application, you must have application processes with components and component processes.
- **Application process** – Group of steps or actions in an application. You can re-use and rerun the process more than once.

- **Application tier** – Logical grouping of components in an application. A tier can have more than one component. The application must have at least one configured tier with one component.
- **Automation platform** – A software program that automatically runs deployment processes and manages the objects for the processes. ElectricFlow, a continuous delivery solution, is built on the ElectricCommander platform, an automation platform.
- **Component** – An object in an application tier with details, properties, and access control settings.
- **Component process**–Group of steps or actions for a component. You can re-use and rerun these processes more than once.
- **Environment**–Location in the ElectricFlow system to which a resource is assigned.
- **Environment tier**–Logical grouping of resources in an environment. A tier can have more than one resource. The application must have at least one configured tier with one resource.
- **Inventory tracking**–How ElectricFlow tracks what is built, tested, deployed, and released in continuous delivery solutions.
- **Launch pad**–Starting point on the Home page that you select to configure the deployment application. For more information, see Home Page.
- **Process branching** – A way to run job steps in an application or component process on a conditional basis.
- **Process type**–Select one of the following parameters to configure the inventory tracking on an application or component process:
  - **Deploy**–Select this to enable inventory tracking. The ElectricCommander server tracks artifacts deployed to environments. This is the default.
  - **Undeploy**–Select this to configure the ElectricCommander platform to remove the environment inventory record after the first job step in a component process runs successfully.
  - **Other**–Select this to disable inventory tracking.
- **Resource** – An agent machine configured to communicate with the ElectricCommander platform. The application runs on the resource.
- **Tier map**– Mapping of the application that you want to run to the environments to which resources are assigned. You can map one application tier to one or more environment tiers and must have at least tier mapping to run a deployment application.

Local ElectricFlow System

In this local configuration:

- The ElectricCommander server manages resources, issues commands, and generates reports.
- Applications, components, environments, and deployment job steps are defined in ElectricFlow.
- Deployment job steps are executed on resources in the defined deployment environments.
- An underlying database stores commands, metadata, and log files.



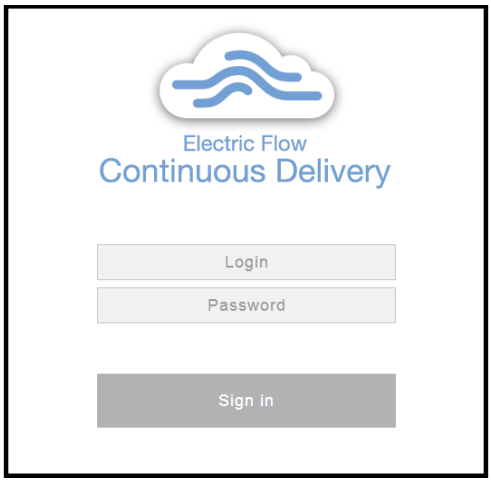
If you are only evaluating ElectricFlow, the ElectricFlow software, the database, the ElectricCommander server, the web server, and the repository server can reside on the same machine.

In a production environment, the database should reside on a separate machine from the ElectricCommander server to prevent performance issues. It is acceptable for the Commander server, web server, and repository server to reside on the same machine in a local configuration, but not required.

Accessing ElectricFlow

1. Enter http://<commander-server>/flow in a browser window, where <commander-server> is the ElectricCommander server IP address or host name.

   For example, when you go to https://123.123.1.222/flow/, the landing page appears.

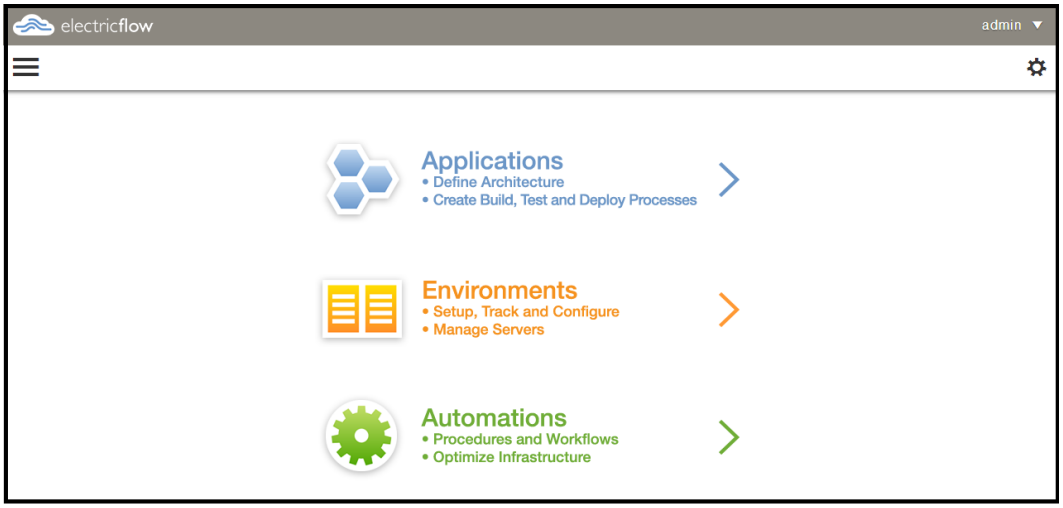


IMPORTANT: For a new installation, the default admin account user name is *admin* and the password is *changeme*. You should change the default admin password as soon as possible.

2. Enter a user name and password.
3. Click **Login**.

   The ElectricFlow Home page opens.

   For more information about this page, see Home Page.



How to Use the ElectricFlow UI

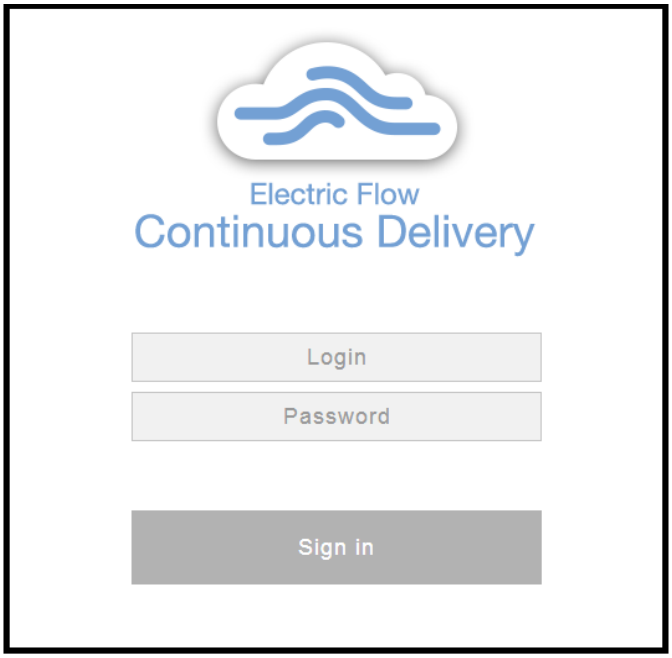
This section has information about how to use the ElectricFlow UI.

For information about configuring and running deployment applications, see How To Run Deployment Applications.

Landing Page

How to get to here: Enter **http://<commander-server>/flow** in a browser window, where <commander-server> is the ElectricCommander server IP address or host name.

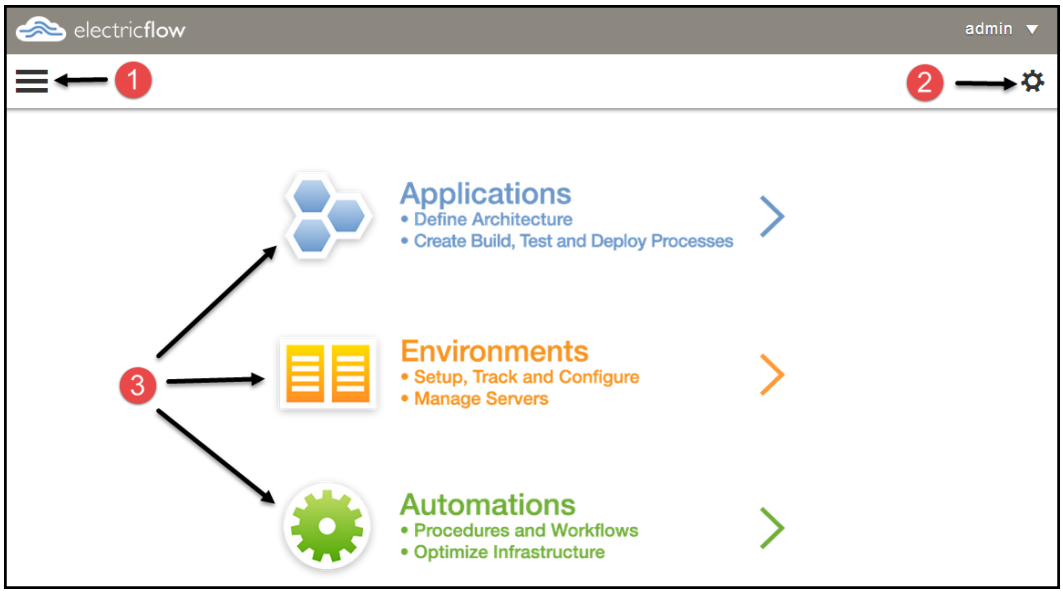
This is the landing page:



Home Page

How to get to here: From the landing page, enter your user name and password and click **Login**.

From the Home page, you build and automate your deployment solution.



1	Main menu–When you click on this icon, a list of destinations appears, which matches the list of launch pads on the Home page.
2	Administrative settings for ElectricFlow–When you click on this icon, links to the administrative area in the ElectricCommander platform appear.
3	Launch pads–Click one to configure your deployment application.

To configure your deployment application, select these launch pads:

- **Applications**–Model deployment applications by defining the application architecture and configuring component and application processes.

  Click **Applications** to open the Applications List page.

- **Environments**–Model environments in which deployment applications are run by assigning and managing resources.

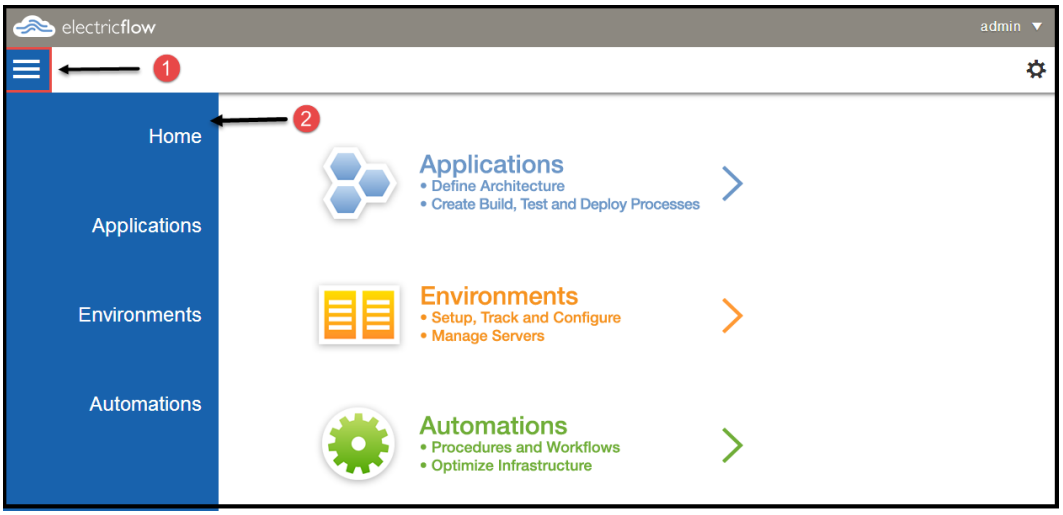
  Click **Environments** to open the Environments List page.

- **Automations**–Define procedures and workflows for your software development life cycle in the ElectricCommander platform.

  Click **Automations** to open the Home UI in the ElectricCommander platform.

Main Menu

How to get here: From the Home page, click on the main menu icon.



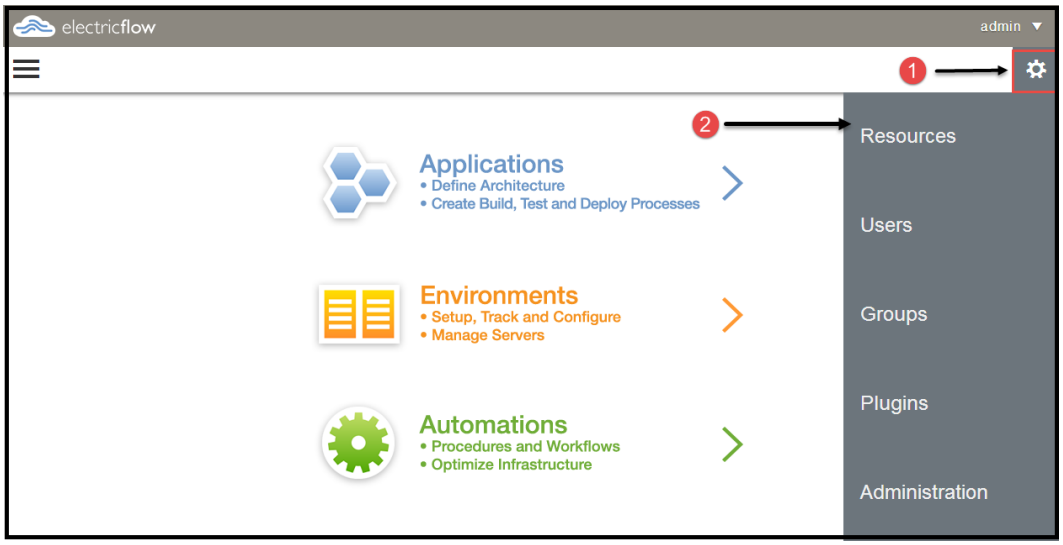
1	Main menu icon
2	Main menu

A list of destinations appears.

- **Home**–Click **Home** to close the main menu and return to the Home page.
- **Applications**–Click **Applications** to open the Applications List page.
- **Environments**–Click **Environments** to open the Environments List page.
- **Automations**–Click **Automations** to open the Home UI in the ElectricCommander platform.

Administrative Settings Menu

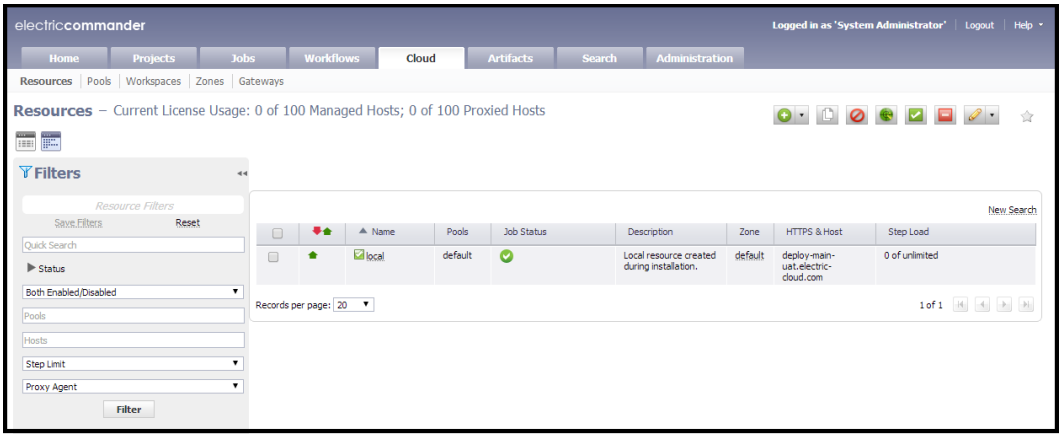
How to get here: From the Home page, click on the administrative settings menu icon. A list of links to the administration area in the ElectricCommander platform appears.



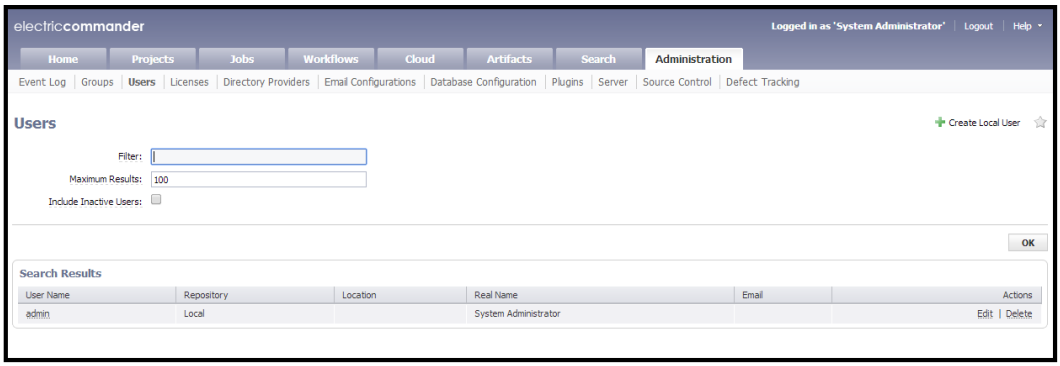
1	Administrative settings menu icon
2	Administrative settings menu with links to the ElectricCommander platform: • Resources • Users • Groups • Plugins • Administration

When you click a link, you go to one of the following places in the ElectricCommander platform:

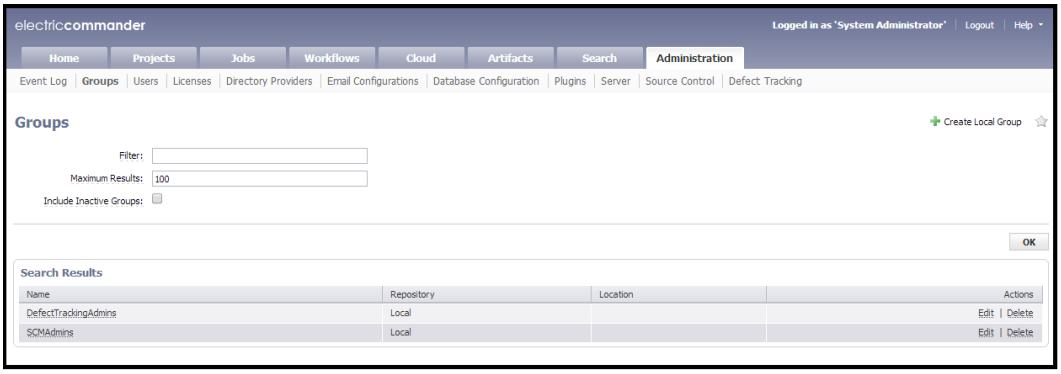
Resources–You can view and manage ElectricFlow resources on the Resources page in the ElectricCommander platform. For more information about the Resources page, go to the ElectricCommander Help > Web Interface Help > Resources.



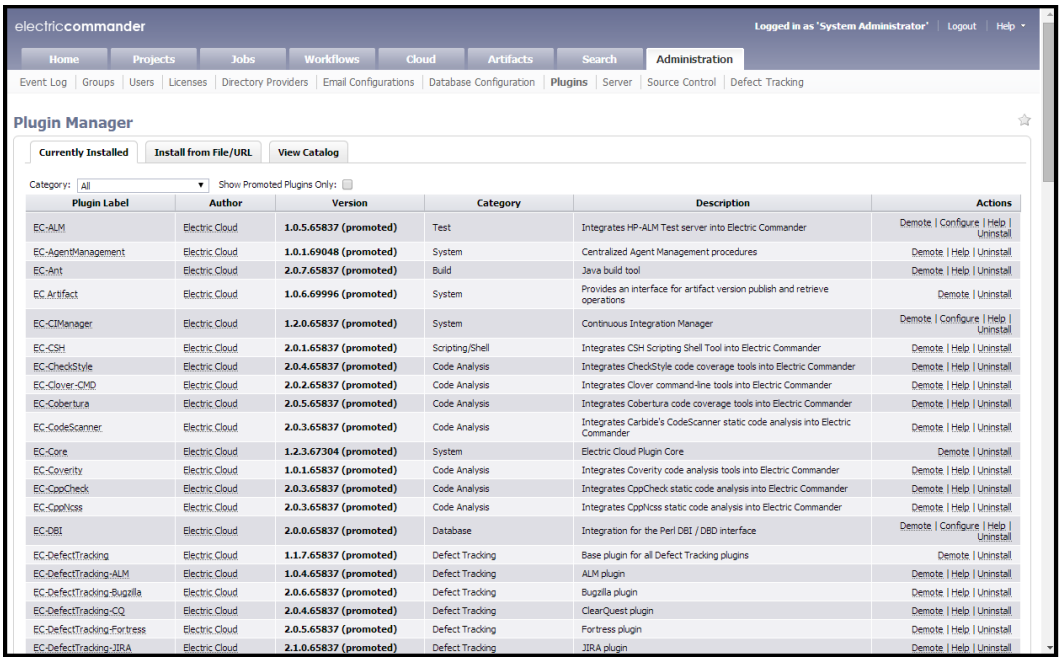
Users–You can view and manage ElectricFlow users on the Users page in the ElectricCommander platform. For more information about the Users page, go to the ElectricCommander Help > Web Interface Help > Users and Groups.



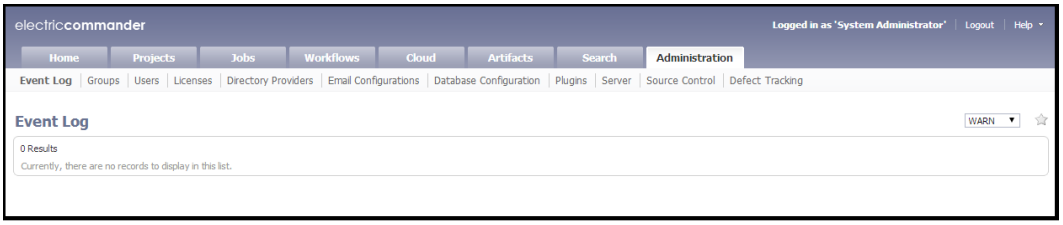
Groups–You can view and manage ElectricFlow groups on the Groups page in the ElectricCommander platform. For more information about the Groups page, go to the ElectricCommander Help > Web Interface Help > Users and Groups.



Plugins–You can view and manage ElectricFlow plugins in the ElectricCommander platform. For more information about the Plugin Manager, go to the ElectricCommander Help > Web Interface Help >Plugins Manager.



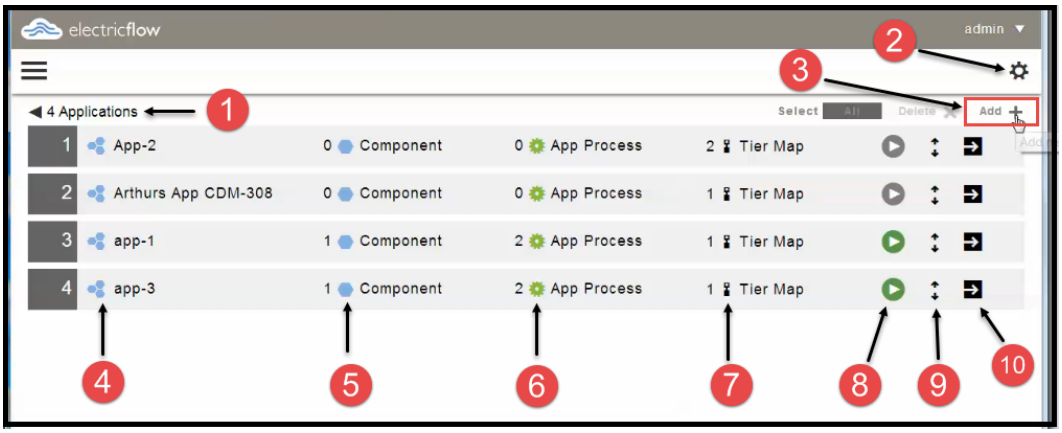
Administration–You can view and manage objects such as groups, users, licenses, and servers in the ElectricCommander platform. The following UI shows the Event Log in the ElectricCommander platform. For more information, go to the ElectricCommander Help > Web Interface Help.



Applications List

How to get here:

- From the Home page, click the **Applications** launch pad.
- From the main menu on the Home page, click the **Applications** destination.



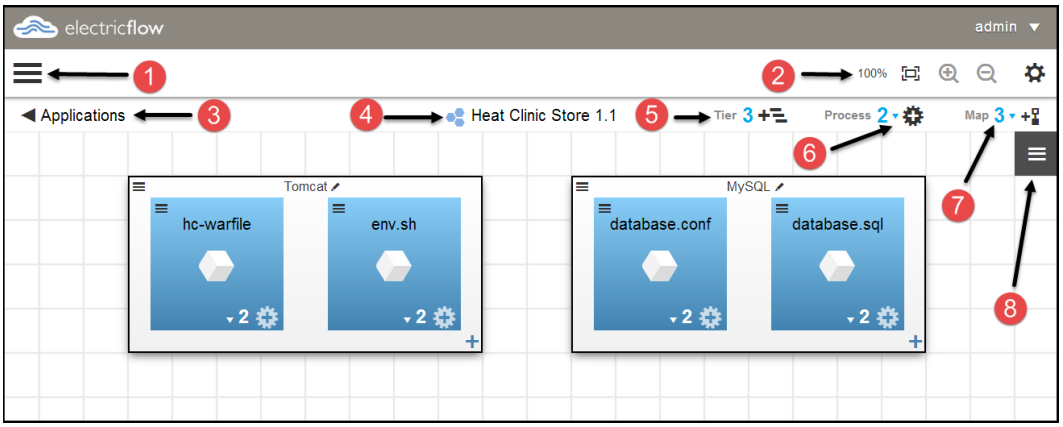
1	Breadcrumb, which shows the total number of applications configured in your ElectricFlow system.
2	Administrative settings menu–Click this icon to open a list of links to the administration area in the ElectricCommander platform. These links are the same as the links in the administrative settings menu on the Home page.
3	Click the plus sign (+) to create an application.
4	Application icon
5	Component icon
6	Process icon
7	Map icon
8	"Run process" icon Click this icon to run the process when the button is green. This is available only when an application process is defined.
9	Expansion icon Click this icon to see more details of the running process. After you click the icon, it changes to .
10	Click the arrow icon to go to the Application designer.

Applications Designer

How to get here: From the Applications List page, select an application.

Applications consist of application processes and components grouped into tiers. For more information, see Application Tiers.

To run deployment applications, you must configure tier maps between application tiers and environment tiers. For more information, see Tier Maps and Configuring Tier Maps.



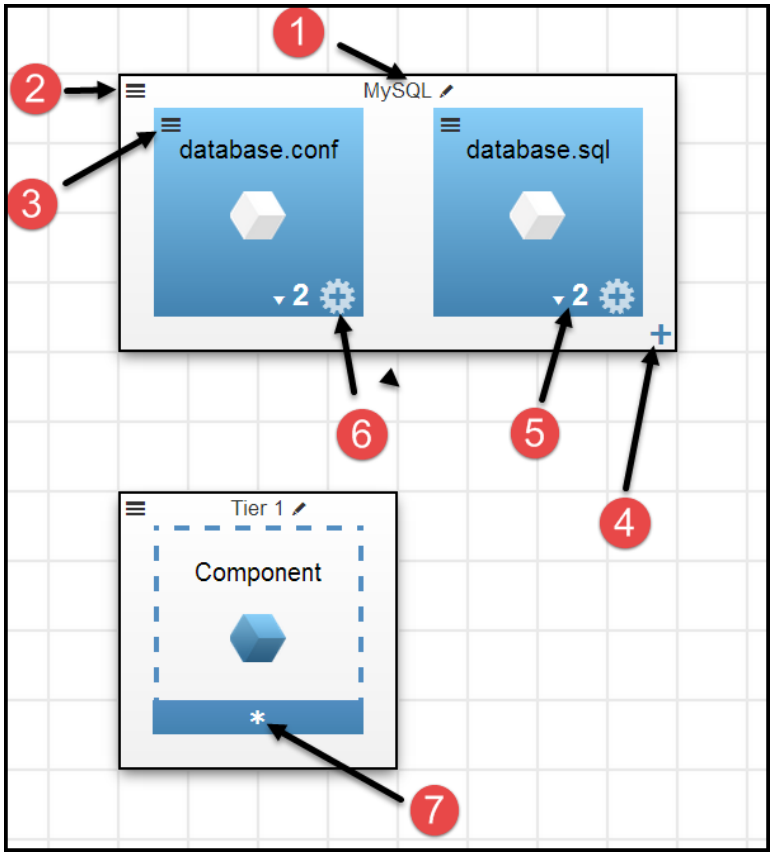
The following information is on this page:

1	Main menu
2	This information is view only. ElectricFlow automatically adjusts the page settings to show all the tiers in the application. For example, if all the tiers do not fit on the page at 100% magnification, ElectricFlow reduces the magnification until all the tiers appear on the page.
3	Breadcrumbs
4	Application icon and application name
5	Number of tiers in the application and the tier icon Click the tier icon to add a tier to the application.
6	Number of application processes and the process icon Click the down arrow to select an existing application process. Click the process icon to add an application process to the application.
7	Number of tier maps and the tier map icon Click the tier-map icon to add an application tier-to-environment tier mapping for the application.
8	Applications menu icon Click this icon to view the application details.

Application Tiers

How to get here: From the Applications designer page, select an application tier.

Application tiers consist of components with component processes.



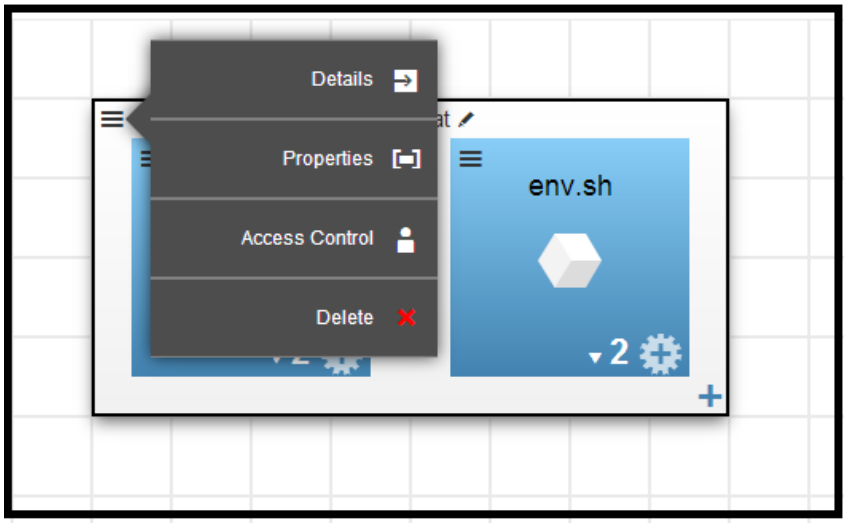
The following information is available in an application tier.

1	Tier name and pencil icon Click the pencil icon to edit the tier name and description.
2	Application tier menu icon Click this icon to see the application tier details.
3	Component menu icon Click this icon to view the component details.
4	Add a component icon Click this icon to add a component in the tier.

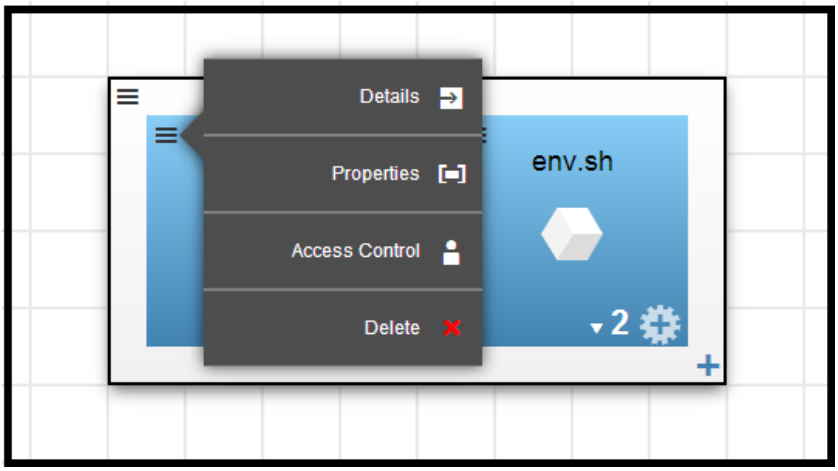
5	Icon showing the number of component processes for the component Click the down arrow to see a list of component processes.
6	"Add component process" icon Click this icon to add component process details.
7	New component icon (*), which disappears after the component is configured. Click this icon to configure a new component.

Application Tier and Component Details

When you click the application tier menu icon, the application tier details menu appears.



When you click the component menu icon, the component details menu appears.



You can click on one of the following for more information about the application or component tier :

- From the application tier details menu:
  - **Details**–Go to Application Tiers.
  - **Properties**–Go to Application Tiers
  - **Access Control**–Go to Application Tiers.
  - **Delete**–Go to Application Tiers

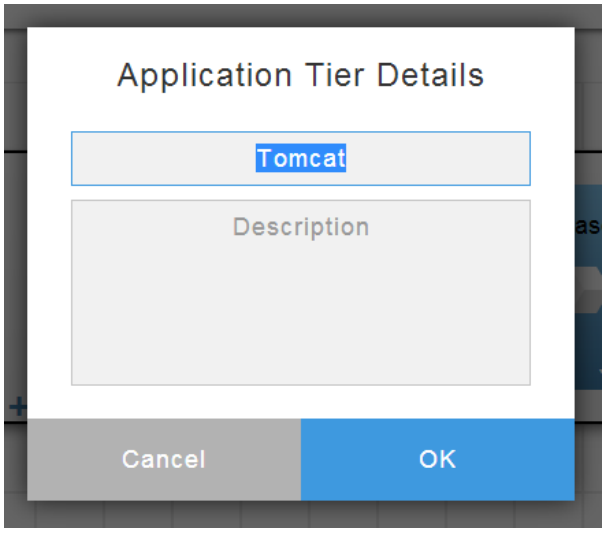
    When you use **Delete**, every object for the tier, including the tier and all the resources in it, is deleted.
- From the component details menu:
  - **Details**–Go to Application Tiers.
  - **Properties**–Go to Application Tiers.
  - **Access Control**–Go to Application Tiers.
  - **Delete**–Application Tiers.

    When you use **Delete**, every object for the component is deleted.

Application Tier Details

When you click **Details** in the tier details menu, the Application Tier Details dialog box appears. It also appears when you click the pencil icon.

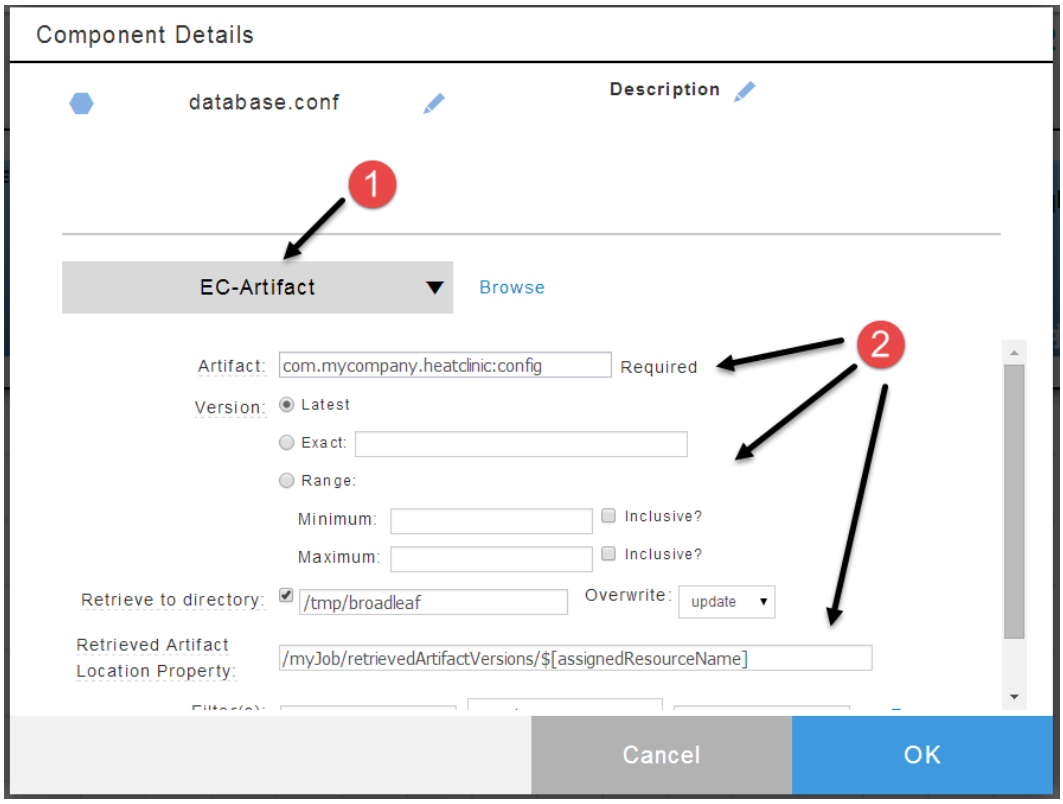
In the Application Tier Details dialog box, you can change the name of the application tier and add a description about it.



Component Details

When you click **Details** in the component details menu, the Component Details dialog box appears. The information that appears depends on your system.

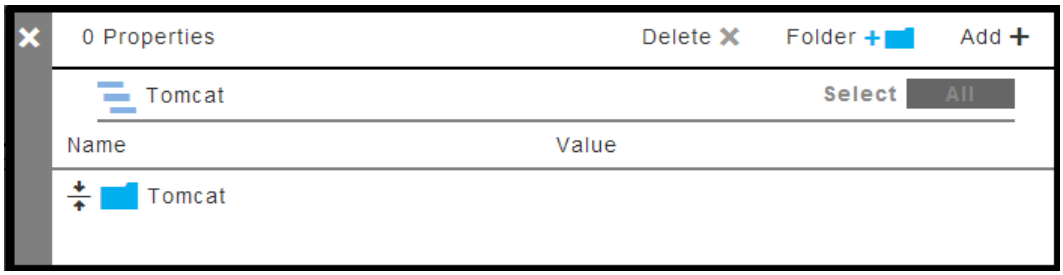
In this example, the Content Location is EC-Artifact, the default plugin. In the Artifact field, *com.mycompany.heatclinic:config* comes from the Artifact Repository in the ElectricCommander platform.



1	Content Location of the component
2	Component details that vary depending on the Content Location

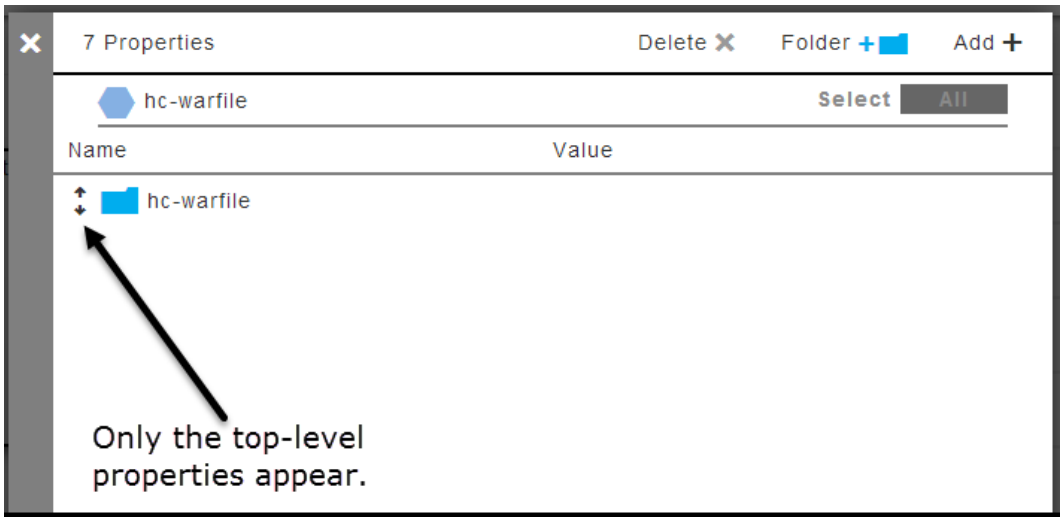
Application Tier and Component Properties

When you click **Properties** in the application tier details menu, the application tier Properties dialog box appears. You can set the properties for the application tier.

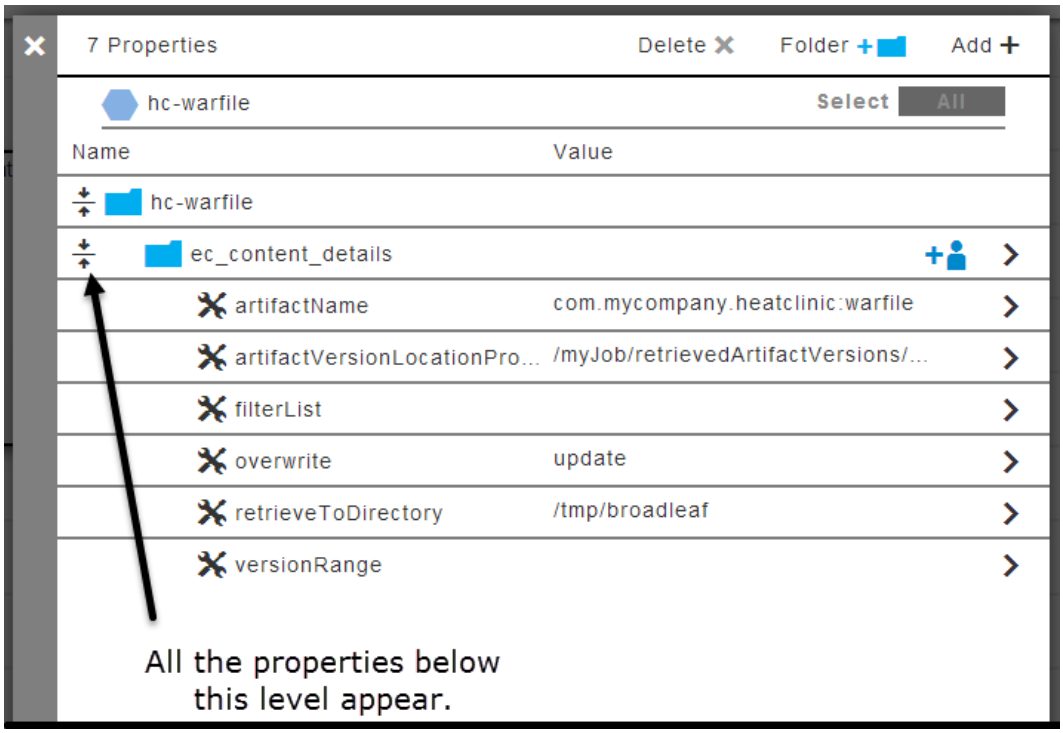


When you click **Properties** in the component details menu, the component Properties dialog box appears. You can set the properties for the component.

In this example, only the top-level component details appear.



When you click the expansion icon, all the properties below the current level appear.



Application Tier and Component Access Control

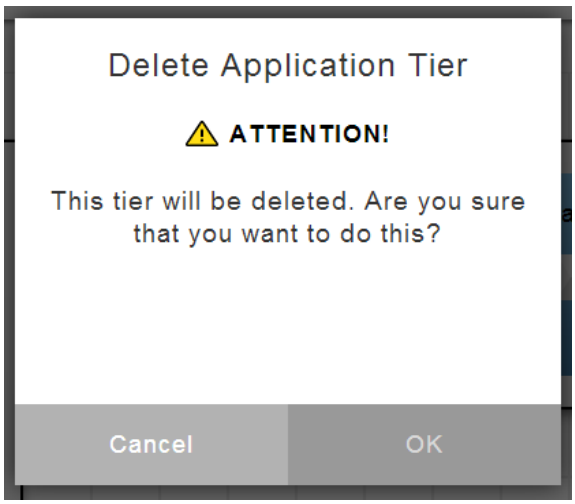
When you click **Access Control** in the application tier details menu, you go to the Access Control page for the tier in the ElectricCommander platform. You can set privileges for the objects in your deployment application.

When you click **Access Control** in the component details menu, the Access Control page for the component in the ElectricCommander platform opens. You can set privileges for the objects in your deployment application.

For more information, go to the ElectricCommander Help > Overview > Access Control.

Application Tier and Component Delete

When you click **Delete** in the application tier details menu, the Delete Application Tier dialog box appears.



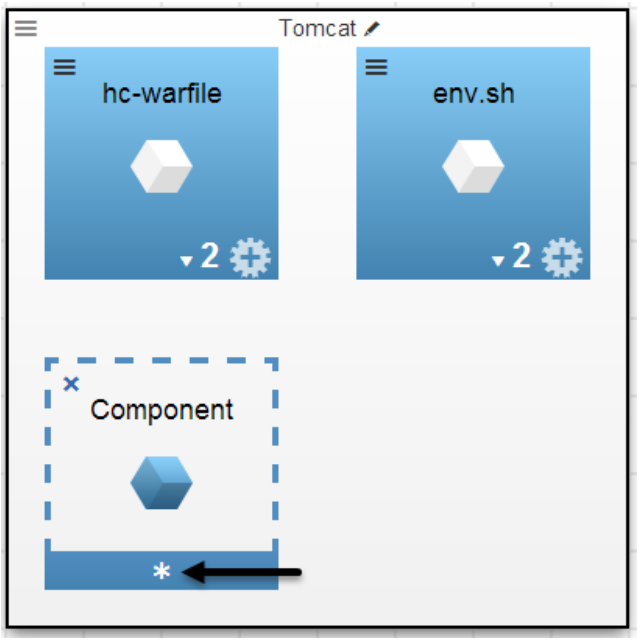
When you click **Delete** in the component details menu, the Component Deletion dialog box appears.

Creating and Configuring Components

How to get to here: From the Applications designer, select an application tier.

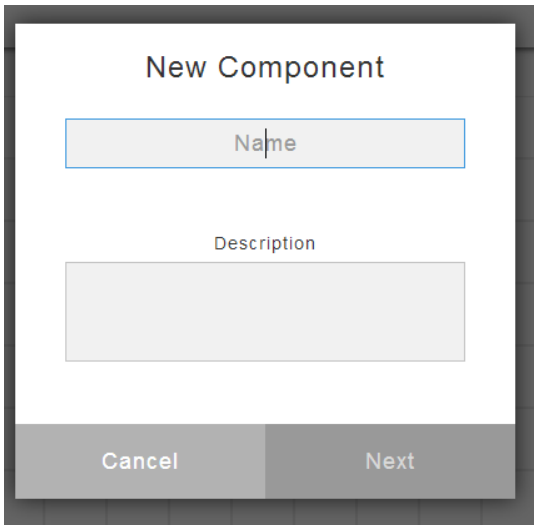
1. Click the "Add a component" icon to add a component.

   A new component appears in the application tier.



2. Click the icon below the component (*) to configure it.

   The New Component dialog box appears.



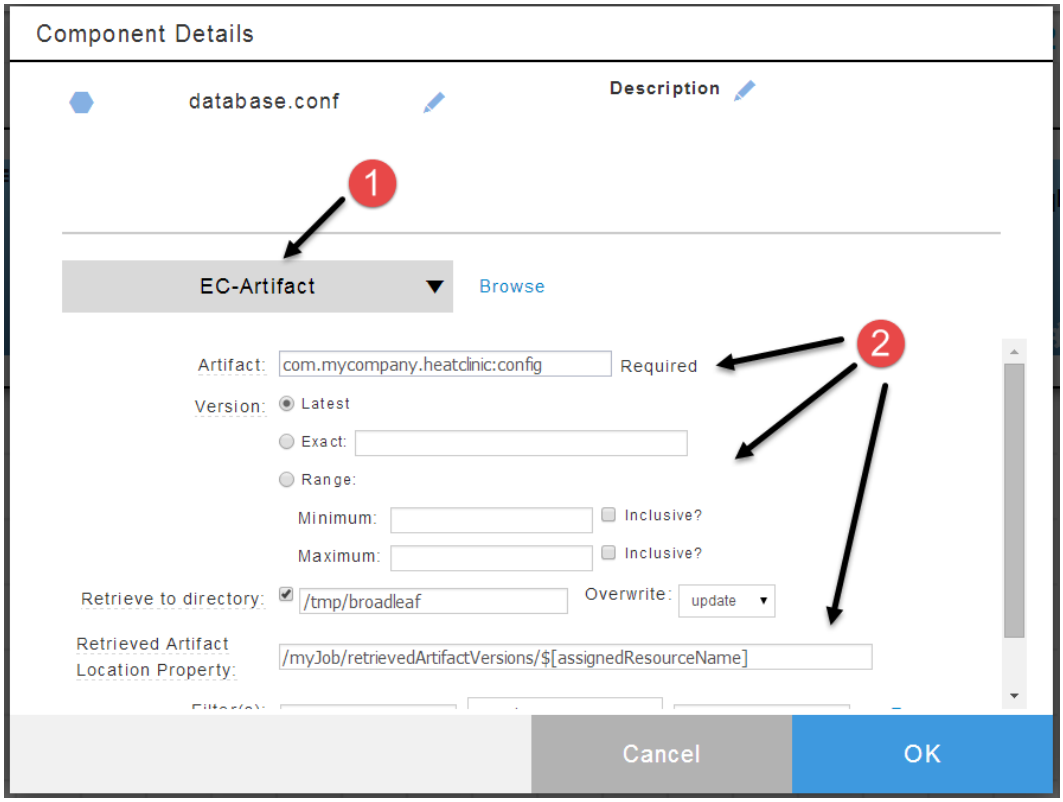
3. Enter the name and optional description of the component and click **Next**.

   The Component Details dialog box appears.

4. Select the Content Location, enter the component details, and click **OK**.

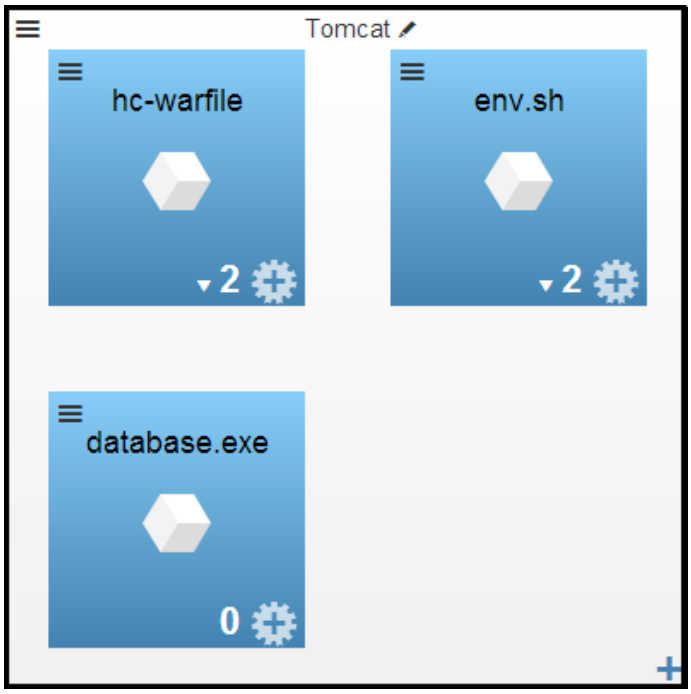
   In the following example:

   - The new component is named database.conf.
   - The Content Location is EC-Artifact, the default plugin.
   - In the Artifact field, *com.mycompany.heatclinic:config* comes from the Artifact Repository in the ElectricCommander platform.



1	Content Location of the component
2	Component details that vary depending on the Content Location

The Applications designer now appears with the new component.



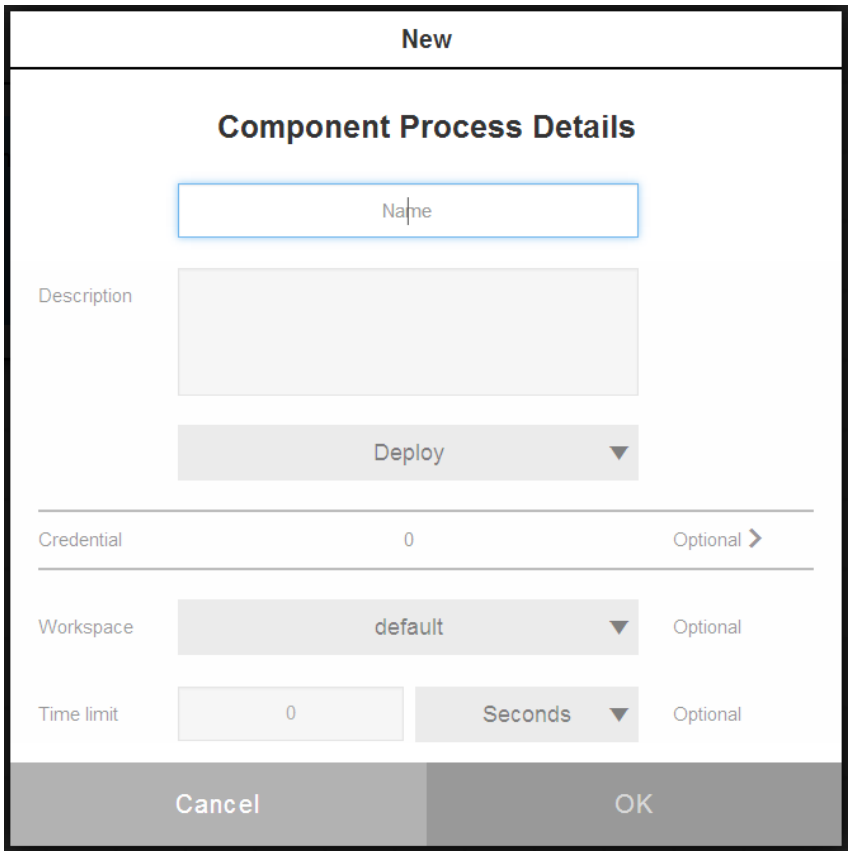
Component Processes

How to get here:

- When creating a new component process

  From the Applications designer, select a component in an application tier and click the "Add component process" icon.

  The Component Process Details dialog box appears.

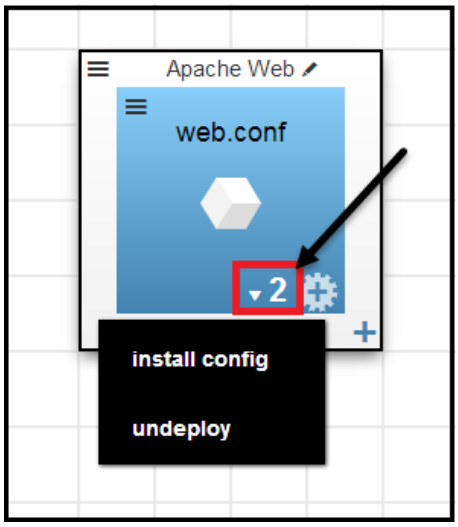


Field	Description and How to Set It
Name	Name of the process step
Description	Description of the process step
Process Type	Type of process. The default is **Deploy**. To set the process type, 1. Click the **Type** field to select the process type. 2. Select one of these options: **Deploy**–Enables inventory tracking. The ElectricCommander server tracks the artifacts deployed to environments. **Undeploy**–The next time that the deploy process is run, the ElectricCommander server removes information about the artifacts deployed to environments. **Other**–Disables inventory tracking.

Field	Description and How to Set It
Credential	An object consisting of a user name and password that ElectricFlow uses to run a process step. The dialog box displays the number of credentials for the process step, which are the same credentials that you use with procedures, steps, and schedules in the ElectricCommander platform. You can only impersonate one credential. To set the process type, see Adding Credentials.
Workspace	Area in the disk space where the files and results of the job step are stored. To set the workspace, click the **Workspace** field to open a drop-down list of workspaces in the ElectricCloud platform and select a workspace. For more information about workspaces, go to the ElectricCommander Help > Workspaces and Disk Management. To set the workspace, click Workspace to open a drop-down list of workspaces in the ElectricCloud platform. Select a workspace, and click OK.
Time limit	Maximum length of time that the step is allowed to run. After the time specified, the step is aborted, To set the time limit, enter the time and select the unit of time: seconds, minutes, or hours. For information about time limits for procedure job steps in the ElectricCommander platform, go to the ElectricCommander Help > API Commands.

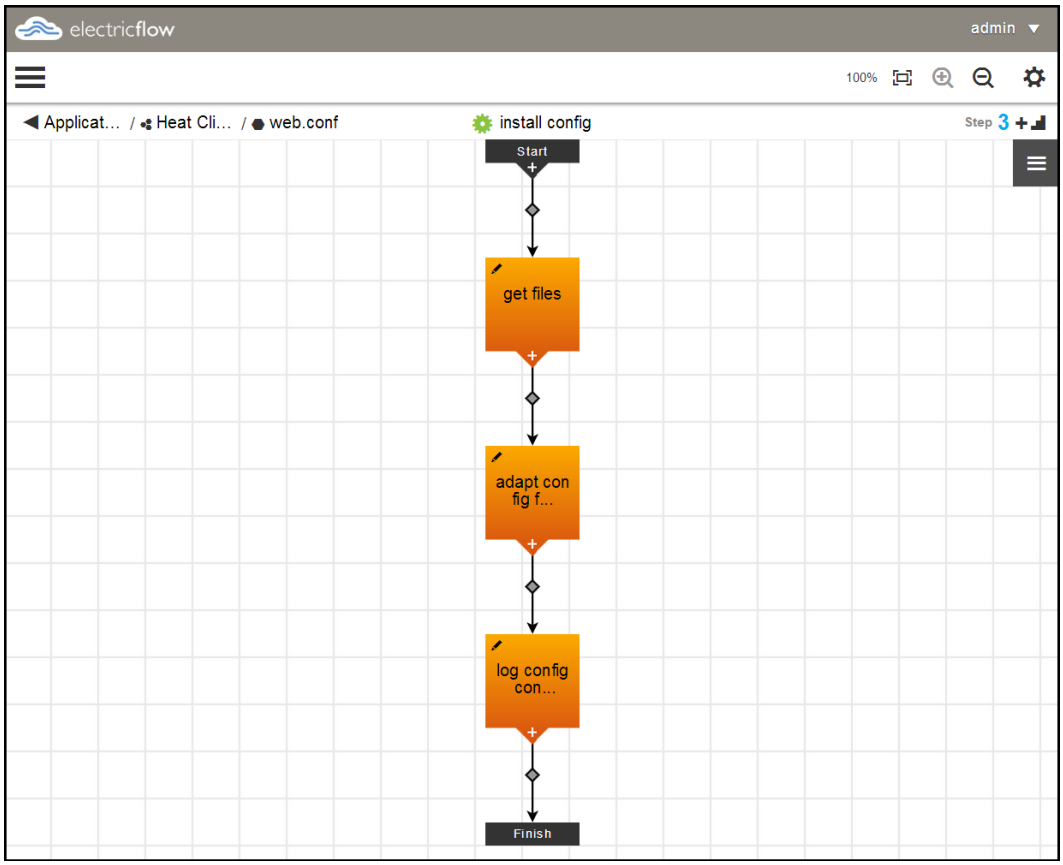
- When selecting an existing component process

  From the Applications designer, select a component in an application tier, click the "Show component process" icon, and select a component process in the drop-down list.

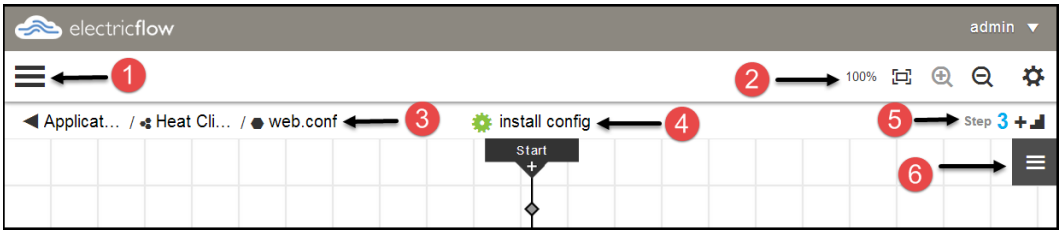


In this example, the component process called install config has been selected.

The steps in the component process appear in the Component Process designer.



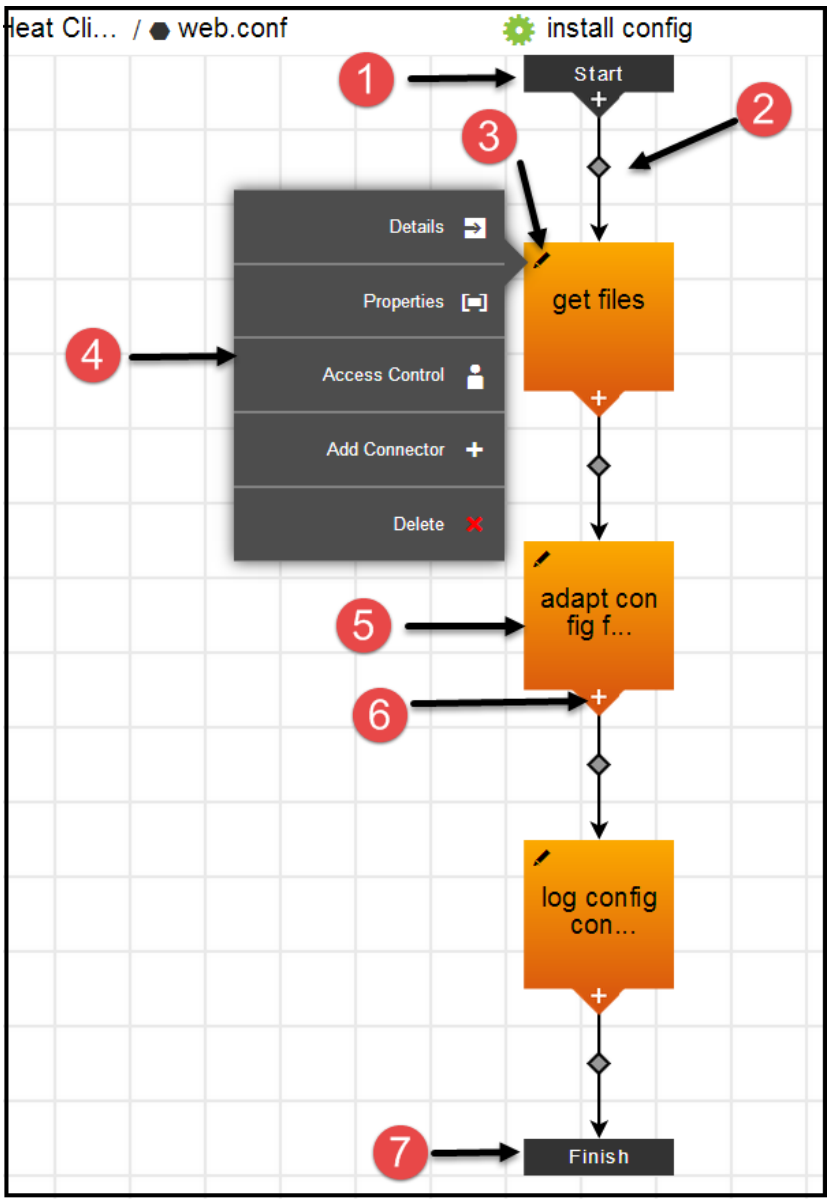
The Component Process designer has these objects:



1	Main menu
2	This information is view only. ElectricFlow automatically adjusts the page settings to show all the tiers in the application. For example, if all the tiers do not fit on the page at 100% magnification, ElectricFlow reduces the magnification until all the tiers appear on the page.
3	Breadcrumbs specifying the object type/application name/component name
4	Name of the component process

5	Number of steps in the process
6	Component processes menu icon Click this icon to view the component process details.

The component process has these objects:



1	Start of the process

2	Connector icon Click this icon to configure the branching conditions between two process steps. The default is **Always**, which means always go to the next step. For more information, see Configuration Guidelines for Process Branching.
3	Process-step details icon Click this icon to open the process-step details menu.
4	Process-step details menu
5	Component process step
6	Click the plus (+) sign to add a step below the current step.
7	End of the process

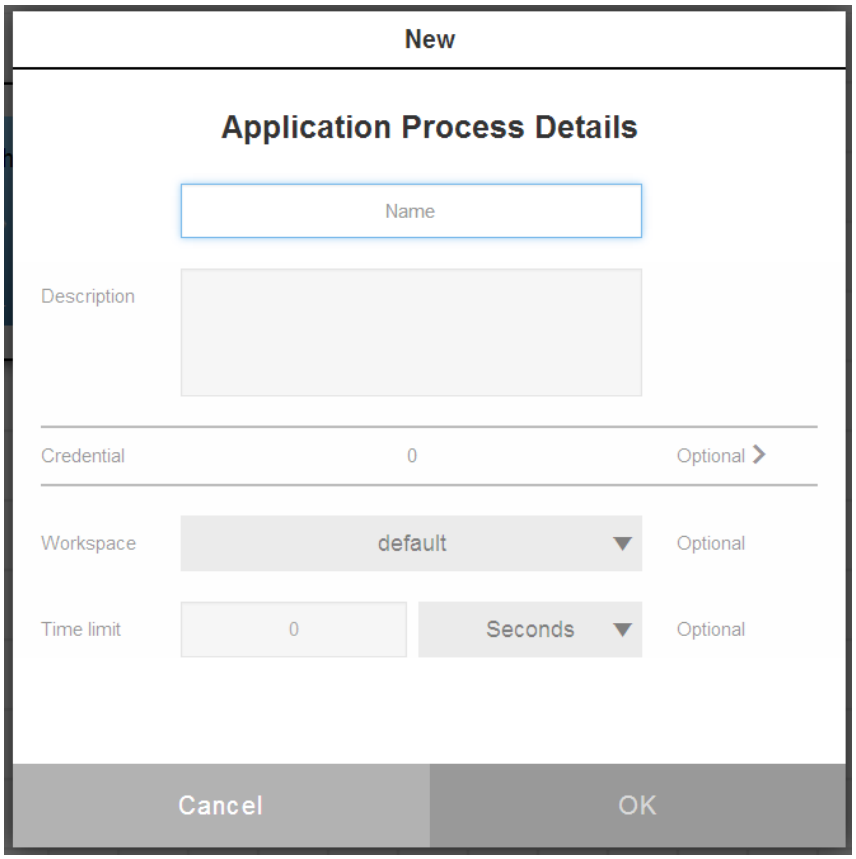
Application Processes

How to get here:

- When creating a new application process

  From the Applications designer, click the "Add application process" icon.

  The Application Process Details dialog box appears.



Field	Description and How to Set It
Name	Name of the process step
Description	Description of the process step
Credential	An object consisting of a user name and password that ElectricFlow uses to run a process step. The dialog box displays the number of credentials for the process step, which are the same credentials that you use with procedures, steps, and schedules in the ElectricCommander platform. You can only impersonate one credential. To set the process type, see Adding Credentials.

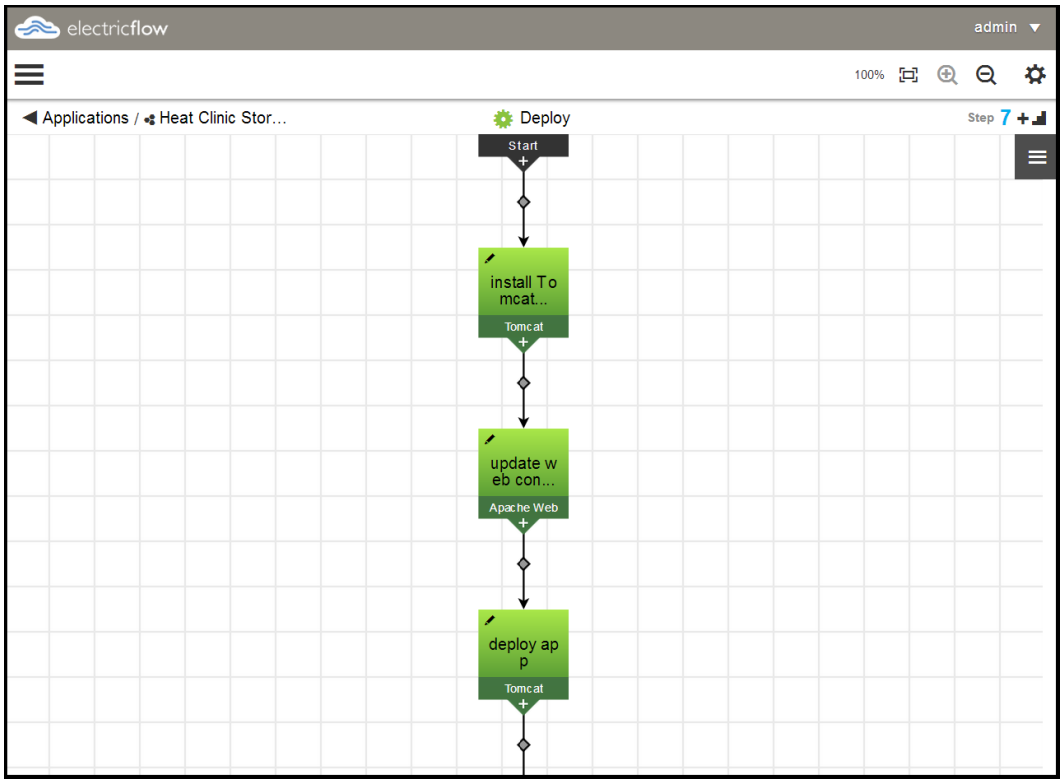
Field	Description and How to Set It
Workspace	Area in the disk space where the files and results of the job step are stored. To set the workspace, click the **Workspace** field to open a drop-down list of workspaces in the ElectricCommander platform and select a workspace. For more information about workspaces, go to the ElectricCommander Help > Workspaces and Disk Management. To set the workspace, click Workspace to open a drop-down list of workspaces in the ElectricCommander platform. select a workspace, and click **OK**.
Time limit	Maximum length of time that the step is allowed to run. After the time specified, the step is aborted, To set the time limit, enter the time and select the unit of time: seconds, minutes, or hours. For information about time limits for procedure job steps in the ElectricCommander platform, go to the ElectricCommander Help > API Commands.

- When selecting an existing component process

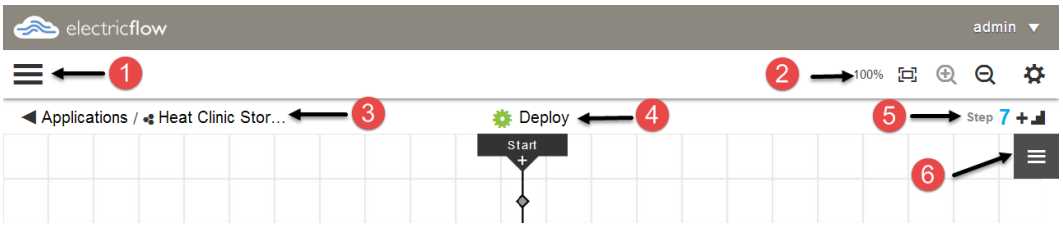
  From the Applications designer, click the down arrow next to the number of application processes, and select an application process in the drop-down list.

This example shows an application process called Deploy. The application process has the same objects as the component process. See Component Processes.

The steps in the application process appear in the Application Process designer.



The Applications Process designer has these objects:



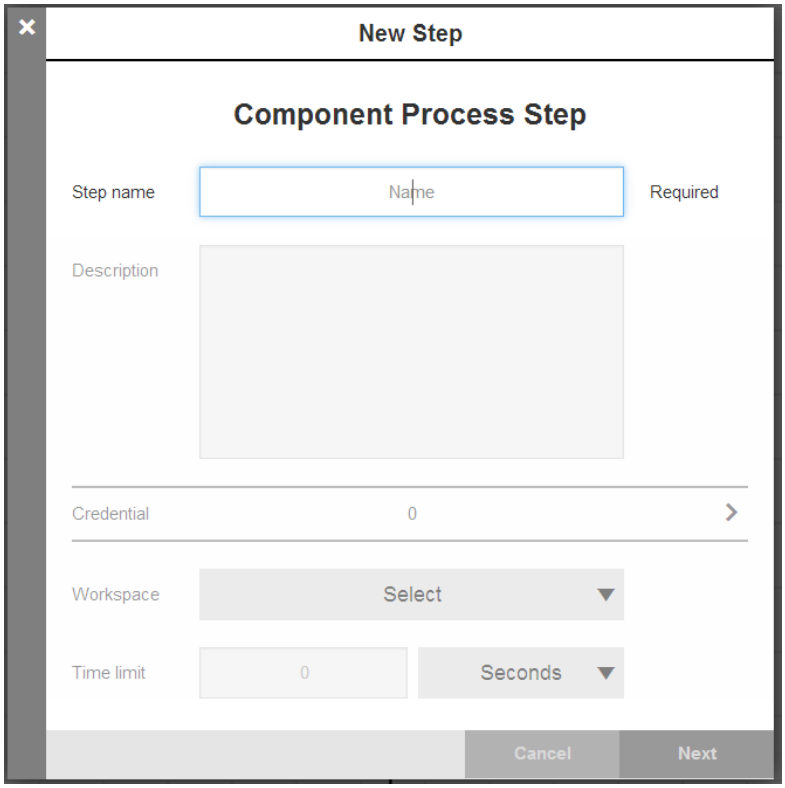
1	Main menu
2	This information is view only. ElectricFlow automatically adjusts the page settings to show all the tiers in the application. For example, if all the tiers do not fit on the page at 100% magnification, ElectricFlow reduces the magnification until all the tiers appear on the page.
3	Breadcrumbs specifying the object type/application name
4	Name of the application process
5	Number of steps in the process
6	Component processes menu icon Click this icon to view the component process details.

Component and Application Process Steps

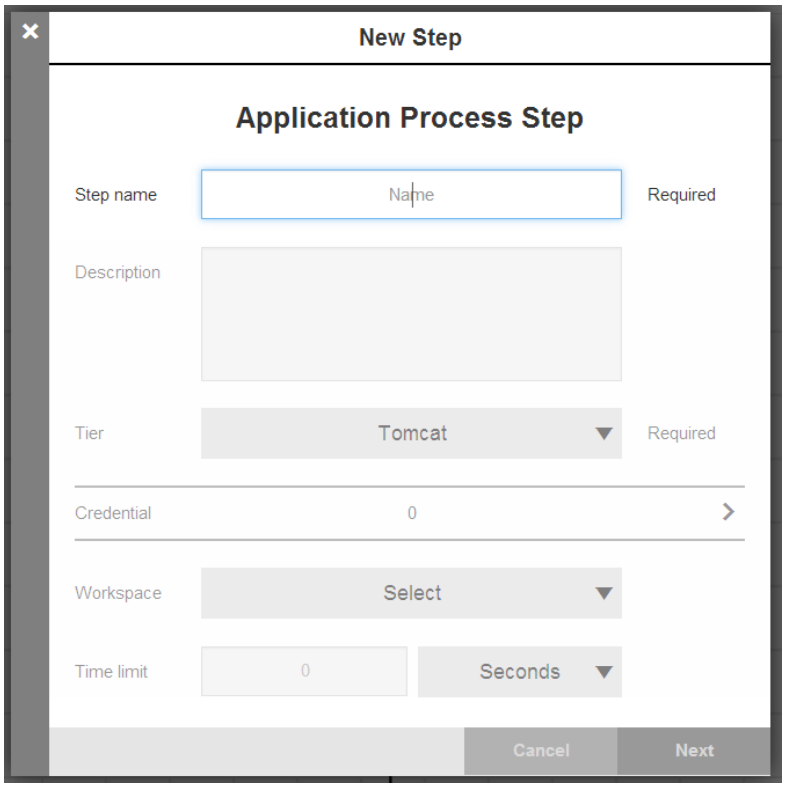
This topic describes Component Process Step and Application Process Step dialog boxes that you use to configure component and application process steps.

Configuring a New Process Step

How to get to the Component Process Step dialog box: On the Applications designer, select an application tier > select a component > click the "Add Component Process" icon in the component.



How to get to the Application Process Step dialog box: On the Applications designer, click the "Add Application Process" icon in the upper right corner of the page.



Configuring an Existing Process Step

How to get to the Component Process Step dialog box: On the Applications Tier page, select an application tier > select a component > click the "Show Component Process" icon in the component.

This dialog box is similar to the dialog box for a new step except that it has the "Edit Step" label on the top.

How to get to the Application Process Step dialog box: On the Applications Tier page, click the process icon next to the number of configured application processes in the upper right corner of the page.

The Application Process Step dialog box is the same as the dialog box for a new step except that it has the "Edit Step" label on the top.

Setting Parameters in the Process Step Dialog Boxes

IMPORTANT:
When you impersonate a credential, make sure that the impersonated user has the absolute path to the bin directories in the $PATH environment.
If you define a process step with a command, you must enter the absolute path in the **Post Processor** and **Shell** fields in the Define Step dialog box.

Enter information in the following fields:

- **Name** (required)–Name of the process step.
- **Description**–Description of the process step.
- **Tier** (application process step only)–Application tier in which the process step runs.

- **Credential**–An object consisting of a user name and password that ElectricFlow uses to determine who or what runs a process step.

  The field displays the number of credentials for the process step, which are the same credentials that you use with procedures, steps, and schedules in the ElectricCommander platform.

  To set the credentials, click **>** to open the Credentials dialog box. For the detailed step, see Adding Credentials.

  You can add only one credential for impersonation, and you can attach more than one credential to the process step.

  If a credential is set to impersonate, you can also attach that credential to the process step.

  For more information about credentials and impersonation, go to the ElectricCommander Help > Credentials and User Impersonation.

- **Workspace**–Area in the disk space where the files and results of the job step are stored.

  To set the workspace, click the **Workspace** field to open a drop-down list of workspaces in the ElectricCloud platform and select a workspace.

  For more information about workspaces, go to the ElectricCommander Help > Workspaces and Disk Management in the *ElectricCommander Help*.

  To set the workspace, click Workspace to open a drop-down list of workspaces in the ElectricCommander platform, select a workspace, and click **OK**.

- **Time limit**–Maximum length of time that the step is allowed to run. After the time specified, the step is aborted.

  To set the time limit, enter the time and select the unit of time: seconds, minutes, or hours.

  For information about time limits for procedure job steps in the ElectricCommander platform, go to the ElectricCommander Help > API Commands.

Using the Drag and Drop Method to Add Process Steps

How to get to the Application Process designer:

- Existing application process: From the Applications Tier page, click the number-and-down-arrow icon and select an application. The Application Process designer for that application process appears.
- New application process: From the Applications Tier page, click the "Add application process" icon, set the parameters in the Application Process Details dialog box, and click **OK**. The Application Process designer for the application appears.

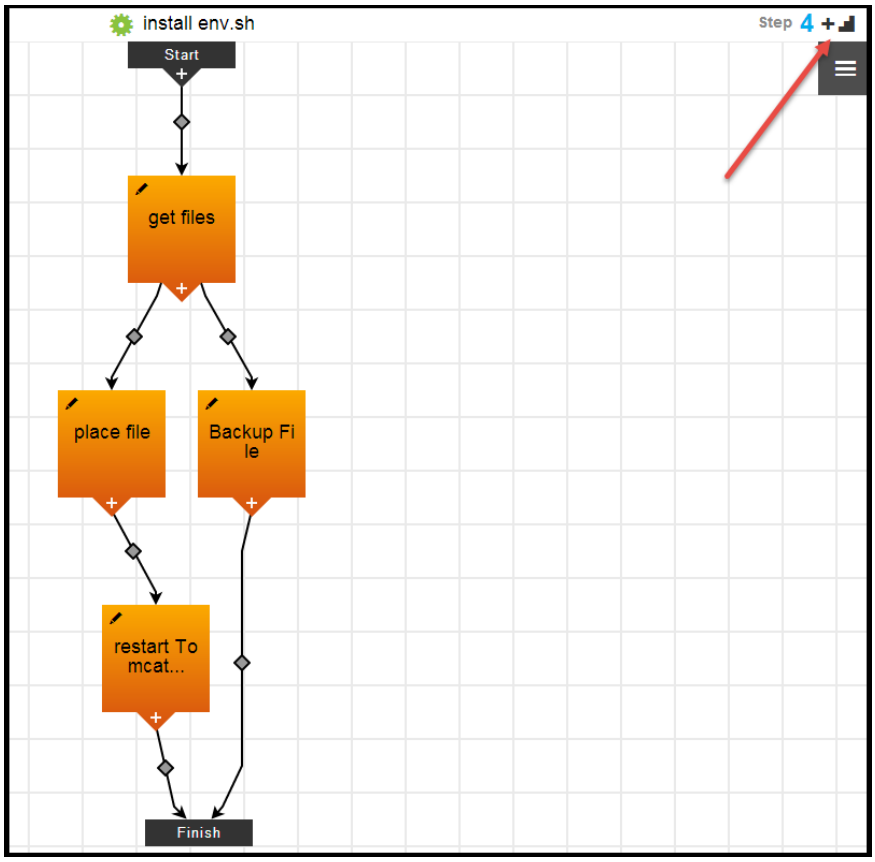
How to get to the Component Process designer:

- Existing component process: From the Applications Tier page, click the "Show component process" icon, and select a component process in the drop-down list. The Component Process designer for that component process appears.
- New component process: From the Applications Tier page, click the "Add component process" icon to a component, set the parameters in the Component Process Details dialog box, and click **OK**. The Component Process designer for the component process appears.

To drag and drop a new step to a component or application process:

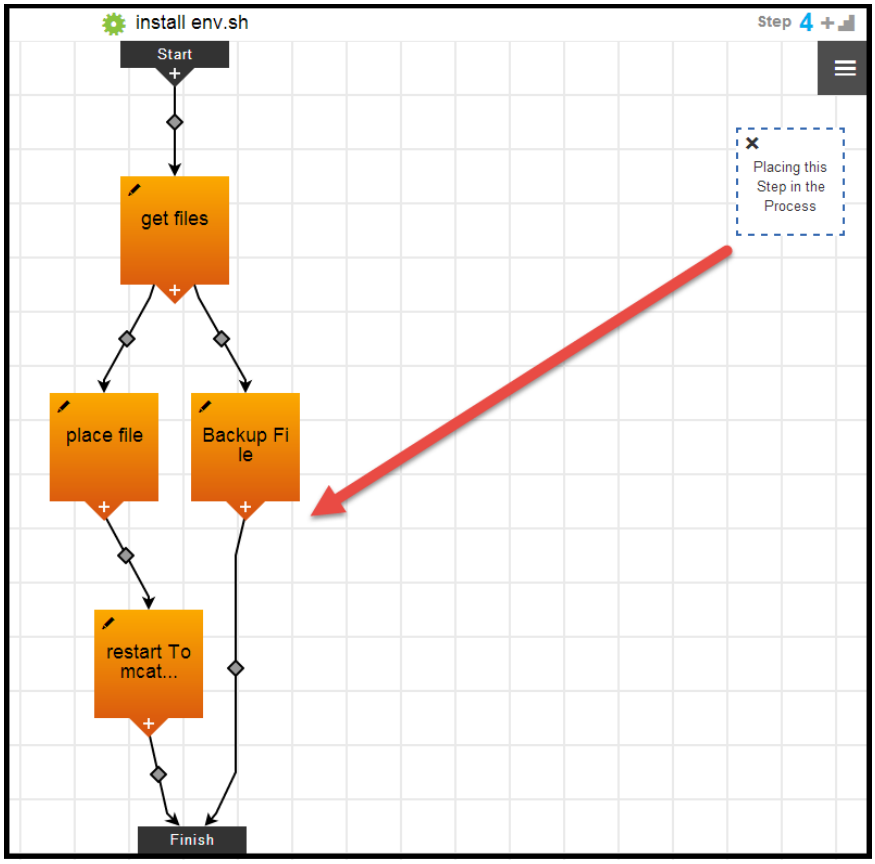
1. Click the "Add Step" icon in the upper right corner of the Component Process or Application Process designer.

   .A new undefined step appears.



2. Select the new step.

3. Drag the step to where you want to add it in the process.



When you are near where you want to add the step in the process, notice that the icon changes shape and the text in it changes to "Dropping this Step in the Process."

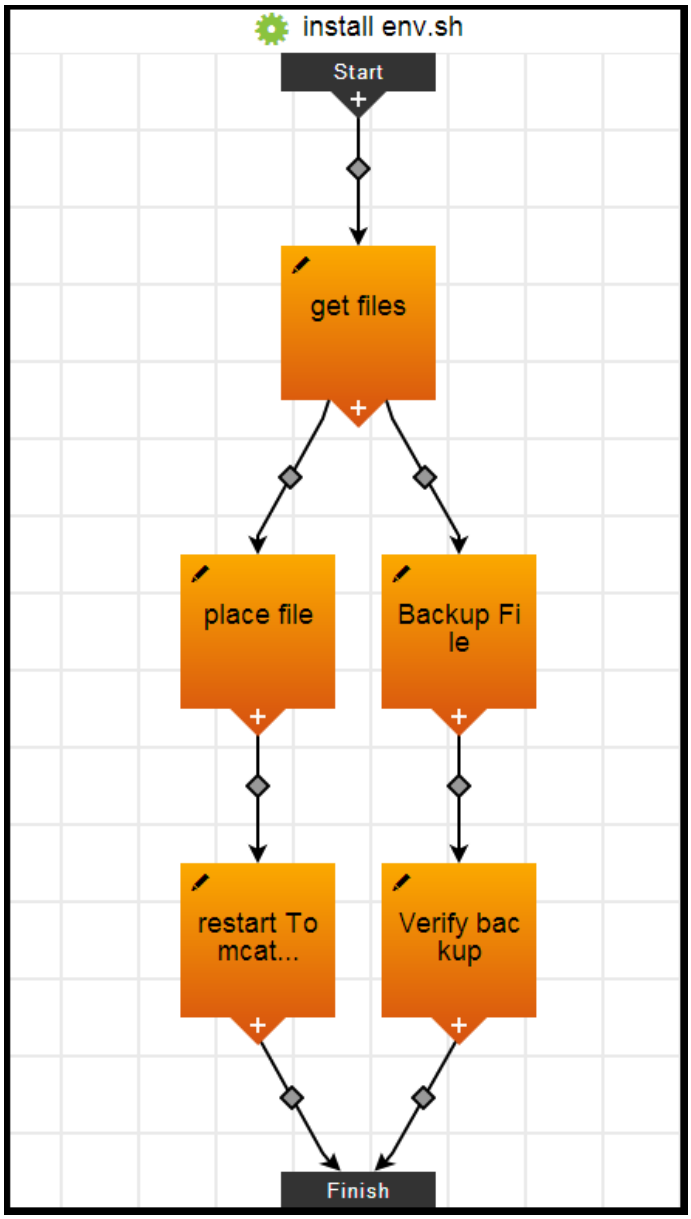
4. Drop the step in the process.

The Component Process Step dialog box appears.

5. Configure the step.

   For more details, see Configuring Process Steps.

   The new step is in the process.

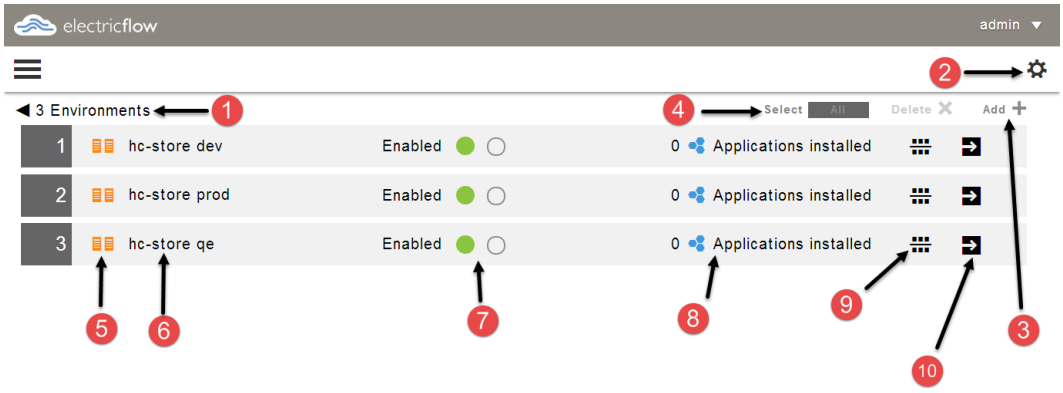


Environments List

How to get here:

- From the Home page, click the **Environments** launch pad.
- From the main menu on the Home page, click the **Environments** destinations.

Use this list to track the environments in your software deployment solution.



1	Breadcrumb, which shows the total number of environments configured in your ElectricFlow system.
2	Administrative settings menu Click this icon to open a list of links to the administration area in the ElectricCommander platform. These links are the same as the links in the administrative settings menu on the Home page.
3	Click the plus sign (+) to add an environment.
4	If you click **All**, all the environments are selected and the delete icon (X) is now available. Click the Delete icon to delete all of the environments. If you select one or more environments, click the Delete icon to delete the selected environments. the delete icon (X) is now available If you click **None**, none of the environments are selected and the Delete icon is not available.
5	Environment icon
6	Name of the environment

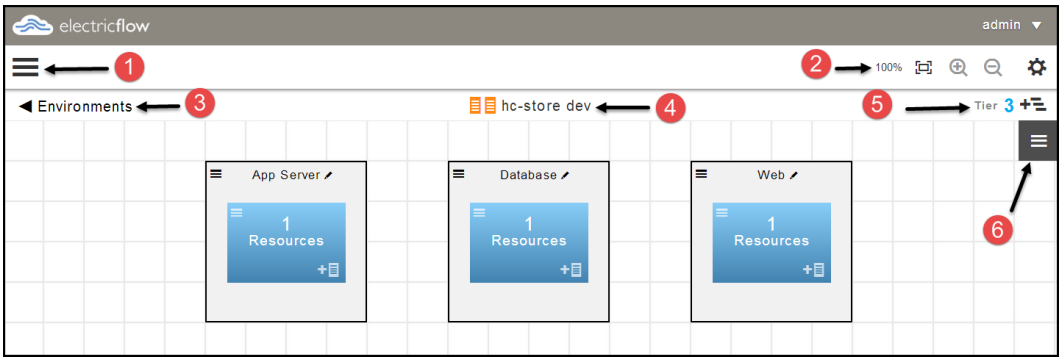
7	Status of the environment When the status is Enabled and the green button appears, you can run the application after setting the tier map.
8	Total number of applications installed with the application icon
9	Inventory icon. Click this icon to view the environment inventory.
10	Click this arrow icon to go to the Environments designer.

Environments Designer

How to get to here: From the Environments List page, select an environment.

Environments consist of resources that are grouped into tiers. The component and application processes run on resources assigned to environments. For information about the environment tiers, see Environment Tiers.

To run deployment applications, you must configure tier maps of application tiers to environment tiers.

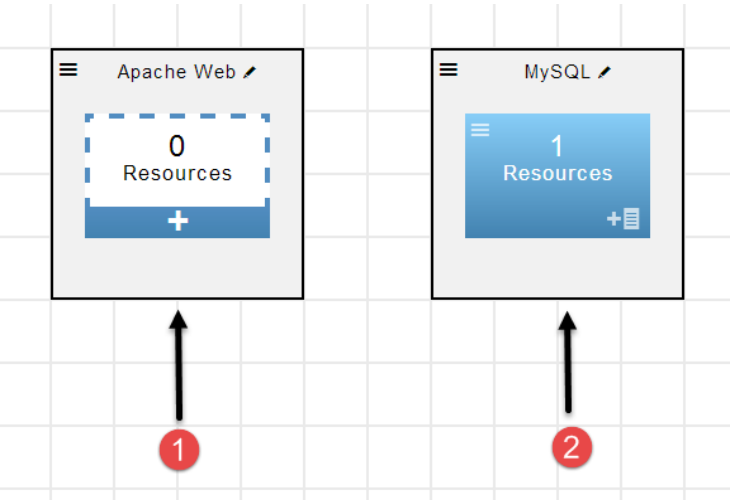


The following information is on this page:

1	Main menu
2	This information is view only. ElectricFlow automatically adjusts the page settings to show all the tiers in the environment. For example, if all the tiers do not fit on the page at 100% magnification, ElectricFlow reduces the magnification until all the tiers appear on the page.
3	Breadcrumbs
4	Environment icon and environment name

5	Number of tiers in the environment and the tier icon Click the tier icon to add a tier to the environment.
6	Environments menu icon Click this icon to view the environment details.

The appearance of the resources in an environment tier changes when you assign a new resource to a specific resource managed by the ElectricCommander platform.

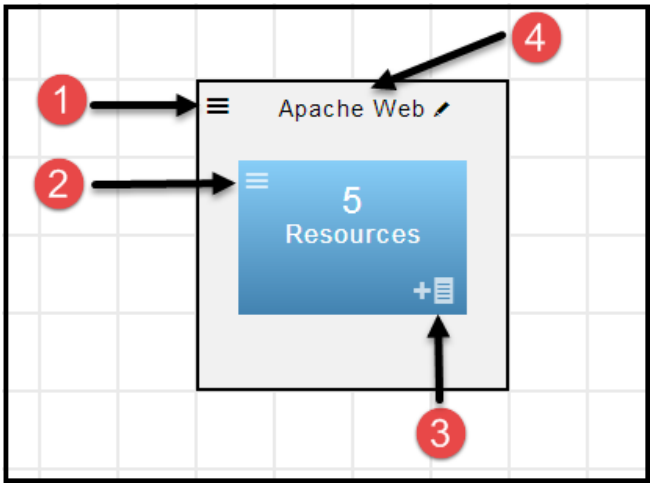


1	The resource has been created but is not assigned to a specific environment tier.
2	The resource has been assigned to a specific environment tier.

Environment Tiers

How to get here: From the Environments designer, select an environment tier.

Environment tiers consist of resources that can be assigned to applications.

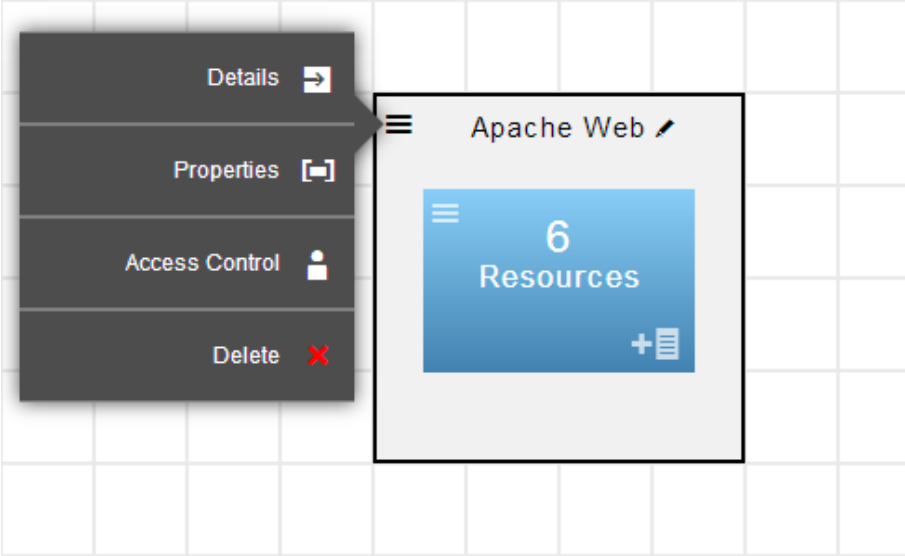


The following information is available about the tier.

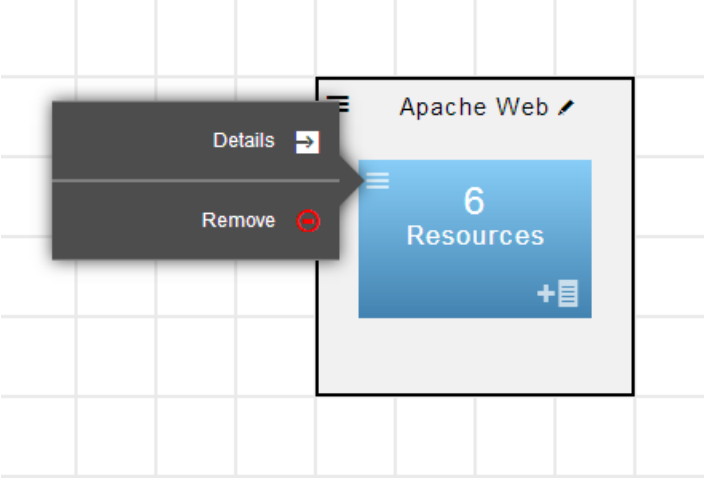
1	Environment tier menu icon Click this icon to see the tier details.
2	Resource menu icon Click this icon to view the resource details.
3	"Add a resource" icon Click this icon to add a resource in the tier.
4	Environment tier name and pencil icon Click the pencil icon to edit the tier name and description.

Environment Tier Details and Resource Details

When you click the environment tier menu icon, the environment tier details menu appears.



When you click the resource menu icon, the resource details menu appears.



You can click on one of the following for more information about the environment tier or resource:

- From the application tier details menu:
  - **Details**–Go to Environment Tiers.
  - **Properties**–Go to Environment Tiers
  - **Access Control**–Go to Environment Tiers.
  - **Delete**–Go to Environment Tiers

    When you use **Delete**, everything for the tier, including the tier and all the resources in it, is deleted.
- From the resource details menu:
  - **Details**–Go to Environment Tiers.

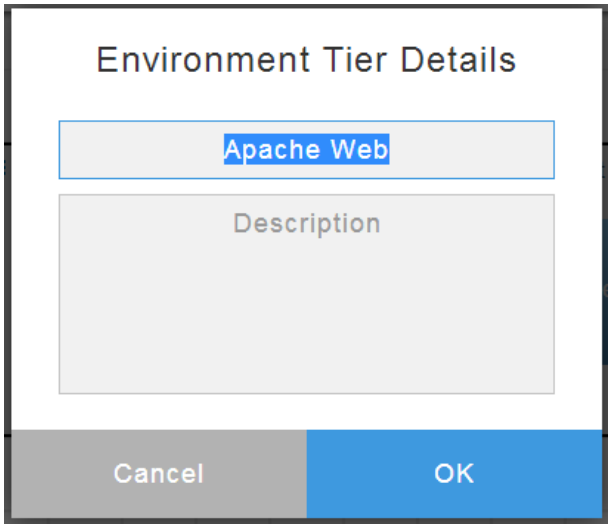
- **Remove**–Go to Environment Tiers.

  When you use **Remove**, only the resources that you selected are deleted from the environment tier.

Environment Tier Details

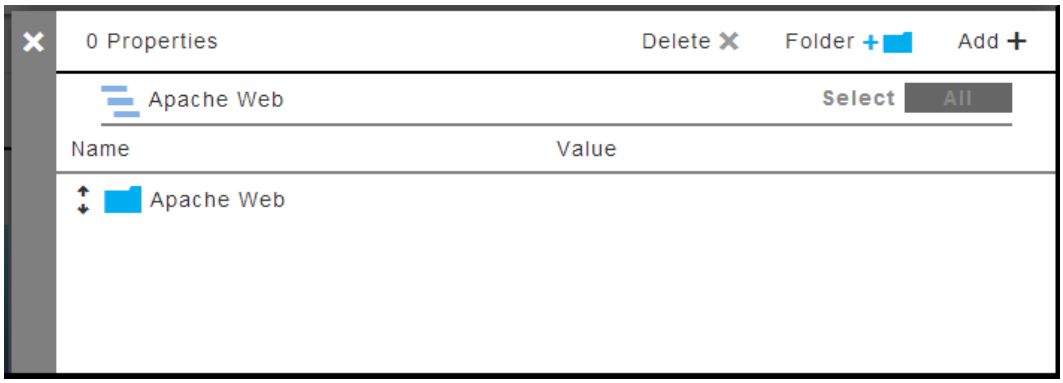
When you click **Details** in the environment tier details menu, the Environment Tier Details dialog box appears. It also appears when you click the pencil icon.

You can change the name of the environment tier and add a description about it.



Environment Tier Properties

When you click **Properties** in the environment tier details menu, the environment tier Properties dialog box appears.



You set the properties for the environment tier or resource.

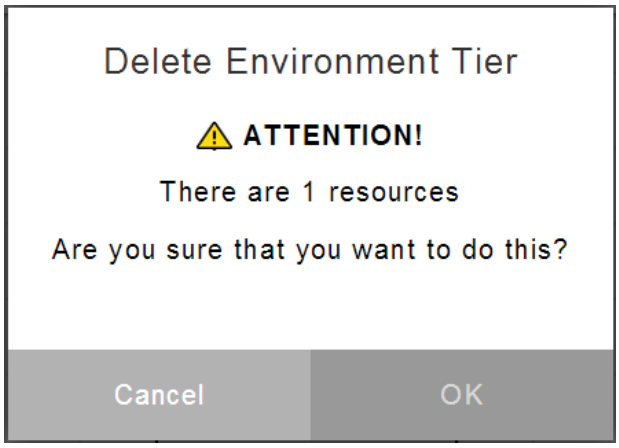
Environment Tier Access Control

When you click **Access Control**, you go to the Access Control page in the ElectricCommander platform. You can set privileges for the objects in your deployment application.

For more information about the Access Control page, go to the ElectricCommander Help > Projects > Select a project > Access Control.

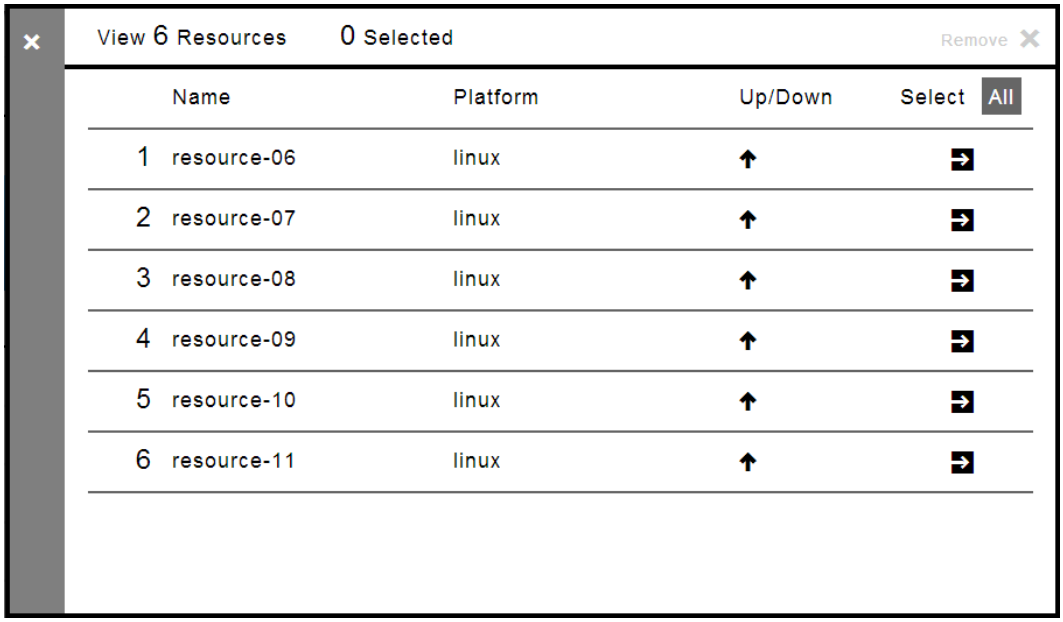
Environment Tier Delete

When you click **Delete**, the Delete Environment Tier dialog box appears.



Resource Details

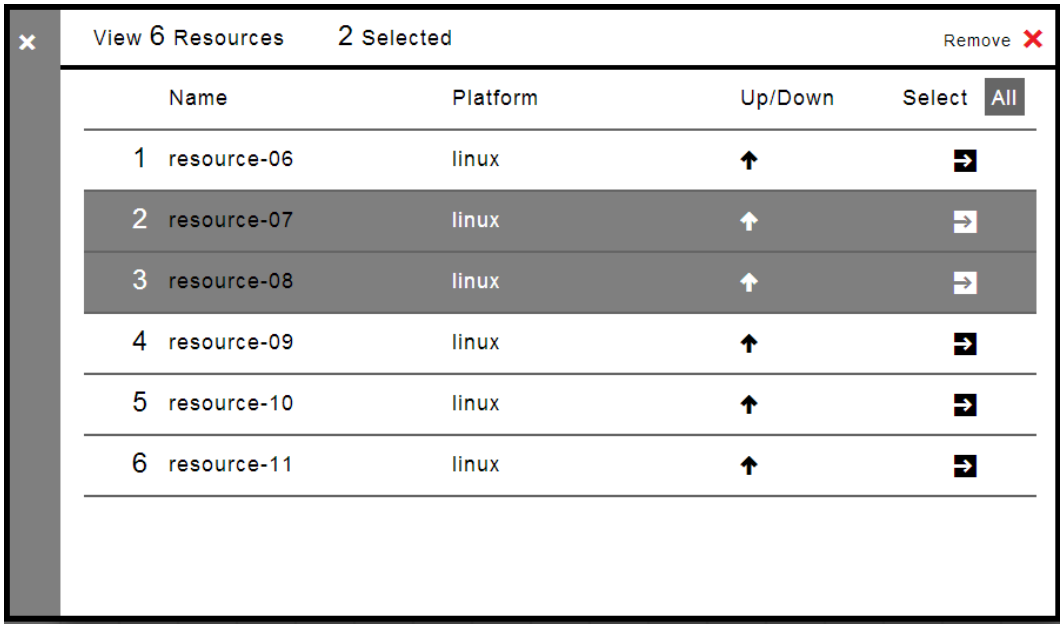
When you click **Details** in the resource details menu, the resource list appears. For each resource in the deployment application, it shows the resource name, the platform it is on, and the status.



When you click the right arrow, you go to the Resources page in the ElectricCommander platform. For more information about the Resources page, go to the ElectricCommander Help > Web Interface Help > Resources.

Resource Remove

Select one or more resources and click **Remove X** to remove only the selected resources from the environment tier.

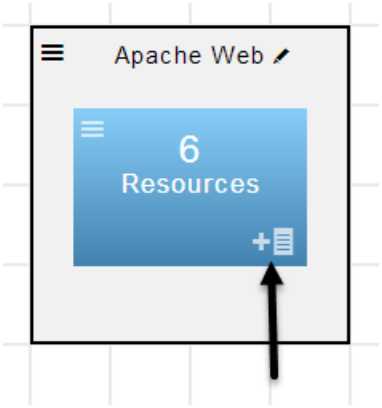


Adding Resources to Environment Tiers

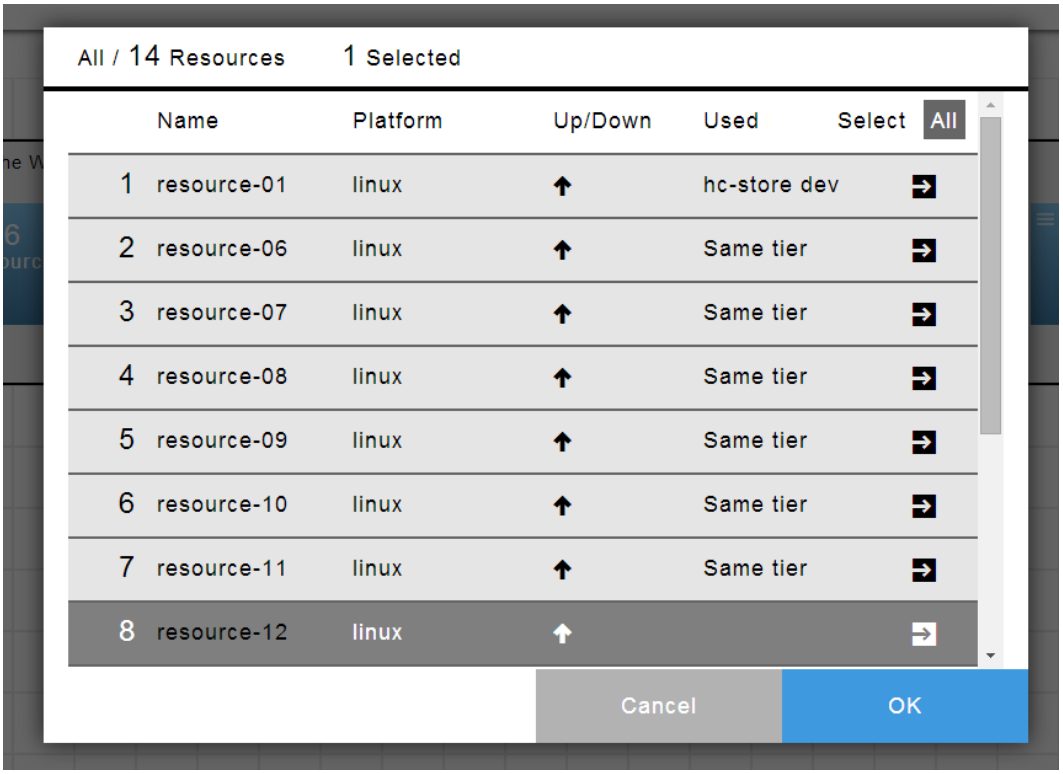
This example shows how to add a resource to an environment tier.

1. Click the "Add a resource" icon.

   The resource list appears.



2. Select one or more resources and click **OK**.



3. The environment tier re-appears and is updated to show that resources have been added to the tier.

Inventory Tracking

Electric Flow uses inventory tracking to track what is built, tested, and deployed in continuous delivery solutions, such as artifacts, resources on which the deployment applications are run, and environments to which the resources are assigned.

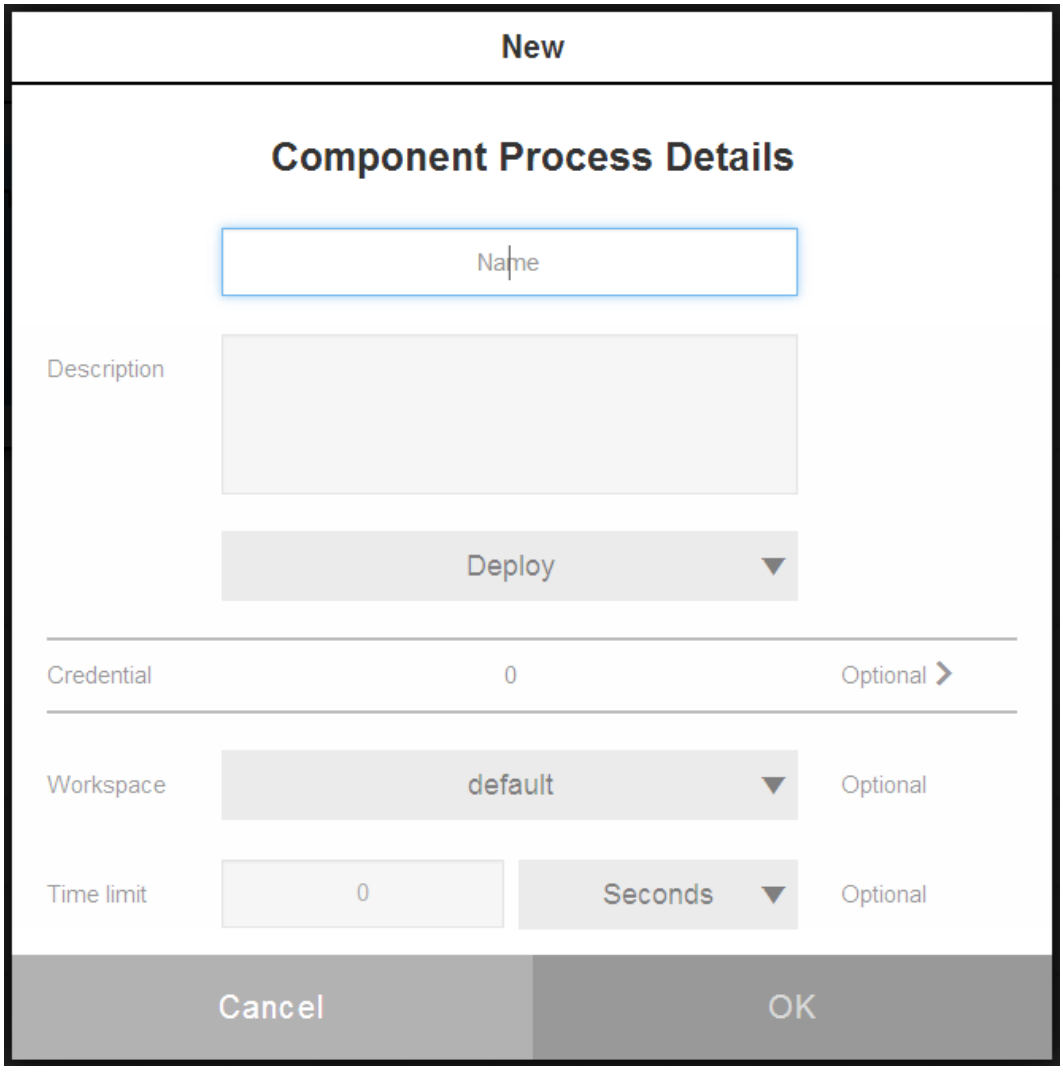
If there is an issue in a deployed application in operations, you can find the details about what was deployed with inventory tracking.

Tracking at the Component Process Level

Inventory tracking occurs at the component process level.

You configure the component process in one of the following process types in the Component Process Details dialog box:

- **Deploy**–Enables inventory tracking. The ElectricCommander server tracks artifacts deployed to environments. This is the default.
- **Undeploy**–After the first successful job step in a component process with this setting, the ElectricCommander platform removes the environment inventory record.
- **Other**–Disables inventory tracking.



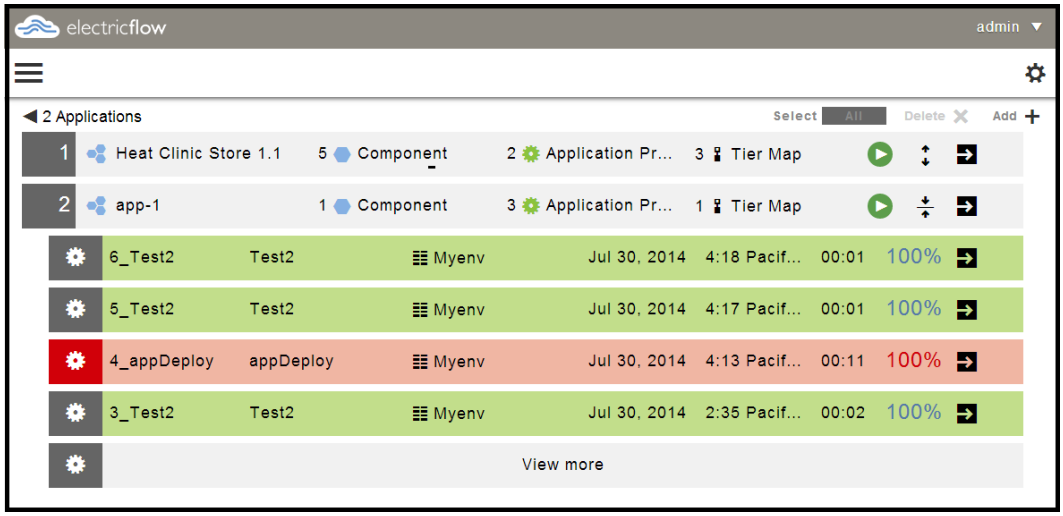
Application Inventory Tracking

How to get here:

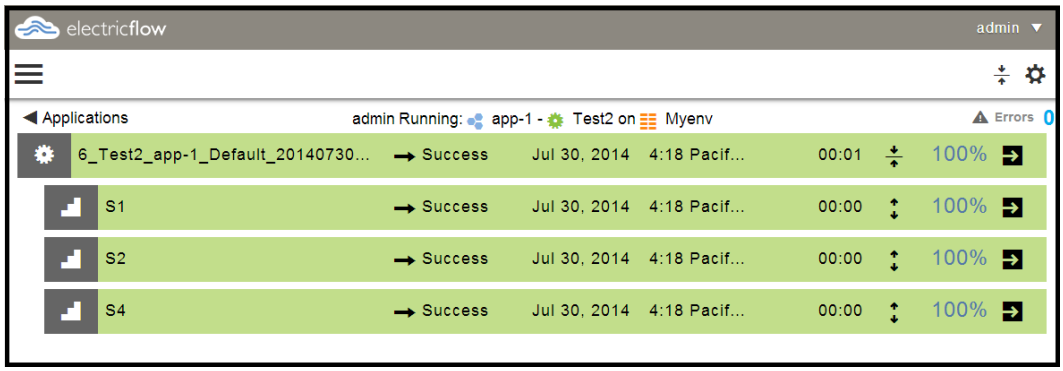
- From the Home page, click the **Applications** launch pad.
- From the main menu on the Home page, click the **Applications** destination.

When you run an application, the Applications List shows the status.

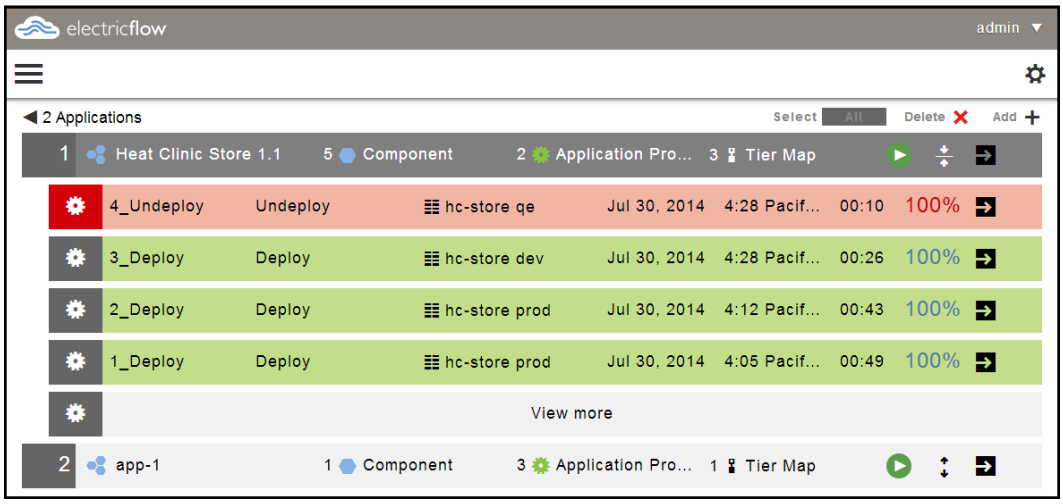
The following shows that the application called "app-1" ran successfully on July 30, 2014, at 4:18 pm.



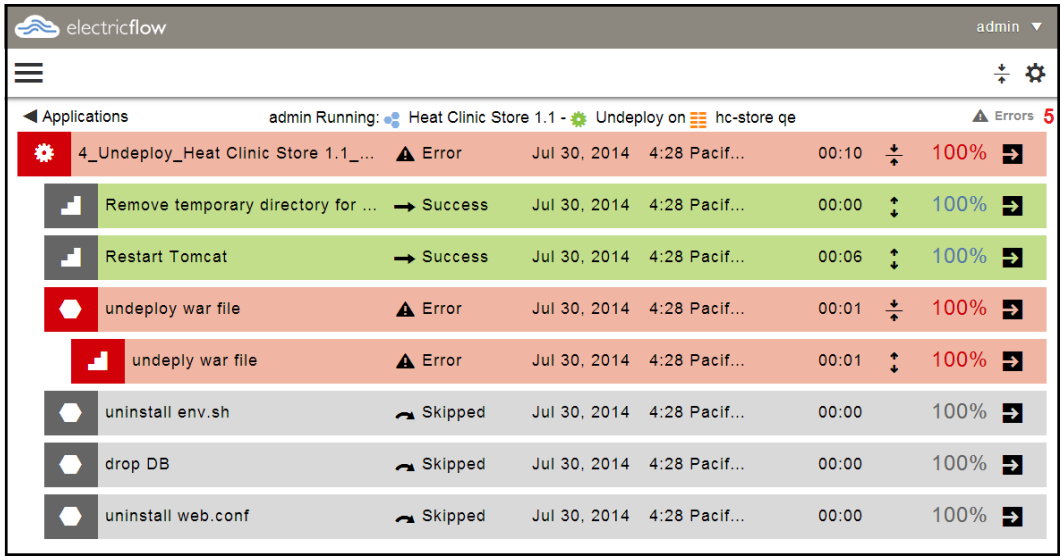
Click the right arrow in the 6_Test2 row to see the detailed results. The process has three steps, which were all successfully run.



The following shows that the application called"Heat Store Clinic 1.1" did not run successfully on July 30, 2014, at 4:28 p.m.



Click the right arrow in the 4_Undeploy row to see the detailed results. The process has two steps that ran successfully, a component called "undeploy war file" with errors, three skipped objects, and five errors.

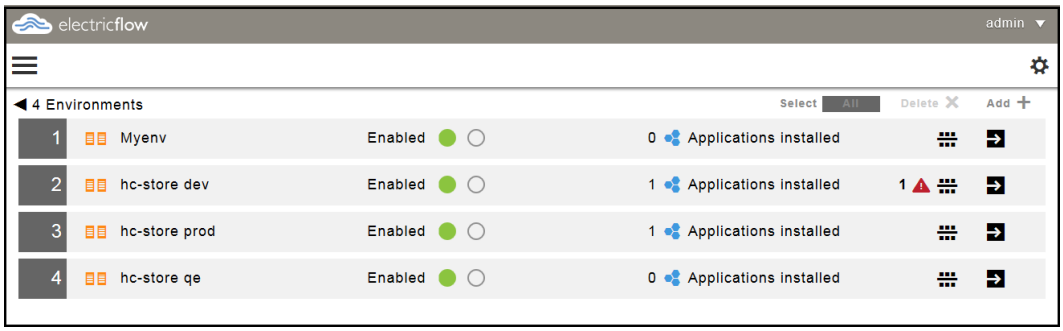


To troubleshoot the errors, you can click the right arrow in one of the "undeploy war file" rows and you will go a Job Step Detail page in the ElectricCommander platform.

Environment Inventory Tracking

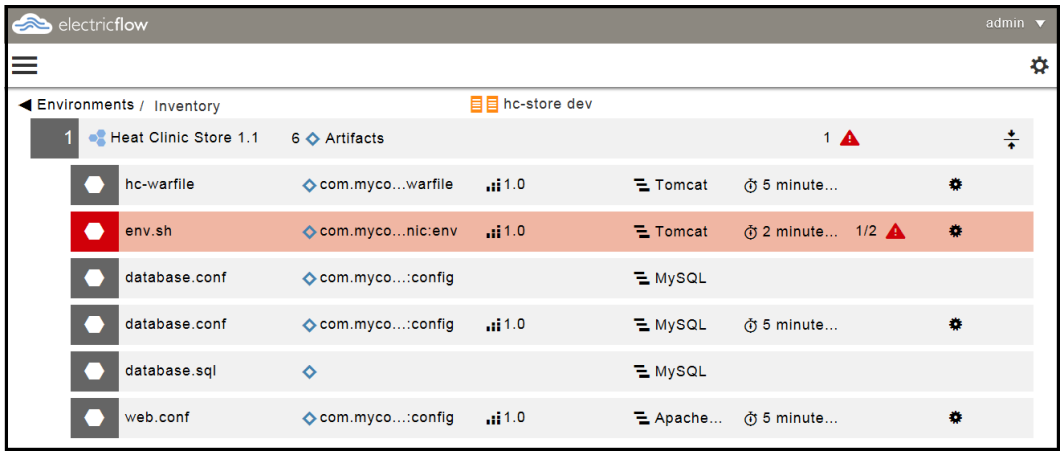
How to get here: From the Environments List, select an environment and click the Inventory icon. The Environment Inventory for that environment appears.

This Environments List shows that an application was run on the "hc-store dev" environment and has one error.

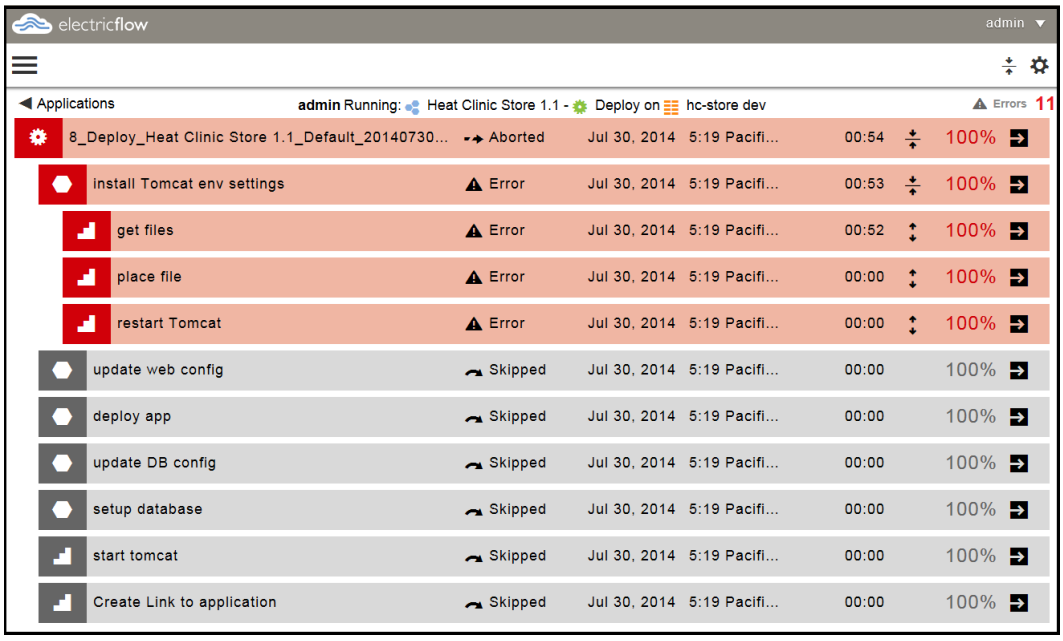


The first level of the Environment Inventory appears.

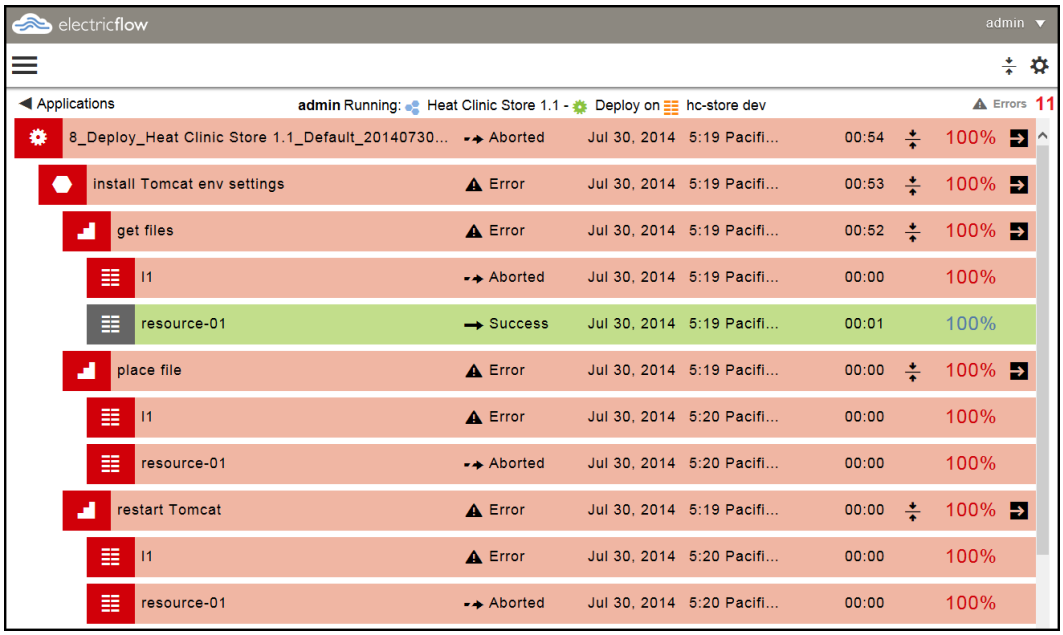
In the second level, you can view more details. Click the arrows at the end of the row.The applications mapped to this environment appear.



To show more details in the third level, click the process icon at the end of the env.sh row.



In the fourth level, you can get more information for the steps in the Install component process by clicking on the arrow at the end of the get files, place file, and restart Tomcat rows.



The Environment Inventory shows this information:

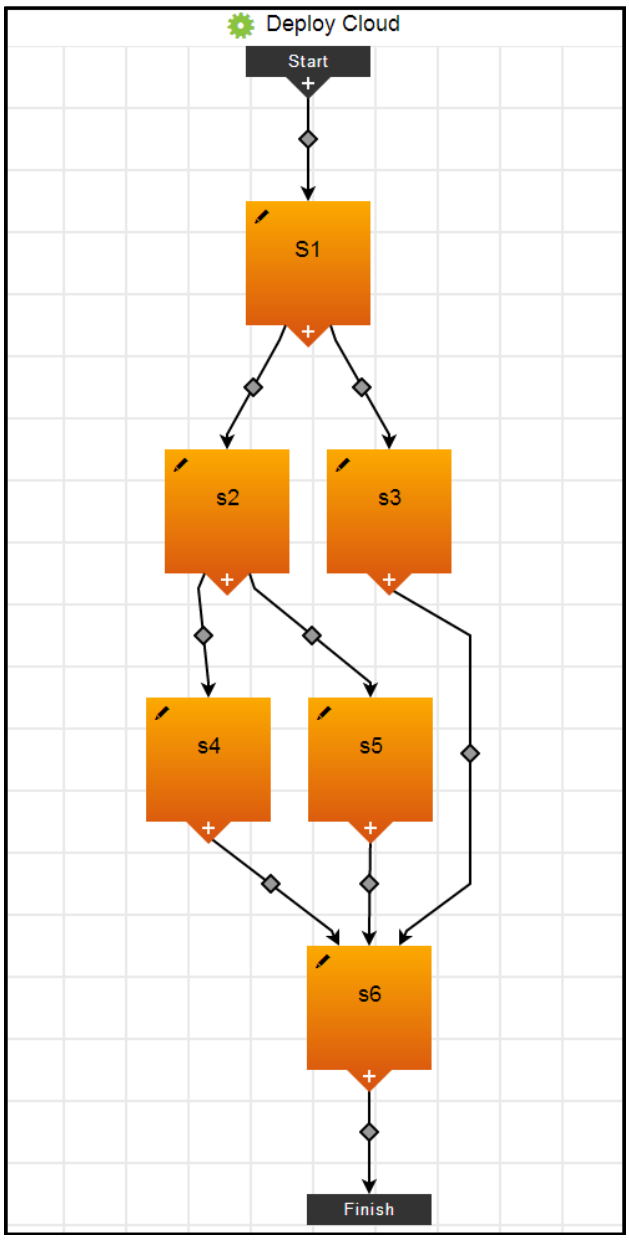
- Environment name: hc-store dev
- Name of the application mapped to this environment: Heat Clinic Store 1.1
- Components in the application: See the second level.
- Number of the artifacts associated with components: Six. For details, see the first and second levels.

- Each component has an artifact with a version number: See the second level.
- Each component is also in an application tier: See the second level.
- Time when the artifact was deployed: See the third and fourth levels.
- Error counts if there are any errors: See the third and fourth levels.
- Number of resources that are successfully assigned to deployment applications on a per-artifact basis: See the third and fourth levels.

Viewing Job Details

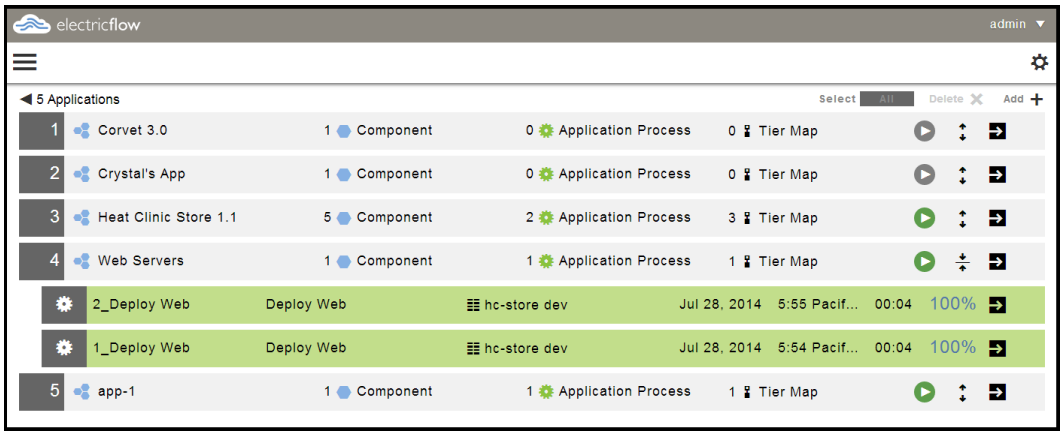
When you run a process in an application, the system records the results of the process as each step is performed. You can see a summary of the results in the Applications Inventory.

This example shows the results of running the Deploy Web application process, which consists of the Deploy Cloud component process.

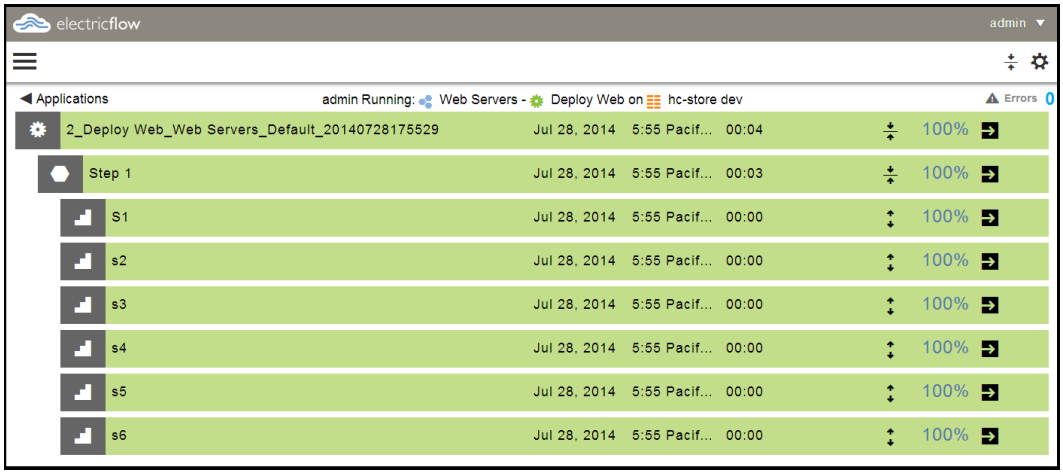


When you run the Deploy Web process, you can see the status of the process as it runs in the Application Inventory.

You can also see which application processes were run, with the latest process appearing first.



To see more details about the process, click the process about which you want more information. If you want to learn more about the 2_Deploy Web process, click **2_Deploy Web** in the Applications Inventory. It now shows the details for the process that you selected.



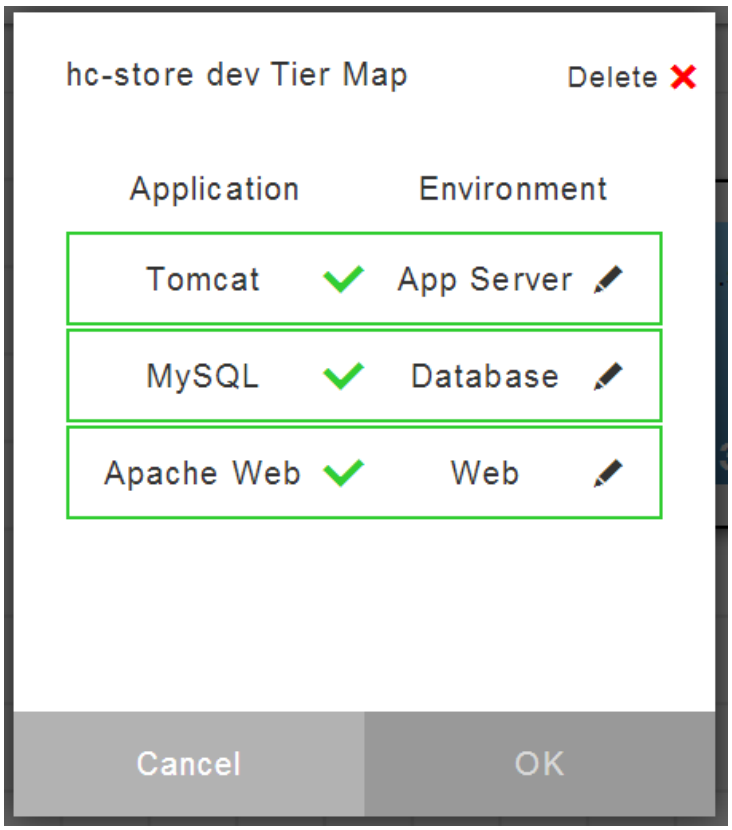
Notice the order of the process steps in the Applications Inventory. The order is not based on the branches in the process. Instead, the system lists the steps based on their level in the process.

- Step S1 is the first step in the process and is listed first. There are no other steps at this level so the next step is in the level following S1.
- The next step in the list is s2.
- Step s3 is on the same level as s2. There are no other steps at this level so the next step is in the level after this.
- The next step is s4.
- Step s5 is on the same level as s4. There are no other steps at this level so the next step is in the level after this.
- The last step is s6.

Tier Maps

How to get to a Tier Map: From the Application designer, click the down arrow next to the number of tier maps.

You must configure a tier map if you want to run a deployment. A tier map is a mapping of application tiers to environment tiers for a specific application and an environment with resources. For more information, see Configuring Tier Maps.



How To Run Deployment Applications

This section has information about how to run deployment applications.

For information about how to use the ElectricFlow UI, see How to Use the ElectricFlow UI.

1. Configuring Deployment Applications

   Go to Configuring Deployment Applications.

2. Running Deployment Applications

   Go to the Applications List, and click the "Run process" icon for the application.

   For more information, see Applications List, Inventory Tracking, and Running Applications.

Configuring Deployment Applications

Follow these steps to create a deployment application:

1. Configure applications and component processes.

   See Configuring Applications and Component Processes.

2. Configure application processes.

   See Configuring Deployment Applications

3. Configure environments.

   See Configuring Deployment Applications

4. Configure tier maps.

   Go to Configuring Tier Maps.

Configuring Applications and Component Processes

1. Go to the Applications List.

   For more information, see Applications List .

2. Click the plus sign (+) in the upper right corner to add an application.

   The "Create an Application" dialog box appears.

3. Select one of the following options:
   - **New**
     a. Select **New** and then **Next**.

        The New Application dialog box appears.
   - **From existing**
     a. Select **From existing** and then **Next**.

        The Create Application dialog box appears.

     b. Select an application and click **Next**.

        The New Application dialog box appears.
4. Enter the name and an optional description of the application, and click **OK**.

   The Applications designer appears.

   For more information, see Applications Designer

   Note: You can click the pencil icon next to the application tier name to edit the name and description.
5. Click the new component icon (*) at the bottom of the new component.

   The New Component dialog box appears.
6. Enter the name and an optional description of the application, and click **OK**.

   The Component Details dialog box appears.
7. Enter information about the artifact representing the component, including its content location and parameters, and click **OK**.

   For more information about artifacts, go to the ElectricCommander Help > Artifact Management.
8. To add a component process, click the "Add component process" icon.

   The Component Process Details dialog box opens.
9. Enter information about the component process.

   For information about the fields in the Component Process Details dialog box, see Component Processes and Adding Credentials.

   The Component Process designer now appears with a new component process.
10. Define one or more steps in the component process.

    See Defining Process Steps, Adding Credentials, and Configuring Process Branching.
11. Repeat the previous steps to configure more component processes.

Creating Application Processes

1. Click the "Add application process" icon in the Applications designer.

   The Application Process Details dialog box appears.

2. Enter information about the application process, and click **OK**.

   For information about the fields in the Application Details dialog box, see Application Processes and Adding Credentials.

   The Applications Process designer appears.

3. Define one or more steps in the application process.

   See Defining Process Steps, Adding Credentials, and Configuring Process Branching.

4. Repeat the previous steps to configure more application processes.

Configuring Environments

You configure environment tiers and the resources assigned to them in the Environments designer. For more information, see Environments Designer.

Configuring New Resources in New Environment Tiers

1. Go to the Environments List.

   For more information, see Environments List

2. Click the plus sign (+) in the upper right corner to add an environment.

   The Create Environment dialog box opens.

3. Select **New** or **From application**, and enter information in the dialog boxes that follow the Create Environment dialog box to set the name and an optional description of the new environment.

   The Environments designer appears with the new environment tier with zero (0) resources.

4. Configure a new resource in the environment tier. Click the plus sign below the number of resources (0 Resources).

   A dialog box appears with a list of available resources.

5. Click in the row of a resource to select it, and press **Enter**.

   Note: If you click the resource name instead of clicking in the row, you go to the Resources page in the ElectricCommander platform . For more information, see Environments Designer and go to ElectricCommander Help > Web Interface Help > Resources.

   In the Environments designer, the environment tier now shows the updated number of resources.

6. To add more resources to the same environment or to add a new environment tier, go to Configuring New Resources in Existing Environment Tiers.

Configuring New Resources in Existing Environments

1. Select an environment tier and click the plus sign under the number of resources (N Resources).

   A dialog box appears with a list of available resources.

2. Click in the row of resource to select it, and press **Enter**.

   In the Environments designer, the environment tier now shows the updated number of resources.

3. To add and configure a new resource in the same environment or a different existing environment:
    a. Click the plus sign under the number of resources (N Resources).
    b. Perform the previous steps, starting with Step 1 in this section, to configure the new resource.
4. To add more resources in a new environment tier:
    a. Click the "Add tier" icon in the upper right corner of the Environments designer.

       The Environments designer now shows the new environment tier with zero (0) resources.
    b. Starting at Step 4 in Configuring New Resources in New Environment Tiers, to configure the new resource.

Configuring Tier Maps

1. Do one of the following actions:
    - From the Applications designer, click the "Add tier map" icon in the upper right corner.
    - From the Applications List, click the "Run Process" icon, and select **Map to Environment**.

   The "Select an environment" dialog box opens.
2. Select an available environment and click **OK**.

   Note: An environment is unavailable if it is dimmed and you cannot click it.

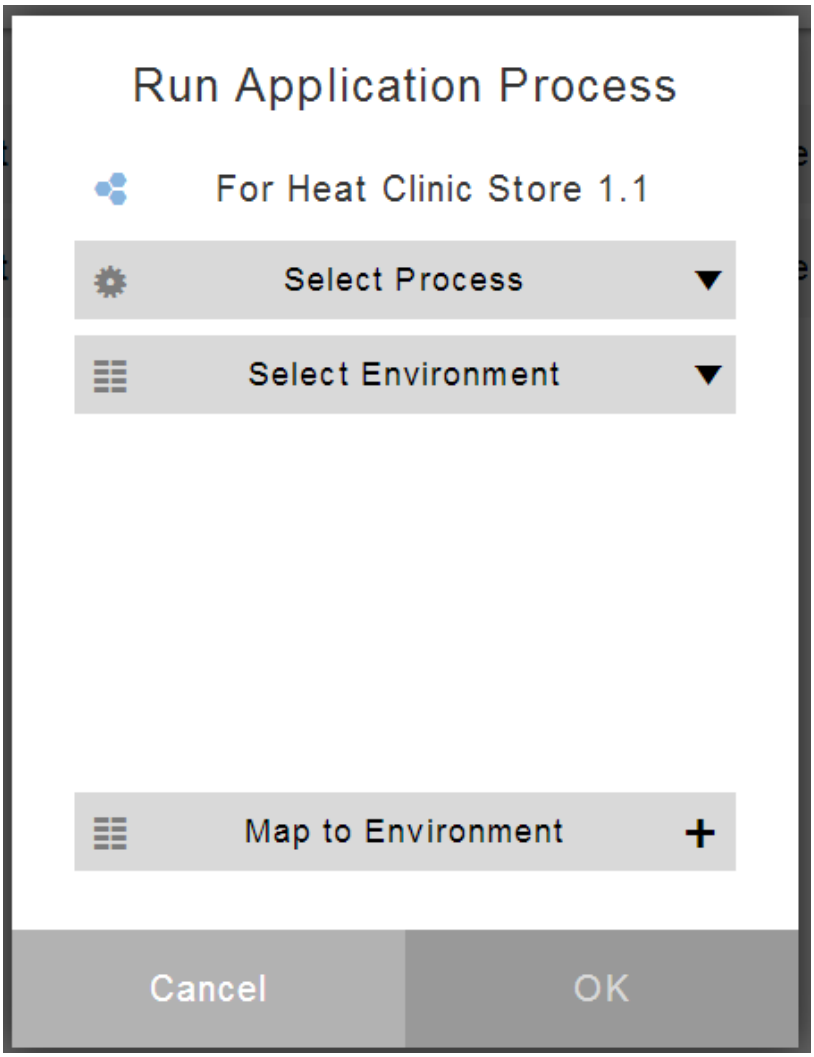
   The Tier Map dialog box appears.
3. Select a row to start mapping an application tier to an environment tier.
4. Click the Environment menu icon.
5. Select a tier in the pop-up list.
6. Repeat this previous steps to map the rest of the applications tiers to environment tiers in the Tier Map dialog box.
7. Click **OK** to save the Tier Map.

Running Applications

This example shows how to run an deployment application.

1. In the Applications List , click the "Run process" icon.

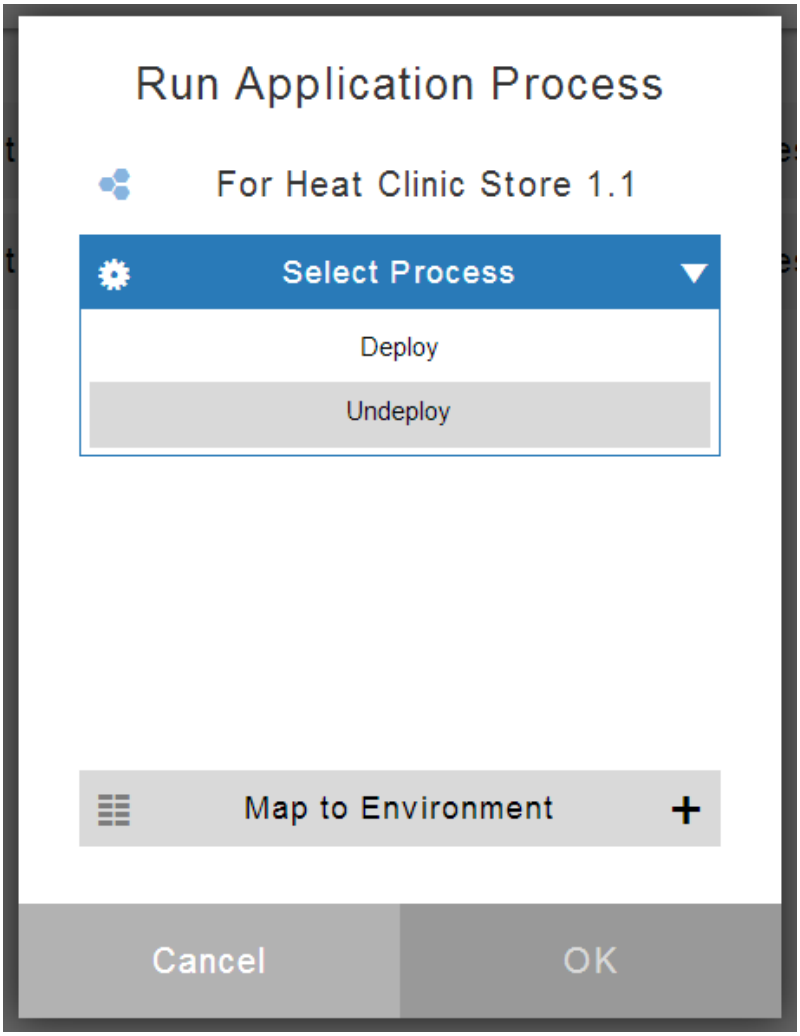
   The Run Application Process dialog box appears.



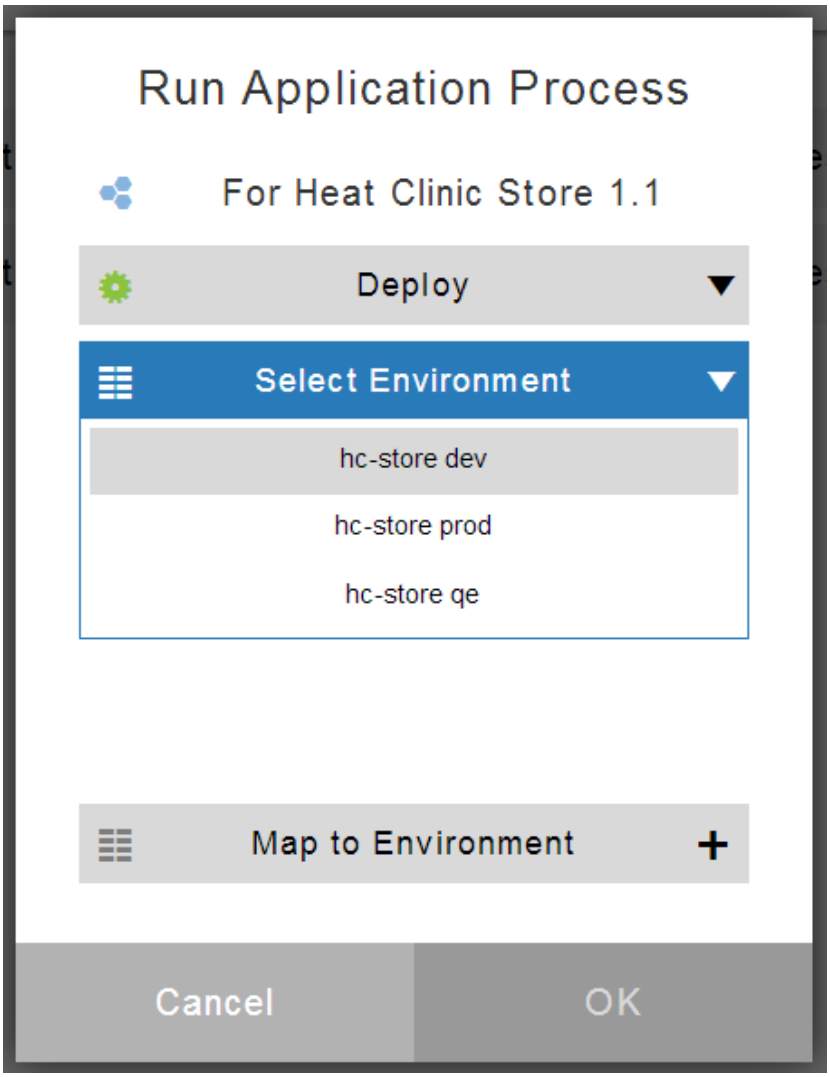
2. If you have already configured the tier map for the application process, go to the next step.

   If you have not configured the tier map, click **Map to Environment** and follow the steps in Configuring Tier Maps.

Click **Select Process**, and then select the process type in the "Select Process" drop-down list.



3. Click **Select Environment**, and select an environment in the "Select Environment" drop-down list.



4. Click **OK**.

   The process runs.

You can view the status of the process as it runs and the results in the Application Inventory and the Environment Inventory. For more information, see Inventory Tracking.

Defining Process Steps

This example describes how to define the process steps for application and component processes using commands.

The procedure to define process steps for application processes and component processes is the same except for the dialog boxes to configure the process steps.

- To configure steps in an application process, go to the Application Process designer.

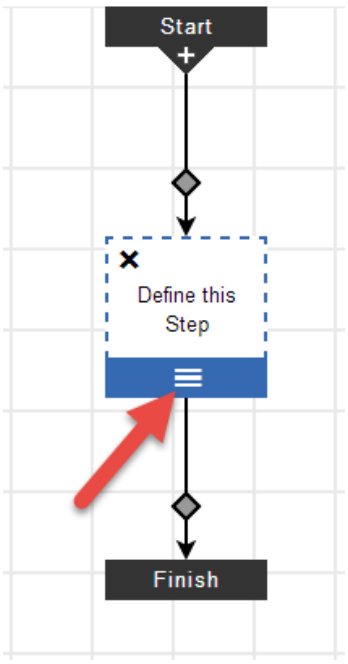
  How to get to there: From the Applications Tier page, click the "Add application process" icon > enter the information about the process in the Application Process Detail dialog box > click **OK**. For more information, see Application Process Details.

- To configure steps in a component process, go to the Component Process designer.

  How to get to there: From the Applications Tier page, select a component > click the "Add component process" icon > enter information about the process in the Component Process Detail dialog box > click **OK**. For more information, see Component Process Details.

Note: The following procedure applies to both application and components. The objects in the Application Process designer and the Component Process designer are the same.

1. In the new process step, click the icon below "Define this Step" to define it.

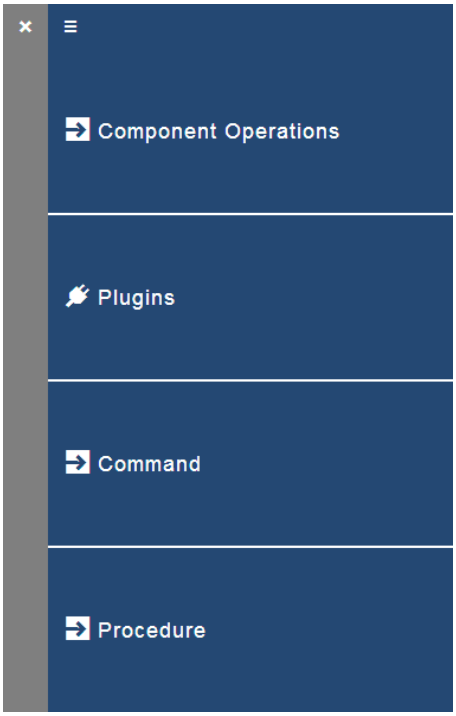


   The Component Process Step or Application Process Step dialog box appears.

2. Enter information about the process step.

   For more information, see Component and Application Process Steps and Adding Credentials.

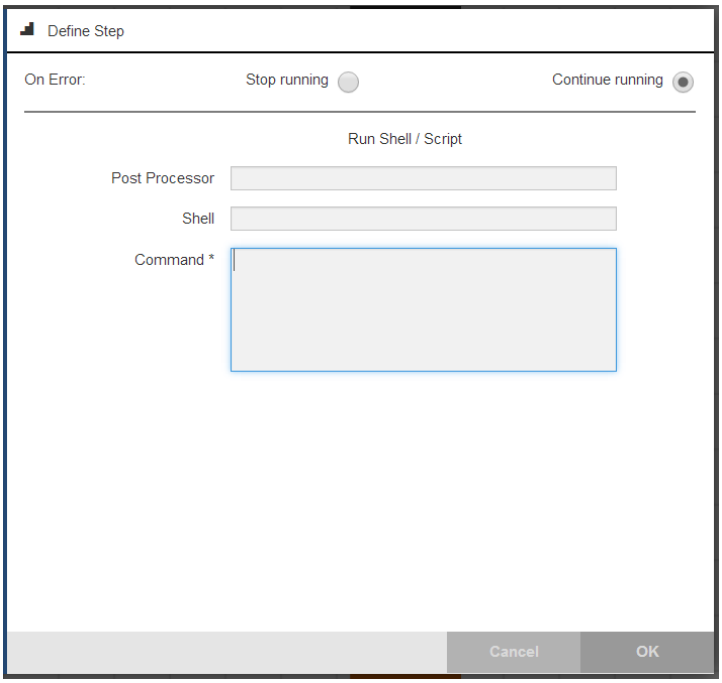
3. Click **Next**.The process step dialog box appears.



4. Click **Command** to define the process step with a command.

   The Define Step dialog box appears.

   Note: Starting in ElectricFlow 5.1, you can enter a postprocessor command for a component or application process step in the Post Processor field.



5. Enter the following information:

   - Select **stop running** or **continue running** in the **On Error** field.
     - When you select **stop running**, ElectricFlow stops the job if an error occurs.

       This step overrides the process branching condition. When an error occurs, the process aborts regardless of the branching condition.
     - When you select **continue running**, ElectricFlow continues to run the job if an error occurs.

       This setting overrides the process branching condition. When an error occurs and the branching condition is Failure, the process continues to the next step.
   - Enter the postprocessor command in the **Post Processor** field.
   - Enter the shell name in the Shell field.
   - Enter the command in the Command field.

6. Click **OK**.

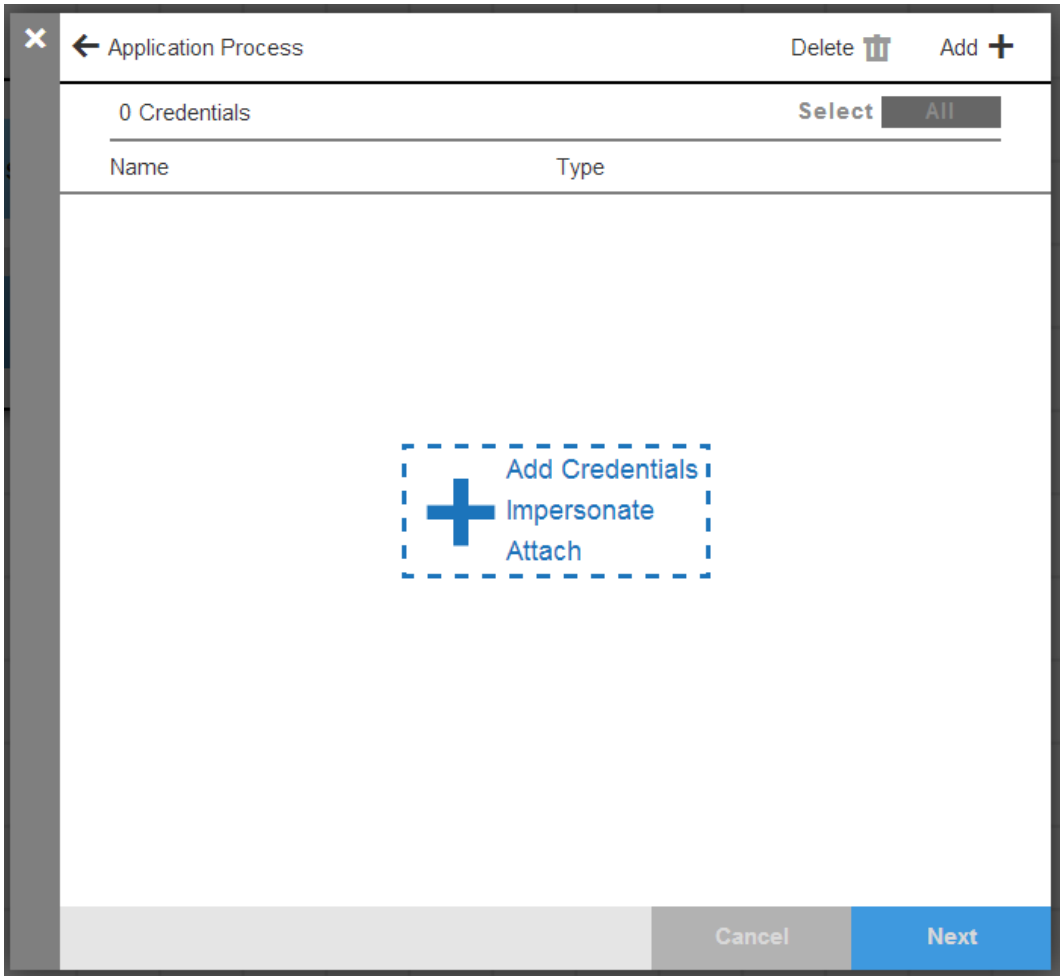
   The configured step now appears in the application or component process.

Adding Credentials

How to get here: From the Component Process Step or the Application Process Step dialog box, click **>**.The Credentials dialog box opens.

IMPORTANT:
When you impersonate a credential, make sure that the impersonated user has the absolute path to the bin directories in the $PATH environment.
If you define a process step with a command, you must enter the absolute path in the **Post Processor** and **Shell** fields in the Define Step dialog box.

1. Click in the Add Credentials field.



2. To impersonate one credential, select **Impersonate** in the Type field.
3. Click the **Select Credential** field to open a drop-down list of credentials for the process step.
4. Select a credential.

5. Click **OK**.

   The Credentials dialog box now shows the one credential for impersonation.

6. To attach one or more credential to the process step, select **Attach** in the Type field.
7. Click the **Select Credential** field to open a drop-down list of credentials for the process step.
8. Select a credential.
9. Click **OK**.

   The Credentials dialog box now shows the attached credentials.

Configuring Plugins

When you want to use a plugin to define your application or component process step, all of the supported plugins appear. However, you may want to see only the list of plugins that apply to your group or organization, such as Apache Subversion (SVN) and Git plugins.

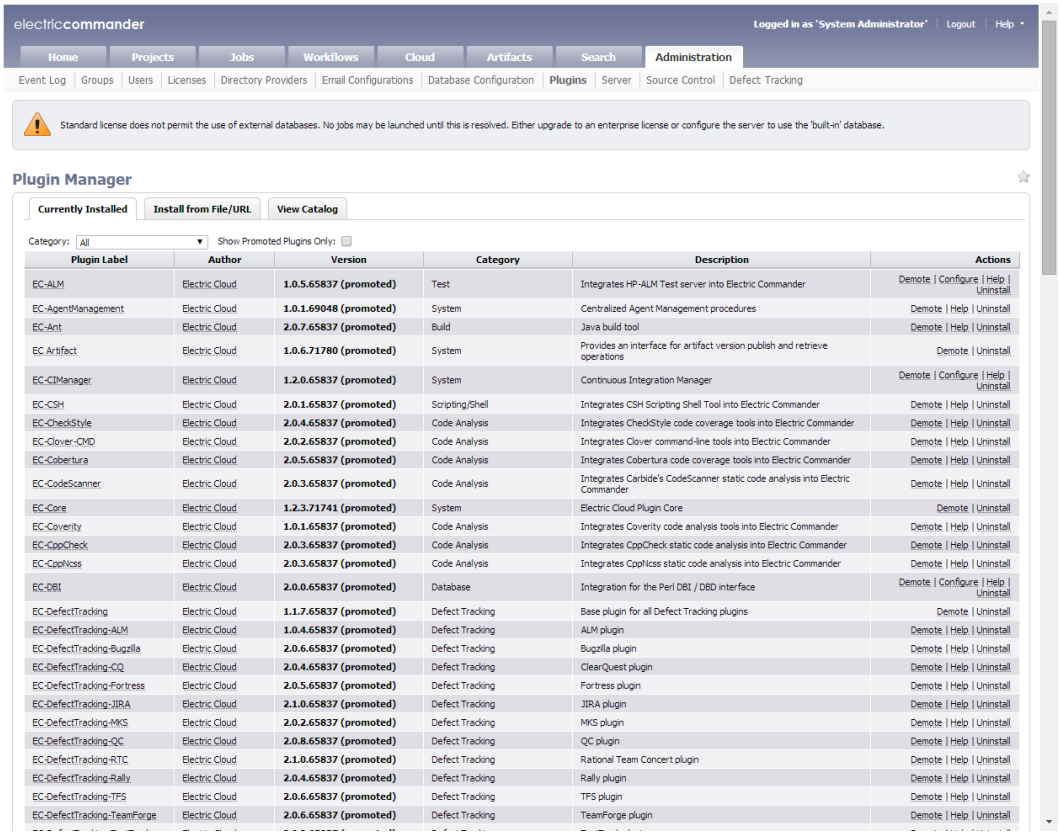
To edit the list of plugins:

1. In the Main Landing page, click the Settings icon and then click **Administration** to go to the ElectricCommander platform.

   The ElectricCommander platform page opens.

2. Click **Plugins**.

   The Plugin Manager appears.



3. Select a plugin in the list.
4. In the Actions column for the selected plugin, click **Demote**. The page refreshes and the plugin no longer appears on it.

The next time that you define a step with a plugin, only the plugins for your group or organization appear.

Process Branching

This section describes Processing Branching and how to use it.

For information about how to use the ElectricFlow UI, see How to Use the ElectricFlow UI.

About Process Branching

Starting in ElectricFlow 5.1, you can use process branching to specify the path through an application or component process based on transition conditions other than out-of- the-box options. Decisions about the next step in the process are made while the process runs. This is similar to the transition conditions for workflows in the ElectricCommander platform.

If the application or component process applies to multiple use cases, you can create one process with two or more branches instead of creating multiple processes for each use case. You can also define steps that run in parallel.

For example, to install or upgrade software, you can define one process for multiple use cases and use the same steps except for the following:

- The source files can be in .zip or .tar format. The steps to extract the files depend on the format.
- The operating system can be Linux or Windows. The steps to download the files, install them on the server, and enter commands depend on the operating system.

ElectricFlow supports the following branching conditions. The default is **Always**.

- Completion status of the previous process step
- A property set in another part of the system, not the in the previous step
- Custom validation rules

When you define a step in an application or component process, you configure what ElectricFlow does when an error occurs. You select **stop running** or **continue running** in the On Error field in the Define Step dialog box. *This setting overrides any job-step-level branching condition.* If an error occurs in a job step and the **stop running** is set, ElectricFlow aborts even if the branching condition is fail.

How to Use the Process Branching UI

How to get to the Application Process designer:

- Existing application process: From the Applications Tier page, click the down-arrow icon and select an application.

  The Application Process designer for that application process appears.

- New application process: From the Applications Tier page, click the "Add application process" icon, set the parameters in the Application Process Details dialog box, and click **OK**.

  The Application Process designer for the application process appears.

How to get to the Component Process designer:

- Existing component process: From the Applications Tier page, click the "Show component process" icon, and select a component process in the drop-down list.

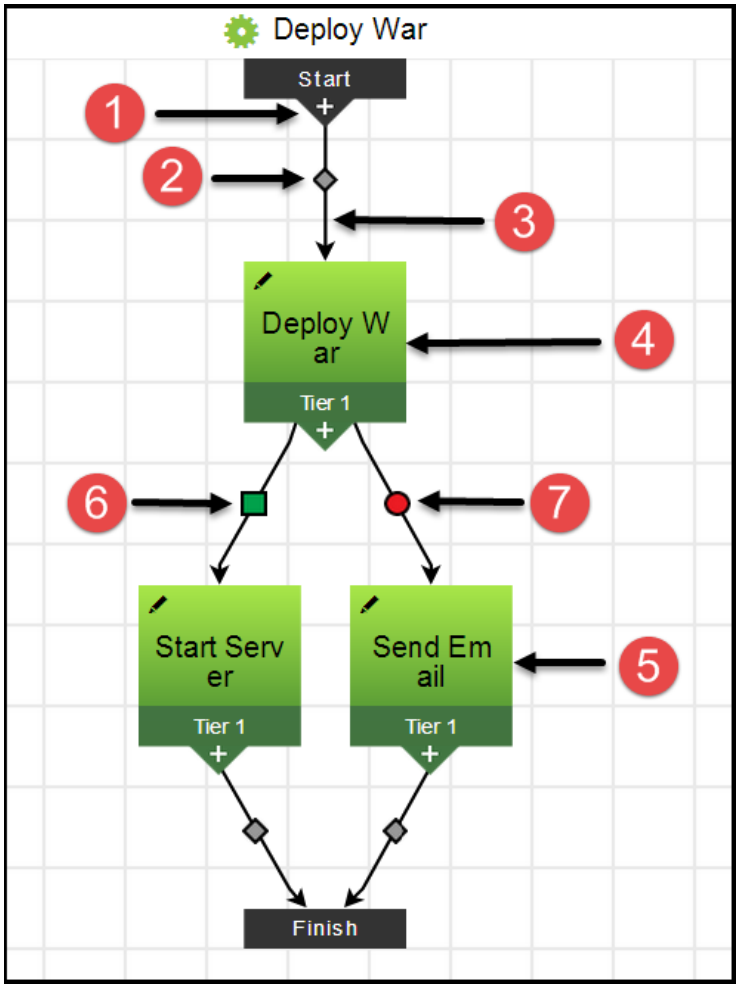
  The Component Process designer for that component process appears.

- New component process: From the Applications Tier page, click the "Add component process" icon to a component, set the parameters in the Component Process Details dialog box, and click **OK**.

  The Component Process designer for the component process appears.

UI Objects

This example shows how a process appears in the ElectricFlow UI.



The process has these UI objects:

1	Click the plus sign (+) to add a step after the selected step. In this example: • When you click the plus sign, a new step is added after the Start and parallel to the existing next step called Deploy War. • The steps immediately after the "Deploy War" step are parallel steps. The decision about the next step, either the "Start Server" or the "Send Email" step, depends on the branching condition. The results of the "Deploy War" step determine what the next step is. ○ If the results of the "Deploy War" step are successful (shown by the square green connector), the next step is the "Start Server" step. ○ If the results fail (shown by the circular red connector), the next step is the "Send Email" step.
2	Connector between two objects in the process. The default branching condition is Always. When you click the connector, the branching conditions menu opens.
3	Link between two steps in the process. The link goes from the source step to the target step.
4	Source–The link starts at this step. For the link between the "Deploy War" and the "Send Email" steps, the source is the "Deploy War" step.
5	Target–The link ends at this step. For the link between the "Deploy War" and the "Send Email" steps, the source is the "Send Email" step.
6	The branching condition is **Successful**. If the War file is deployed successfully in this example, the next step is Start Server.
7	The branching condition is **Failure**. If the file is not deployed in this example, the deployment fails and the next step is to send an email to the administrator.

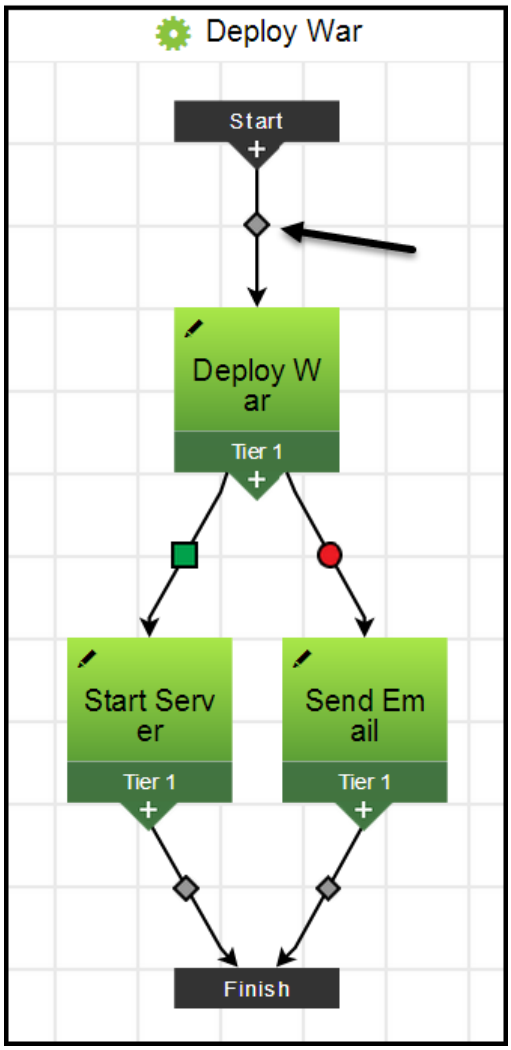
Branching Conditions Menu

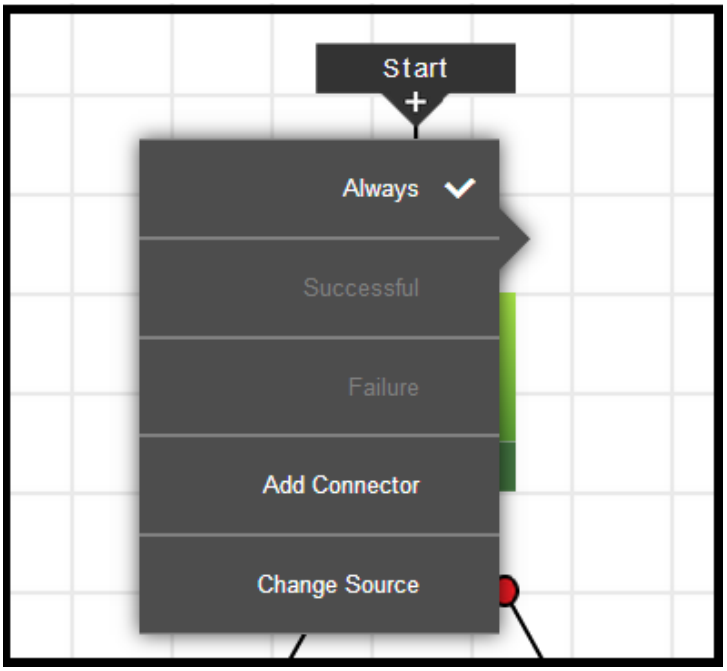
When you click a connector on a link, the branching conditions menu opens. Depending on the location of the connector, some of the menu options may not be available. These are possible branching conditions:

- **Always**–Always go to the next step, referred to as the target.
- **Successful**–Go to the next step if the previous step, referred to as the source, is successful.
- **Failure**–Go to the next step if the previous step fails.
- **Add Condition**–Add a custom condition.
- **Add Connector**–Add a connector from the source of the link to a new target by selecting one of the highlighted eligible steps. You can only select an eligible step.

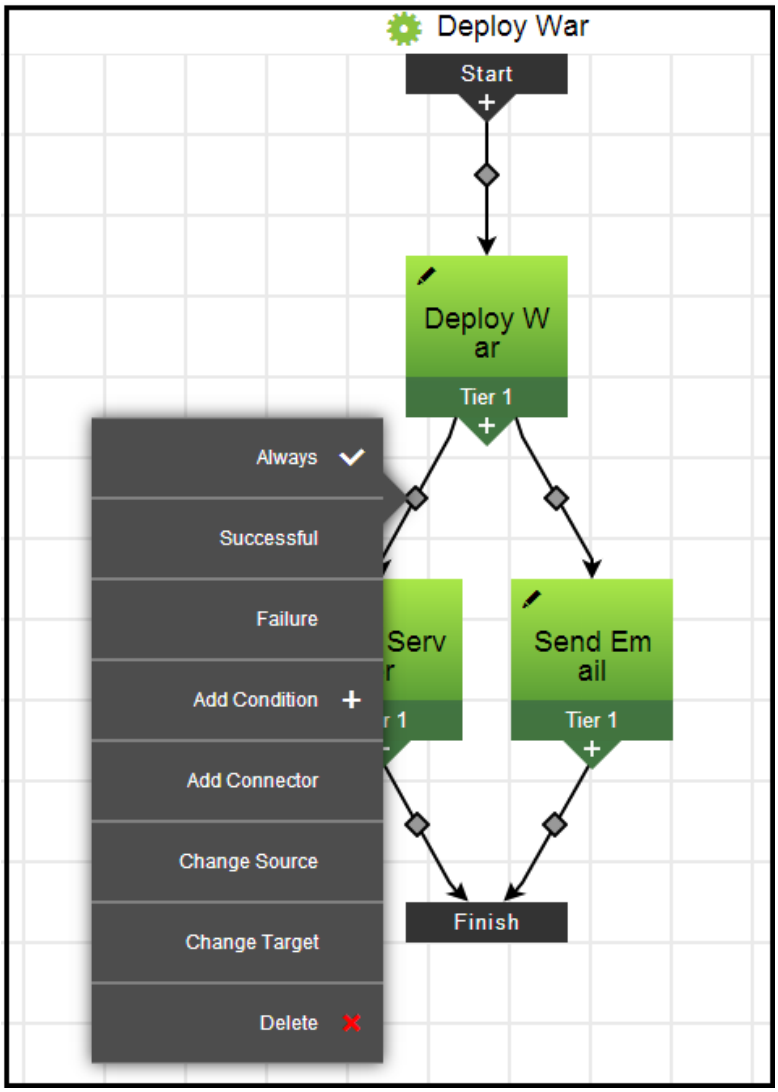
- **Change Source**–Change the source by selecting one of the highlighted eligible steps, which has a red outline. You can only select an eligible step.
- **Change Target**–Change the target by selecting one of the highlighted eligible steps, which has a red outline. You can only select an eligible step.
- **Delete**–Delete the selected connector and link.

For example, when you select the connector between the Start and "Deploy War" steps, only some of conditions appear and only some are available. The condition between the Start and the next step is **Always**, the default branching condition.



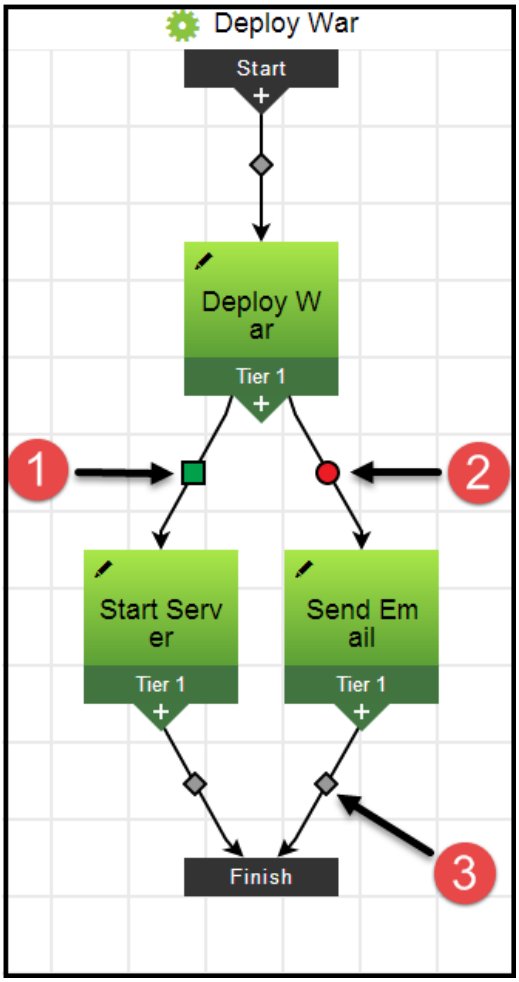


When you select the connector between the "Deploy War" and "Start Server" steps, all of the these conditions appear.



Analysis of a Process With Simple Branching

This example shows a process with simple branching that deploys the War file. For the steps to create this example, see Simple Process Branching Example.



1	The branching condition is **Successful**. If the War file is deployed successfully, the next step is Start Server.
2	The branching condition is **Failure**. If the file is not deployed, the deployment fails and the next step is to send an email to the administrator.
3	The branching condition is **Always**.

The example has the following job-step branching dependencies:

Source	Target	Branching Condition
Deploy War	Start Server	Successful
Deploy War	Send Email	Failure

Process Branching States and Conditions

State of the Branching Condition Connectors in the UI

In the ElectricFlow UI, the status of the link is based on the shape and color of the connector.

Shape	Color	Link Status
Diamond	Light gray	Always
Diamond	Dark gray	Disabled
Square	Green	Successful
Circle	Red	Failure

Examples of Branching Conditions

These are examples of branching conditions that you can apply in your processes.

- Based on the status of the previous step

  Follow the branch based on the result of the previous step: Successful, Failure, or both (Always).

  Example:

  - **Successful**–If the file is downloaded successfully, the next step is to extract the files.
  - **Failure**– If the file was not downloaded properly, the next step is to abort the process.
  - **Always**–The next step is to always extract the files.

- Based on a value of an operation during the step

  Follow the branch that matches the result of an operation such as calculating a value or processing data during the step.

  Example: The result of an operation is a file type.

  - If the result is an XML zip file, the next step is open an XML text editor.
  - If the result is a .htm file, open a web browser.
  - If the result is a .mov, open an application to play the movie.

- Based on a property in another part of the system

  Follow the branch based on a property set in another part of the system, not in the previous process step.

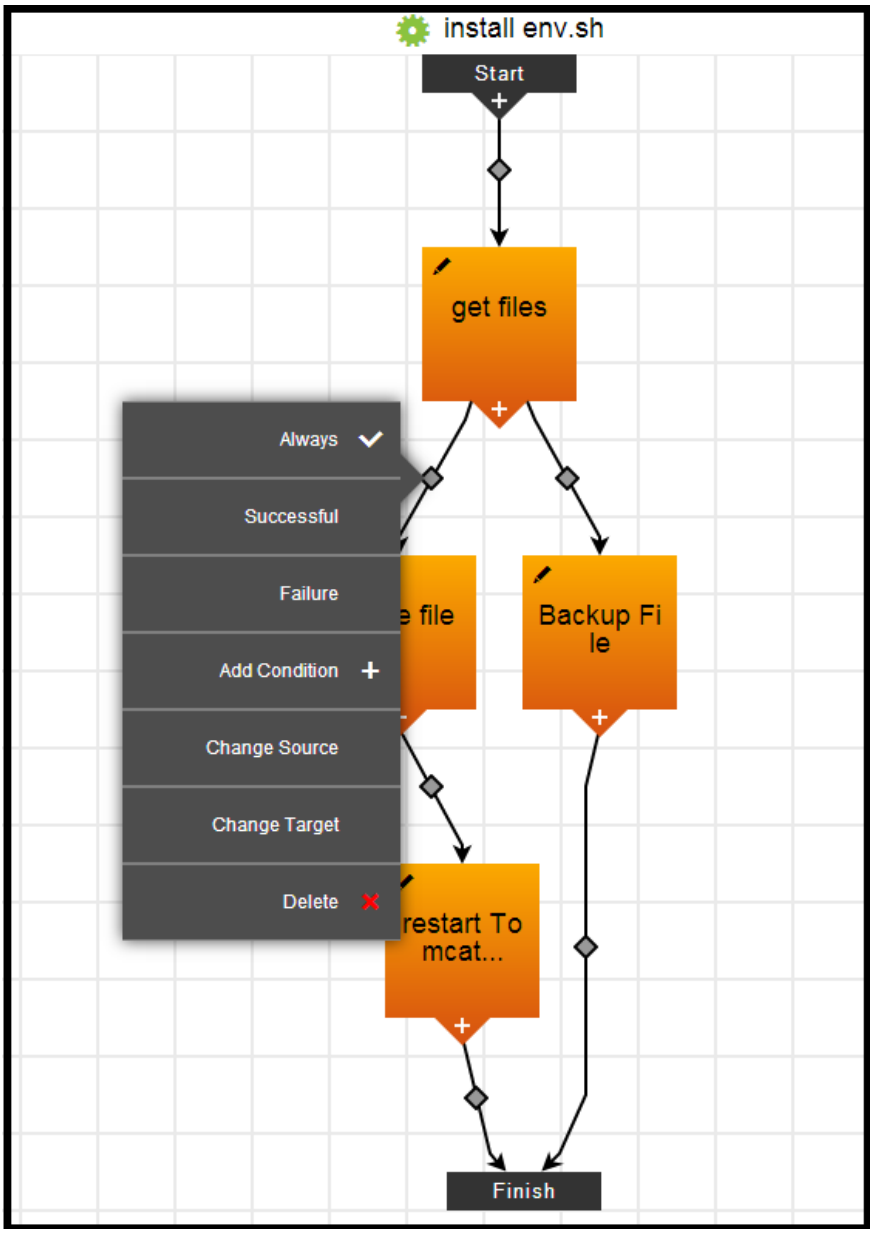
  Example:

  - If the property `os_type = linux` is set on a resource, always follow the branch for Linux steps.
  - If the property `release_type` is set to minor in the application, always follow the branch for minor releases when running the process.

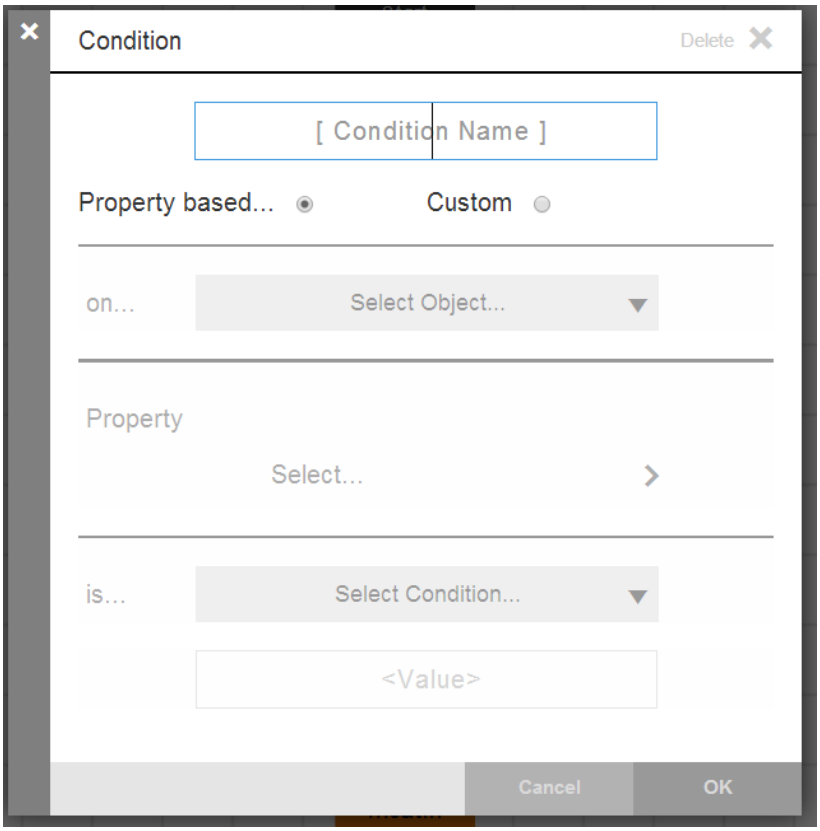
Custom Conditions in Process Branching

How to get here: In a component or application process with branching, click the connector on a link to open the branching options menu.

In this example, click the connector between the "Deploy War" and "Start Server" steps, and select **Add Condition** to add a custom condition.



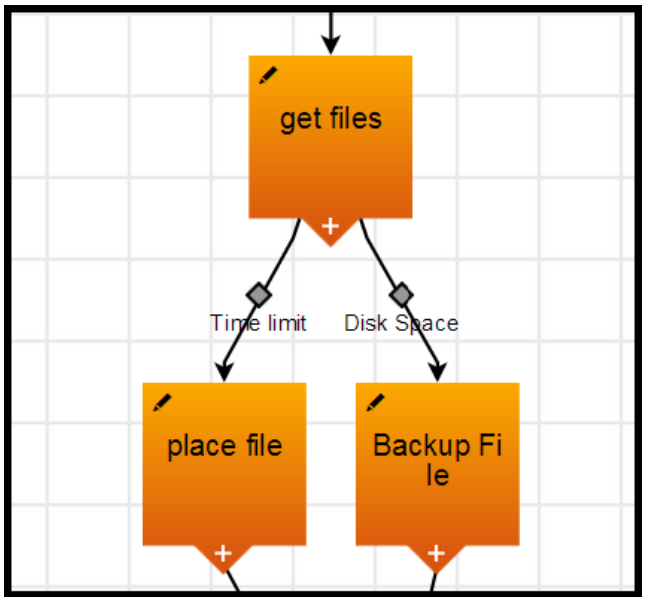
The Condition dialog box opens.



When you click the connector between the "Deploy War" and "Start Server" steps, these conditions appear:

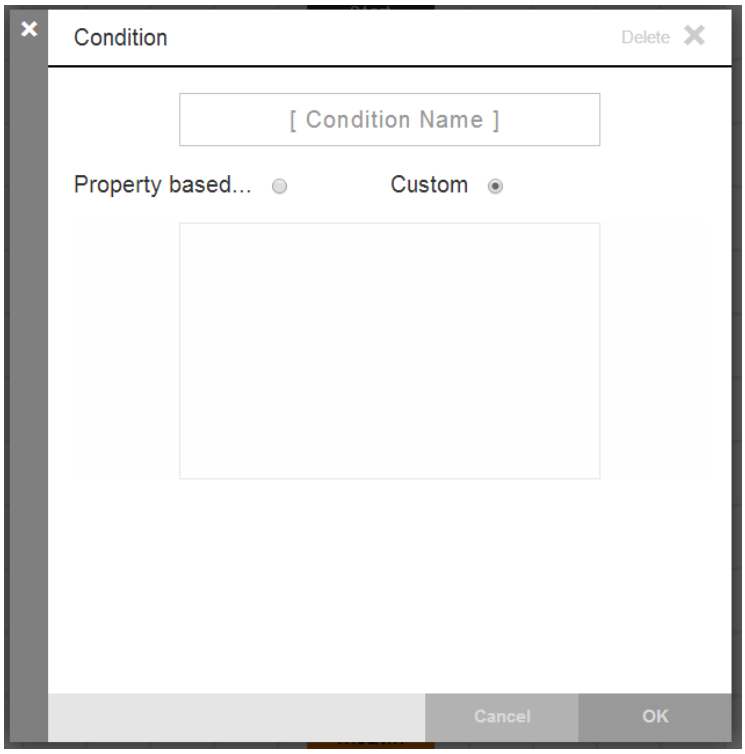
- **Always**–Always go to the next step, referred to as the target.
- **Successful**–Go to the next step if the previous step, referred to as the source, is successful.
- **Failure**–Go to the next step if the previous step fails.
- **Add Condition**–Add a custom condition.
- **Add Connector**–Add a connector from the source of the link to a new target by selecting one of the highlighted eligible steps. You can only select an eligible step.
- **Change Source**–Change the source by selecting one of the highlighted eligible steps, which has a red outline. You can only select an eligible step.
- **Change Target**–Change the target by selecting one of the highlighted eligible steps, which has a red outline. You can only select an eligible step.
- **Delete**–Delete the selected connector and link.

After you configure your conditions, they appear near the affected connectors in the process.



When you configure a **Property based** condition, the fields in the Condition dialog box remain the same .

When you configure a **Custom** condition, the fields change.



Configuration Guidelines for Process Branching

Follow these guidelines when you use process branching in your application or component processes.

- When you add a step, you must define it before adding another step.
- You can only configure branching conditions on a connector between two process steps.
- You cannot configure branching conditions between these objects:

  The start of the process and the steps immediately after it.

  The end of the process and the steps immediately before it.
- You cannot configure branching conditions between these objects:
  - The start of the process and the steps immediately after it.
  - The end of the process and the steps immediately before it.
- When you define a step in an application or component process, you configure what ElectricFlow does when an error occurs.

  Select **stop running** or **continue running** in the **On Error** field in the Define Step dialog box. *This setting overrides any job-step-level branching condition.*

  If an error occurs in a job step and the **stop running** is set, ElectricFlow aborts even if the branching condition is set to Failure.

The following topics show how to use branching in your application or component processes.

- How to Use the Process Branching UI
- Process Branching States and Conditions
- Custom Conditions in Process Branching
- Simple Process Branching Example
- Process Branching Example: Deleting Steps

Simple Process Branching Example

How to get to the Application Process designer:

- Existing application process: From the Applications Tier page, click the number-and-down-arrow icon and select an application. The Application Process designer for that application process appears.
- New application process: From the Applications Tier page, click the "Add application process" icon, set the parameters in the Application Process Details dialog box, and click **OK**. The Application Process designer for the application appears.

How to get to the Component Process designer:

- Existing component process: From the Applications Tier page, click the "Show component process" icon, and select a component process in the drop-down list. The Component Process designer for that component process appears.

- New component process: From the Applications Tier page, click the "Add component process" icon to a component, set the parameters in the Component Process Details dialog box, and click **OK**. The Component Process designer for the component process appears.

This example shows how to create a new process and deploy the War file.

- If the deployment succeeds, ElectricFlow starts the server.
- If the deployment fails, ElectricFlow sends an email to the administrator.

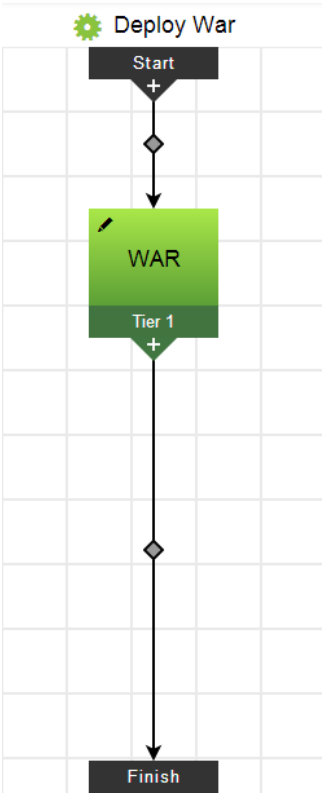
Beginning in the Application Process or Component Process designer:

1. Click the icon below "Define this Step."

   The process step dialog box appears.

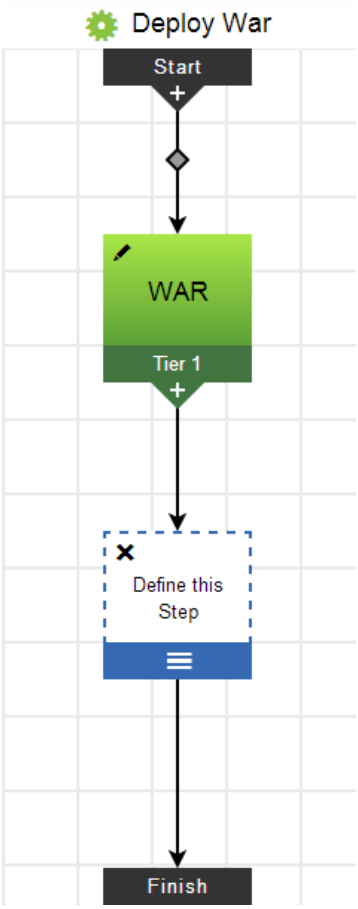
2. Configure the step.

   The first step is now configured.

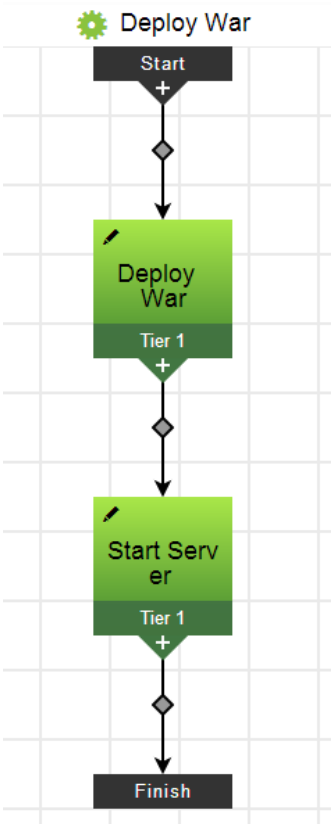


3. To add a step below the first step, click the plus sign (+) below the tier name in the first step.

   A new undefined step appears below the first step.

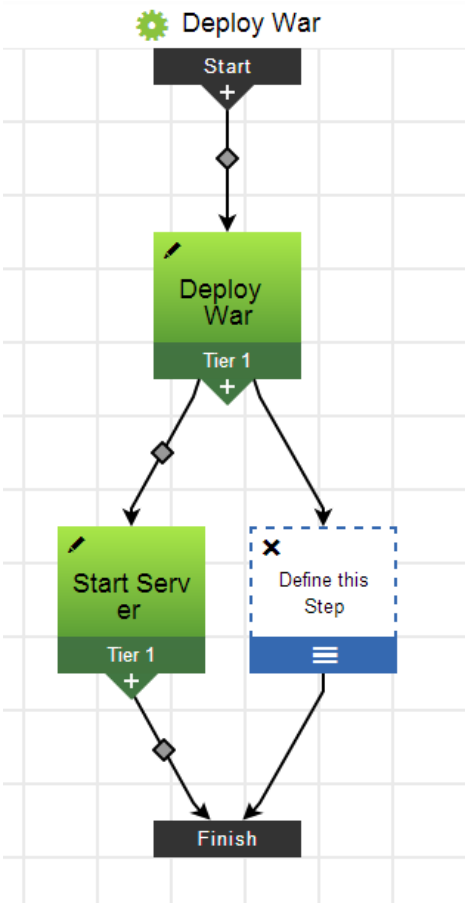


4. Define the new step.

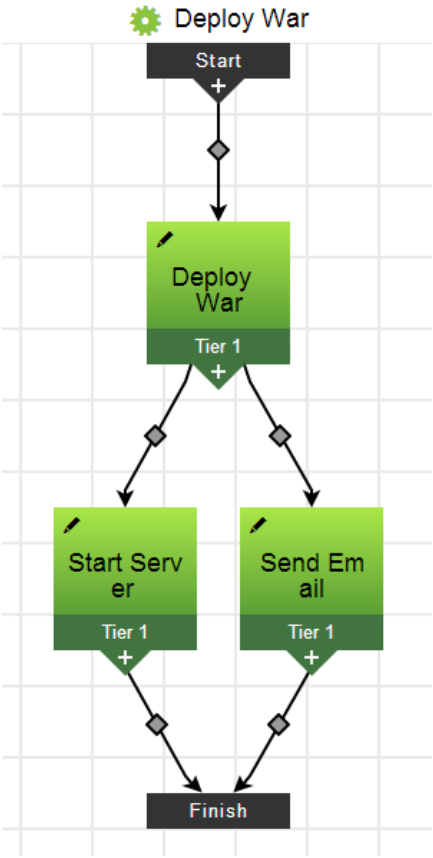


5. To add a step that will be parallel to the second step, click the plus sign in the first step.

   A new undefined step appears below the first step and parallel to the second step.

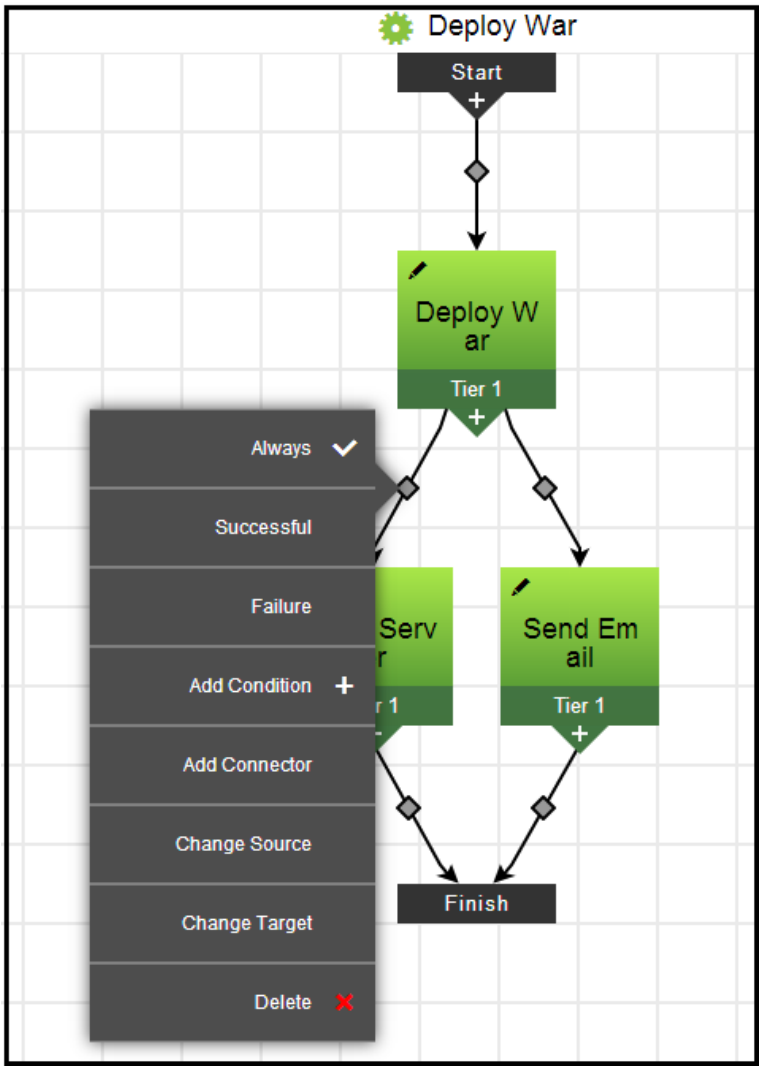


6. Define the third step.



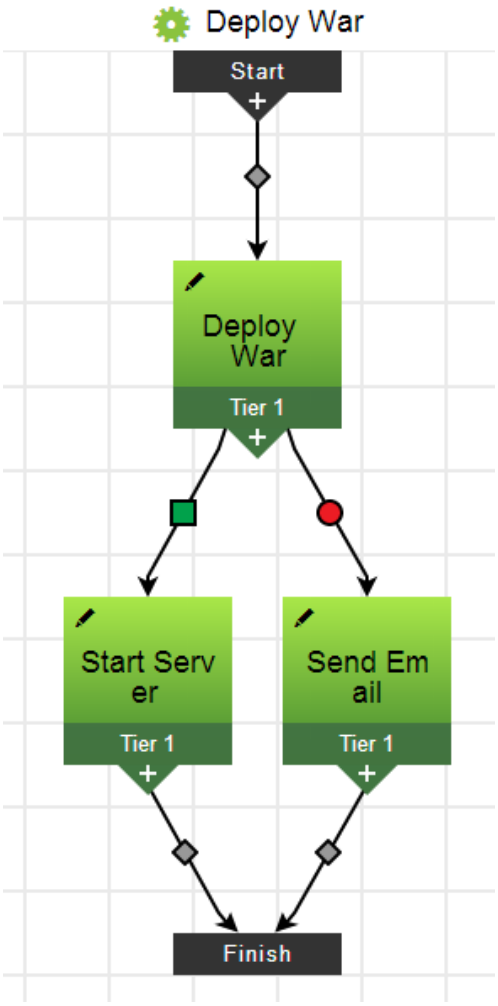
7. To configure the branching condition between the "Deploy War" step and the "Start Server" step, click the connector between them.

   The branching conditions menu opens.



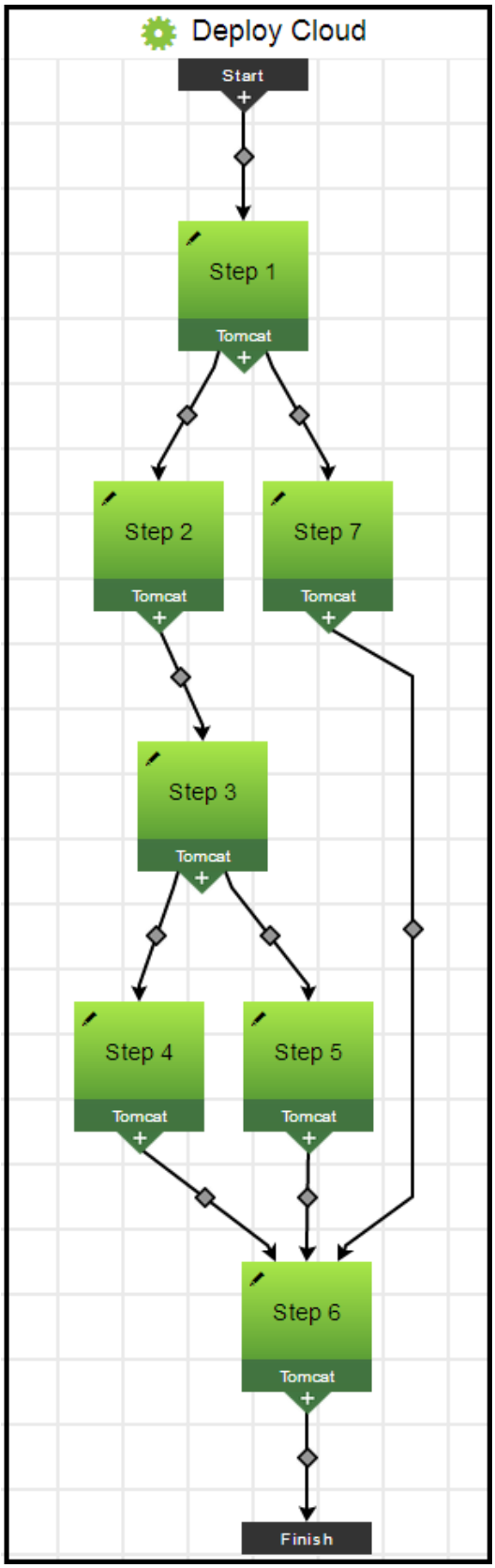
   For the "Start Server" step, select **Successful**.

8. To configure the branching condition between the "Deploy War" step and the "Send Email" step, click the connector between them, and select **Failure** in the branching conditions menu.



Process Branching Example: Deleting Steps

This example shows how a process changes when you delete specific steps.


Deploy Cloud
Start
Step 1
Tomcat
Step 2
Tomcat
Step 7
Tomcat
Step 3
Tomcat
Step 4
Tomcat
Step 5
Tomcat
Step 6
Tomcat
Finish

Deleting Step 3

To delete Step 3:

1. Click the pencil icon on Step 3.

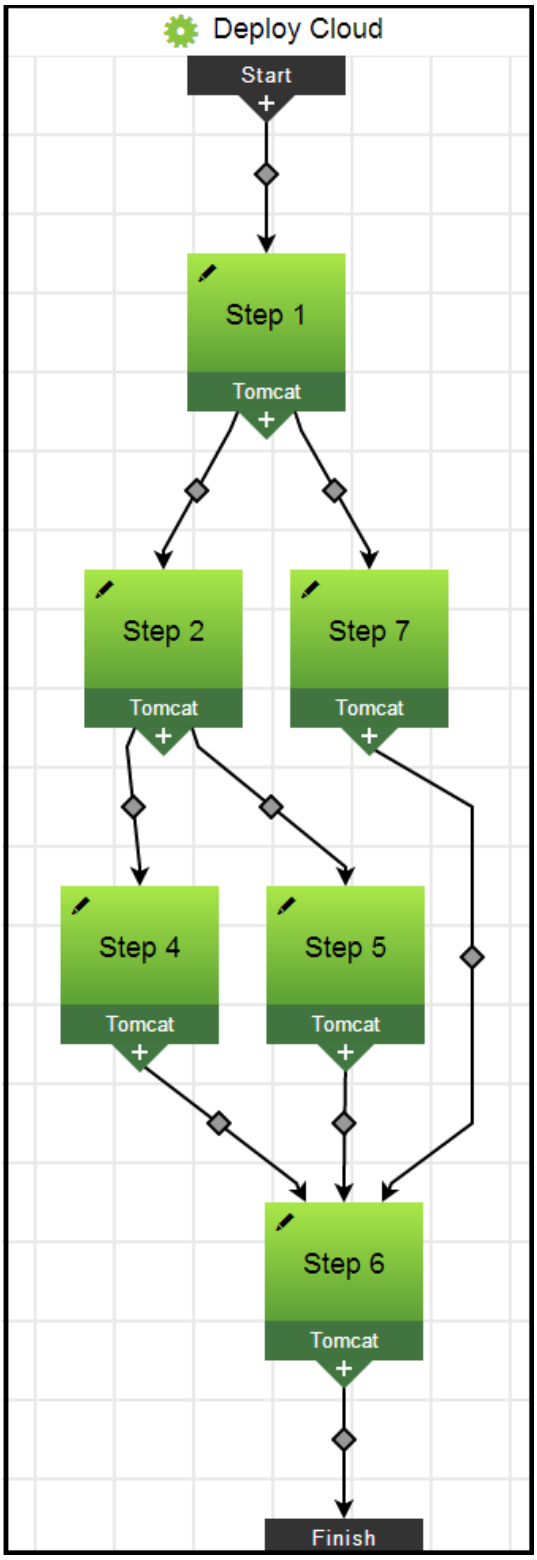
   The step details menu appears.

2. Click **Delete**.

   The Step Deletion dialog box appears.

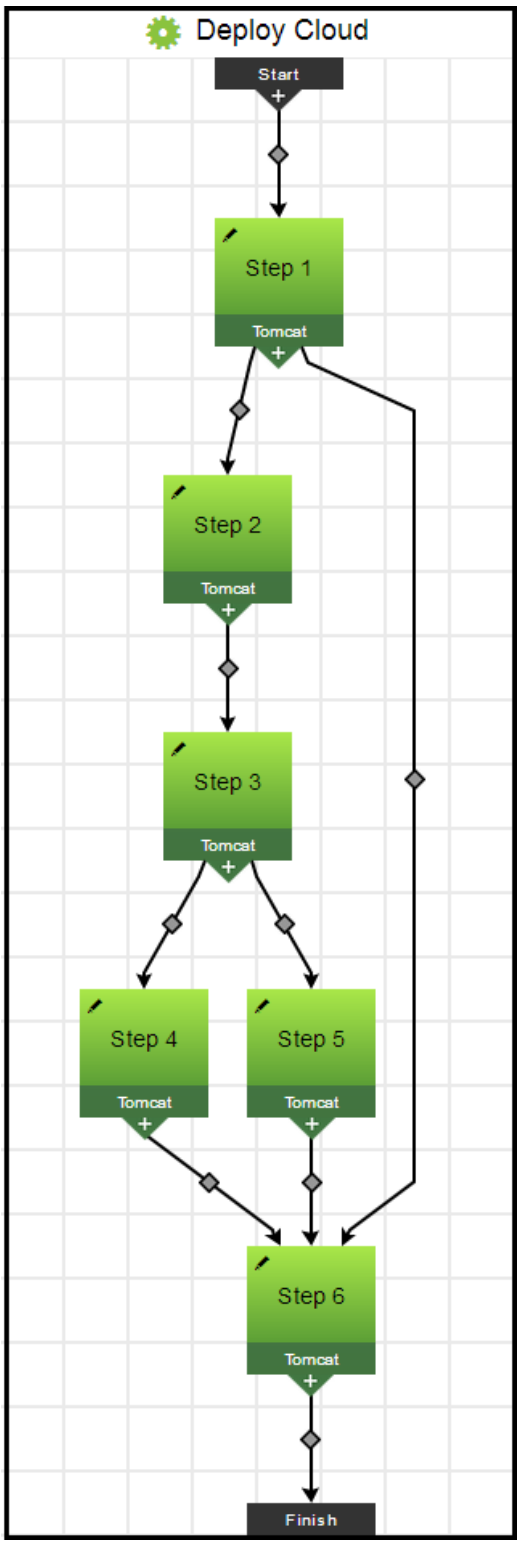
3. Click **OK** to delete the step.

When you delete Step 3, Step 2 becomes the source for Step 4 and Step 5.


Deploy Cloud
Start
Step 1
Tomcat
Step 2
Tomcat
Step 7
Tomcat
Step 4
Tomcat
Step 5
Tomcat
Step 6
Tomcat
Finish

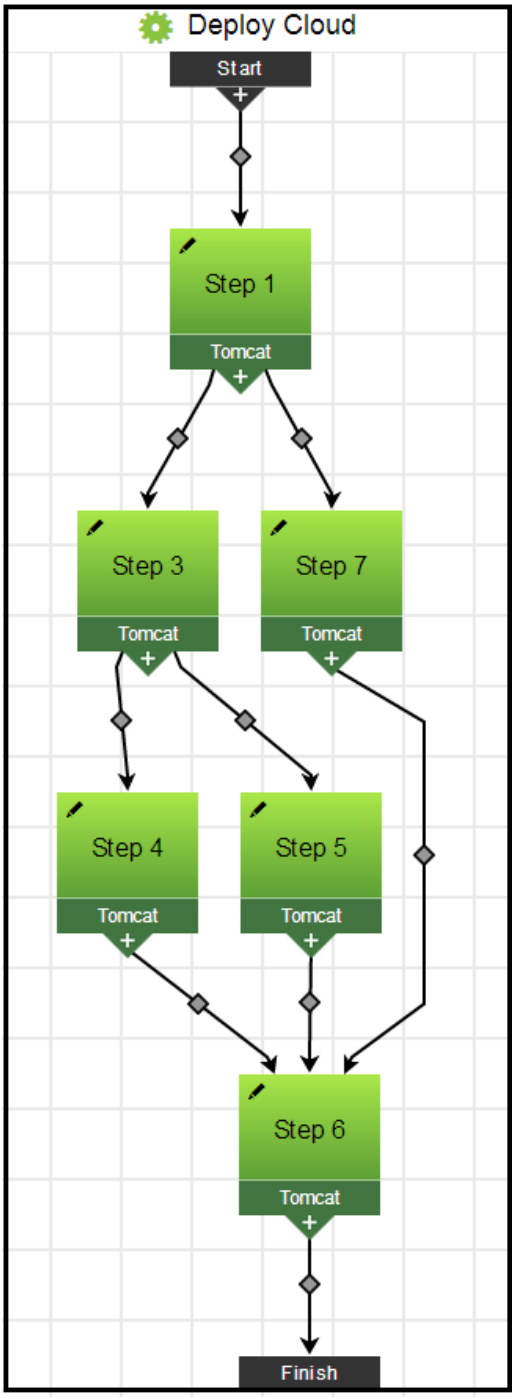
Deleting Step 7

Step 1 becomes the source for Step 6.



Deleting Step 2

Step 1 becomes the source for Step 3.



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