



## Changeover

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WAE Design lets you model the topology, routings, and utilizations of a currently operational network. It also allows exploration of modifications to that network. For example, interface metrics can be modified or explicit LSP routings changed to obtain a new routing configuration.

The Changeover tool provides a step-by-step sequence of routing configuration changes to move a network safely from an initial configuration to a prespecified final configuration. WAE Design selects the order of these changes so that there is as little as possible congestion in the network during intermediate configurations, and so that this congestion lasts for as few intermediate steps as possible.

Only certain configuration changes are allowed between the initial and final plan:

- Changes to interface metrics
- Changes to LSP configurations
- Changes of circuits and node from the active to the inactive state, and vice versa

An individual step in the changeover sequence consists of one of the following:

- A single metric change on a specific interface
- LSP configuration changes on all LSPs sourced from a specific node
- The activation or inactivation of a specific circuit or node

This section contains the following topics:

- [Running the Changeover Tool, on page 1](#)
- [Reports, on page 2](#)

## Running the Changeover Tool

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- Step 1** Open both the initial and final network plans in WAE Design, and choose the desired plan to view.
  - Step 2** Choose **Tools > Changeover**.
  - Step 3** Decide on the changeover options to use. (See [Table 1: Changeover Options](#), on page 2 for field descriptions.)
  - Step 4** Click **OK**.
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## What to do next

**Table 1: Changeover Options**

Field	Description
Initial Plan	Name of the initial plan, selected from open plan files.
Final Plan	Name of the final plan, selected from open plan files.
Traffic Level	Changeover monitors maximum interface utilization levels for all steps in the sequence. The utilizations are calculated using this traffic level.
Acceptable Utilization	The percentage of maximum acceptable utilization of any interface at any step during the changeover sequence. Changeover tries to keep utilizations below this level, although it is not always possible. Often the utilization spikes upward during the last few steps of the sequence, if, for example, new ECMP paths must be put in place. WAE Design tries to keep the number of high-utilization steps to a minimum.
Group Interface Metric Steps	Changeover Tool allows you to group Interface Metric changes together into steps. You can choose from the following options: <ul style="list-style-type: none"> <li>• None - Each Interface Metric change is treated as a single step.</li> <li>• Parallel - Parallel Interfaces are grouped into a single step.</li> <li>• Source Node - Interfaces sourced from the same node are grouped into a single step if there is no impact on maximum utilization.</li> </ul>
Group LSP steps by source node	Specify whether to group the LSP steps by source node.

## Reports

Changeover creates a report that contains Summary, Steps, and Utilizations sections.

- To access this information later, choose **Window > Reports**.
- To export the steps taken to change over to a new plan file, right-click **Steps** in the Reports window, and choose **Export Tables**.
- To export the utilization values to a table, right-click **Utilizations** in the Reports window, and choose **Export Tables**.

## Summary

The Summary section contains a list of the options used to run the changeover. It also contains a summary of the differences between the initial and final plans, the number of steps taken, and the number of steps resulting in intermediate configurations with utilizations in excess of the acceptable utilization.

## Steps

The Steps section contains the following columns, some of which you might need to show because they are hidden:

- Step—Steps of the changeover sequence.
- Action—Action taken at the step.
  - MetricChange—An interface metric is changed.
  - InterfaceMetricChangeAtRouter—All the interfaces from a specified router changed metric.
  - ParallelInterfaceMetricChange—Selected interfaces from the same source changed metric. See [group-interface-metric-steps](#) for detail.
  - ChangeCircuitCapacity—A circuit capacity is changed.
  - ChangeTunnel—A tunnel is to be reconfigured.
  - CreateTunnel—A new tunnel is to be added.
  - RemoveTunnel—A tunnel is to be removed.
  - TunnelsFromRouter—LSPs from a specified router are to be reconfigured.
  - ActivateNode—A node (router) is activated.
  - DeactivateNode—A node (router) is deactivated.
  - ActivateCircuit—A circuit is activated.
  - DeactivateCircuit—A circuit is deactivated.
- Node
  - If Action is MetricChange, the node containing the interface of the metric to change.
  - If TunnelsFromRouter, the node at which the LSPs are to be reconfigured.
  - If ActivateNode or DeactivateNode, the relevant node.
- RemoteNode—If Action is MetricChange, the remote node containing the interface of the metric to change.
- Circuit
  - If Action is MetricChange, the circuit for the metric change.
  - If ActivateCircuit or DeactivateCircuit, the node containing the relevant circuit.
- Interface
  - If Action is MetricChange, the interface name.
  - If TunnelsFromRouter, ActivateNode, or DeactivateNode, this is na (not applicable).
- MaxUtil—The maximum interface utilization at this step.
- UtilLocation—The interface on which the maximum utilization occurs.

- ChangeTo—If Action is MetricChange, the original metric. Otherwise, this is set to “na.”
- ChangeFrom—If Action is MetricChange, the metric to be configured at this step. Otherwise, this is set to “na.”

## Utilizations

The Utilizations section contains all utilizations for all interfaces in the network, for each step in the changeover sequence.