



## Change Management

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This chapter describes how to manage the insertion and removal of modules in Cisco 12000 series internet routers being managed by the Cisco 12000 Manager (C12kM) application.

This chapter contains the following information:

- [Removing a Module](#)
- [Inserting a Module](#)

Change management deals with removal and insertion modules into a Cisco 12000 series internet router. Removing or inserting modules have implications in C12kM and need to be handled effectively. You can remove from or insert the following modules into a Cisco 12000 series internet router chassis:

- GRPs
- Line cards (ATM, Ethernet, POS, DS-3)
- AC or DC power supply modules
- Fan trays
- Blower modules

## Removing a Module

When you remove an existing module from a chassis, C12kM detects that the module has been removed by heartbeat polling (which occurs every minute). Once C12kM detects the removed module, an informative alarm is raised against the chassis object in C12kM with a description - The chassis configuration has changed. The chassis then goes into subchassis discovery mode, to find out exactly what module has been removed. After this process, the removed module is placed in the lost comms no poll state, which causes a critical alarm to be raised against the module. This situation is rectified when the module is replaced in the chassis. When the module is placed into the chassis, heartbeat polling finds the module (within a minutes' time) and alerts C12kM about the presence of the module. Another informative alarm is raised against the chassis which clears the previous 'chassis configuration change' alarm. The critical alarm raised against the module object, is cleared when the module goes to the Normal (or perhaps errored) state.



Tip

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For detailed information on individual states, refer to the [“C12kM Object States”](#) section on page 2-11.

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# Inserting a Module

Modules inserted into a chassis are discovered within one minute. When C12kM detects the presence of a module, the chassis enters subchassis discovery to determine the type of module that was inserted. When the new module is discovered, it is added to the appropriate C12kM views and automatically commissioned. If the module is a line card which has interfaces, the interfaces are discovered during the subchassis discovery process. The commissioning process also determines what state the module should be placed into, which can be the normal or mismatched state.

## Mismatched State

The mismatched state occurs when a mismatch is found between what is in the hardware and what is deployed in C12kM. The mismatched state appears if you insert an incorrect module that does not correspond with the module type that has been pre-deployed in C12kM, or, if the pre-deployment for the new module is incorrect. For example: you are expecting an ATM OC-3 line card. So you pre-deploy and pre-configure C12kM to prepare for that type of line card. Now, when the line card becomes available and is placed into the chassis, it is not an ATM OC-3 line card, but a POS OC-3 line card. What happens? Once the C12kM detects the new line card, it finds a mismatch. The line card gets placed into the mismatch state and a critical alarm is raised against the line card.

To rectify a mismatch problem, first you must assess the source of the problem. If the operator was at fault and pre-deployed an incorrect line card, the operator should delete the pre-deployed line card and re-deploy the correct line card. If the engineer is at fault and inserted the wrong type of line card into the chassis, then the line card should be removed. When you remove a line card, C12kM moves that line card into a lost comms no poll state. Insert the correct line card. C12kM finds the new line card and downloads the correct pre-deployment and pre-configuration information, then places the line card into a normal state.