



# CHAPTER 1

## Planning Your Network Design

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Prime Infrastructure templates allow you to create reusable design patterns to simplify device configurations. When you plan your network design and then create templates based on that design, you can increase operational efficiency, reduce configuration errors, and improve compliance to standards and best practices.

It is important to plan for the following configurations when planning your configuration design:

- Feature configurations—Identify the features you want to configure on a given device. You can use a composite template that includes multiple feature templates in order to define a complete device configuration.
- Device role configurations—Identify your devices and the roles they play. For example, you'll want to design different templates for routers that function as branch routers as compared to routers that function as WAN edge routers. You want to plan for access switch configurations which differ from distribution switch configurations. You could have a number of specific devices for which you want to deploy the same configuration to all of them.
- Site configurations—Identify the various sites in your network and the configurations that are required in the different sites. Different sites could require different configurations. For example, a large-sized retail store can contain devices with configurations that differ drastically from the same devices in a small-sized warehouse.
- Monitoring configurations—At the same time that you're planning your configuration design, consider what relevant information you want to monitor. You want to ensure that the features you configured are being monitored.

## Planning Guidelines

There are several factors you should consider when using the Prime Infrastructure design tools:

- What is the size of your network?
- How diverse are the devices and services that you support?
- How many network designers do you have?
- What degree of precision do you need in controlling your network?

If you have a small network with only 1-2 designers and not much variation among device configurations, you could start by copying all CLI configurations you know are “good” into a set of configuration and monitoring templates, and then create a composite template that contain these templates.

If you have a large network with many different devices, try to identify the configurations you can standardize. Create feature and technology templates as exceptions to these standards, which allows you to turn features on and off as needed.

## Template Workflow for Switches

1. Create the templates for your switches, which can include:
  - Feature-level configuration templates
  - A monitoring template that monitors the important features that you configured in the configuration templates
  - A composite template that includes all the templates you want to deploy on the switches in your network
2. Create the switch deployment profile which requires that you specify:
  - The bootstrap configuration
  - The required image software on the device and the software image file location
  - The configuration template, which can be a single or composite template
3. Specify the devices on which to deploy, and create a deployment profile which includes:
  - Device profile
  - Deployment target
  - Deployment-specific configuration information

## Planning for Branch Deployments

Prime Infrastructure can help you pre-provision and plan for devices in branches and sites. When you have a new branch, Prime Infrastructure will deploy the specified configuration templates and software images that you have selected for the given device type and the given branch. This simplifies and accelerates the time it takes to get a branch fully functional.

The process for planning your branch deployment is:

1. Create a bootstrap configuration that contains the minimal required information a device needs in order to be functional. (Design > Configuration Templates > CLI Template.)
2. Create an automated deployment profile for your branch under Design > Automated Deployment Profiles. This is where you specify details about the branch including the device type on which to push the configuration and the bootstrap template and software image.
3. Deploy the automated deployment template. In the deployment screen, you can specify the specific branch and device details.
4. After the bootstrap configuration is applied to the device, the Prime Infrastructure server pushes the configuration template and the software image to the device. Prime Infrastructure can then discover and manage the device.

# Testing Templates

After you have created templates, you should deploy the template to a single device in order to test and troubleshoot your design. Before you roll out a template to a large number of devices, you want to make sure the templates you have designed are correct and that you don't need to make further adjustments or modifications to the template. You should plan for and schedule full deployment of a composite template.

