

Chapter 7

Configure Explicit-Path LSPs

If you disable constrained-path LSP computation, as described in “Disable Constrained Path LSP Computation” on page 52, you must configure LSPs manually. Experimenting with particular explicit paths can help you become familiar with MPLS.

When explicit-path LSPs are configured, the LSP is established along the path you specified. If the path is topologically not feasible, either because the network is partitioned or insufficient resources are available along some parts of the path, the LSP will fail. No alternative paths can be used. If the setup succeeds, the LSP stays on the defined path indefinitely.

To configure an explicit path LSP, follow these steps:

1. Configure the path information in a named path, as described in “Create a Named Path” on page 39. To configure complete path information, specify every router hop between the ingress and egress routers, preferably using the strict attribute. To configure incomplete path information, specify only a subset of router hops, using the loose attribute in places where the path is incomplete.

For incomplete paths, the MPLS routers complete the path by querying the local routing table. This query is done on hop-by-hop basis, and each router can figure out only enough information to reach the next explicit hop. It might be necessary to traverse a number of routers in order to reach the next (loose) explicit hop.

Configuring incomplete path information creates portions of the path that are dependent on the current routing table, and this portion of the path can reroute itself as the topology changes. Therefore, an explicit-path LSP that contains incomplete path information is not completely fixed. These types of LSPs have only a limited ability to repair themselves, and they tend to create loops or flaps depending on the contents of the local routing table.

2. Configure the LSP and point it to the named path using either the primary or secondary statement, as described in “Configure the Primary and Secondary LSPs” on page 45.
3. Disable constrained-path LSP computation by including the no-cspf statement either as part of LSP or as part of primary or secondary statement. For more information, see “Disable Constrained Path LSP Computation” on page 52.
4. Configure any other LSP properties.

Using explicit-path LSPs has the following drawbacks:

- More configuration effort is required.

- Configured path information cannot take into account dynamic network bandwidth reservation, so the LSPs tend to fail when resources become depleted.

- When an explicit-path LSP fails, you might need to manually repair it.

Because of these limitations, we recommend that you use explicit-path LSPs only in controlled situations, such as to enforce an optimized LSP placement strategy resulting from computations with an offline simulation software package.