Check Point
SOFTWARE TECHNOLOGIES LTD.

24 June 2018

MULTI-DOMAIN SECURITY MANAGEMENT R80.20.M1

Administration Guide

Important Information

Latest Software

We recommend that you install the most recent software release to stay up-to-date with the latest functional improvements, stability fixes, security enhancements and protection against new and evolving attacks.

Certifications

For third party independent certification of Check Point products, see the Check Point Certifications page https://www.checkpoint.com/products-solutions/certified-check-point-solutions/.

Check Point R80.20.M1

For more about this release, see the R80.20.M1 home page http://supportcontent.checkpoint.com/solutions?id=sk123473.

Latest Version of this Document

Open the latest version of this document in a Web browser https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_Multi-DomainSecurityManagement_AdminGuide/html_frameset.htm.

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Feedback

Check Point is engaged in a continuous effort to improve its documentation.

Please help us by sending your comments mailto:cp_techpub_feedback@checkpoint.com?subject=Feedback on Multi-Domain Security Management R80.20.M1 Administration Guide.

Revision History

Date	Description
24 June 2018	First release of this document

Contents

Terms

Active Domain Server

The only Domain Server in a High Availability deployment that can manage a specified Domain.

Administrator

A SmartConsole user with permissions to manage Check Point security products and the network environment.

Best Practice

A set of processes methods, systems, or techniques that consistently shows better results than those achieved in other ways.

Domain

A network or a collection of networks related to an entity, such as a company, business unit or geographical location.

Domain Log Server

A log server for a specified Domain. It stores and processes logs from Security Gateways that are managed by the corresponding Domain Server.

Domain Management Server

A virtual Security Management Server that manages Security Gateways for one Domain as part of a Multi-Domain Management environment.

Global Objects

For Multi-Domain Management, all network and objects defined in the Global Domain.

Global Policy

All Policies defined in the Global Domain that can be assigned to Domains, or to specified groups of Domains.

Management Server

A Security Management Server or a Multi-Domain Server.

Multi-Domain Log Server

A Check Point computer that runs Check Point software to store and process logs in Multi-Domain Management environment. The Multi-Domain Log Server consists of Domain Log Servers that store and process logs from Security Gateways that are managed by the corresponding Domain Servers.

Multi-Domain Management

A centralized management solution for large-scale, distributed environments with many different Domain networks.

Multi-Domain Server

A Check Point computer that runs Check Point software to host all Domain Servers.

Network Objects

Logical representations of every part of corporate topology (physical machines, software components, IP Address ranges, services, and so on).

Permission Profile

A predefined group of SmartConsole access permissions assigned to Domains and administrators. With this feature you can configure complex permissions for many administrators with one definition.

Policy Package

A collection of different types of Security Policies, such as Access Control, Threat Prevention, QoS, and Desktop Security. After installation, Security Gateways enforce all Policies in the Policy Package.

Primary Multi-Domain Server

The Multi-Domain Management Server in Management High Availability that you install as Primary.

Rule

A set of traffic parameters and other conditions that cause specified actions to be taken for a communication session.

Rule Base

The database that contains the rules in a security policy and defines the sequence, in which they are enforced.

Security Gateway

A Check Point computer that runs Check Point software to inspect traffic and enforce Security Policies for connected network resources.

Security Policy

A collection of rules that control network traffic and enforce organization guidelines for data protection and access to resources with packet inspection.

SmartConsole

A Check Point GUI application used to manage security policies, monitor products and events, install updates, provision new devices and appliances, and manage a multi-domain environment and each domain.

Standby Domain Server

All Domain Servers for a Domain that are not designated as the Active Domain Server.

VPN Community

A named collection of VPN domains, each protected by a VPN gateway.

Getting Started

In This Section:

Welcome

Check Point Multi-Domain Security Management is a centralized management solution for large-scale, distributed environments with many discrete network segments, each with different security requirements. This solution lets administrators create Domains based on geography, business units or security functions to strengthen security and simplify management.

Each Domain has its own Security Policies, network objects and other configuration settings. You use the Global Domain for common security Policies that apply to all or to specified Domains. The Global Domain also includes network objects and other configuration settings that are common to all or to specified Domains.

About this Guide

This *Administration Guide* includes conceptual information and procedures for working with Check Point Multi-Domain Management features only.

- To learn how to use SmartConsole to work with Security Policies, the Rule Base, network objects, and security configuration, see the *R80.20.M1 Security Management Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_SecurityManagement_AdminGuide/html_frameset.htm.
- To learn how to work with logs, monitoring, and reports, see the *R80.20.M1 Logging and Monitoring Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_LoggingAndMonitoring_AdminGuide/html_frameset.htm.
- To learn how to work with Software Blades and their features, see the applicable *Administration Guide(s)*.

Basic Multi-Domain Management Components

This section is a brief introduction to the main components of the Multi-Domain Management environment.

The Multi-Domain Server

A **Multi-Domain Server** is a physical server that contains the Domain Servers, Security Policies, system data, and Multi-Domain Management system software. You connect to a Multi-Domain Server to work with Multi-Domain Management features, objects, and configuration settings. This includes:

- Domain Servers and their configuration settings
- Global Policies and objects
- Administrators and permission profiles
- Logs and monitoring features
- System configuration settings

You can create a High Availability and/or Load Sharing deployment with two or more, synchronized Multi-Domain Servers.

Domain Servers

A *Domain* is a virtual object that defines a network or a collection of networks related to an entity. You can define a Domain for a company, business unit, department, branch or geographical location. For example, a cloud service provider typically has one Domain for each customer. A bank can have one Domain for each geographical region, state, or country.

A *Domain Server* is the functional equivalent of a Security Management Server in a single-domain environment. You connect directly to a Domain Server with SmartConsole to manage a Domain and its components:

- Domain Security Gateways
- Domain Security Policies, rules, and other Domain level security settings
- Domain system objects, such as services, users, and VPN Communities.
- Domain Software Blades and their related configuration settings

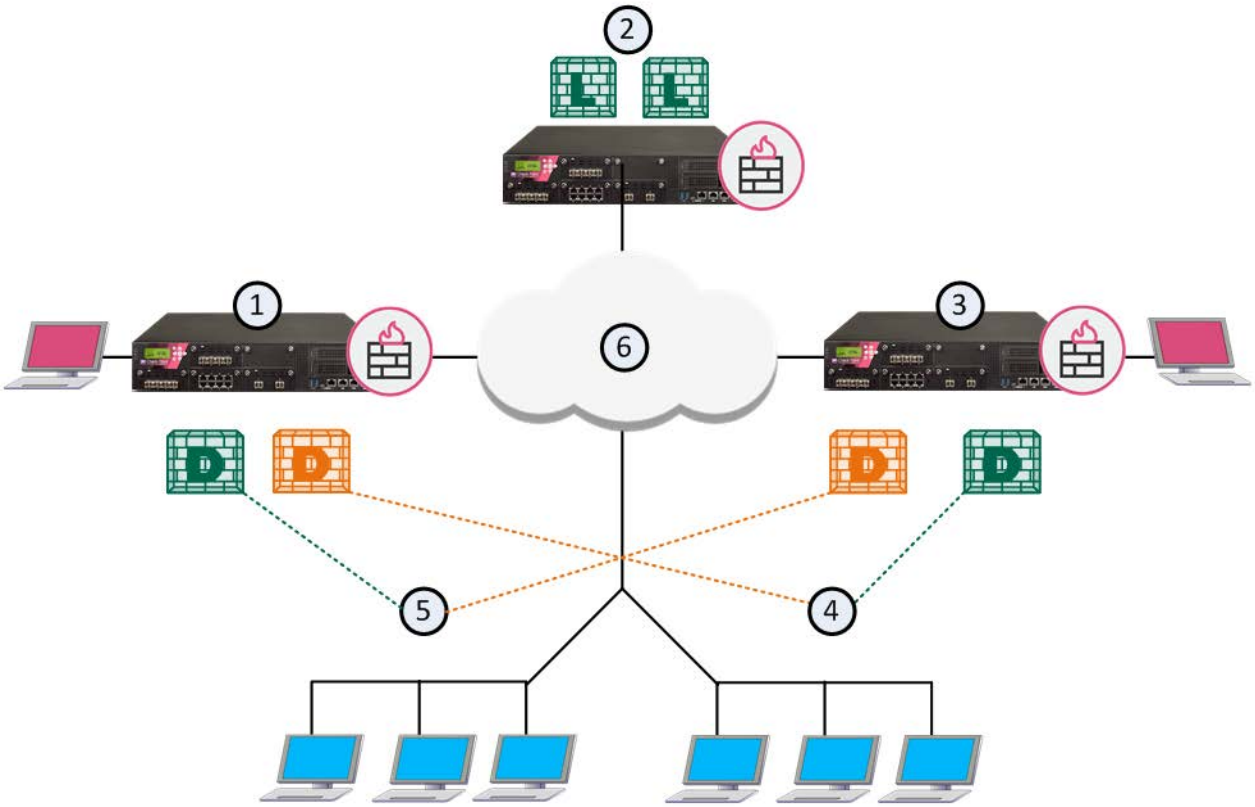
To learn more about working with SmartConsole to manage Domains, see the *Security Management Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_SecurityManagement_AdminGuide/html_frameset.htm.

There can be more than one Domain Server for a Domain in a High Availability deployment, each on a different Multi-Domain Server. One Domain Server is *Active*, and the other, fully synchronized Domain Servers are *Standby*.

Domain Log Servers

A typical Multi-Domain Management deployment includes, at least one Multi-Domain Log Server to hold log files generated by Domain Security Gateways. Each Domain can have its own Domain Log Server on the Multi-Domain Log Server. This deployment strategy keeps log traffic isolated from other network traffic for better throughput.

This illustration shows a sample deployment with two Multi-Domain Servers and two Domains. The Multi-Domain Log Server contains two Domain Log Servers, one for each Domain.



Item	Description
1	London Multi-Domain Server with an Active Domain Server for London and a Standby Domain Server for Tokyo
2	Multi-Domain Log Server with Domain Log Servers for London and Tokyo
3	Tokyo Multi-Domain Server with an Active Domain Server for Tokyo and a Standby Domain Server for London
4	Tokyo network
5	London network
6	Internet
	Active Domain Server
	Standby Domain Server
	Domain Log Server

SmartConsole

SmartConsole is the unified application of Check Point R80.x Security Management. The SmartConsole provides a consolidated solution for everything that is necessary for the security of your organization:

- Security Policy Management
- Log Analysis
- System Health Monitoring
- Multi-Domain Management

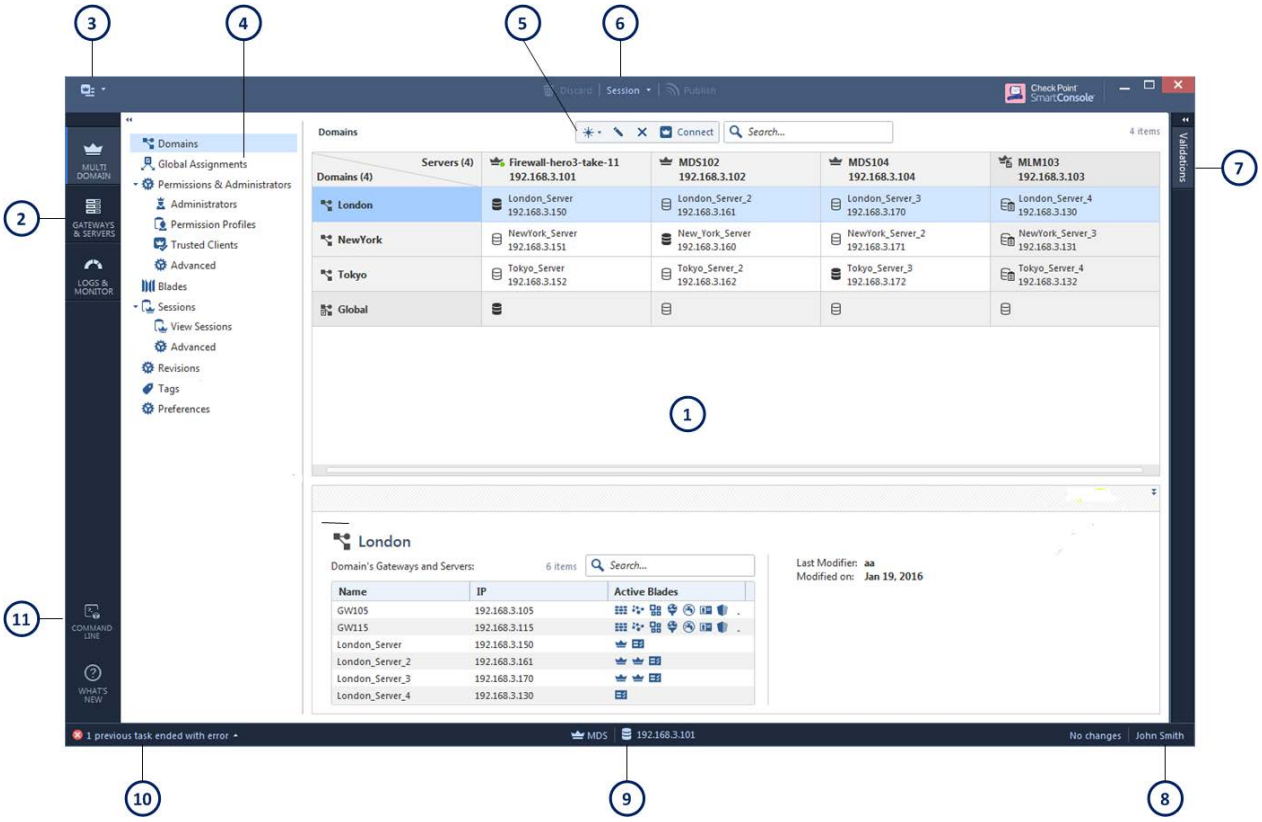
SmartConsole makes it easy to manage your Multi-Domain Management environment. Before you start to configure your cyber security environment and Policies, we recommend that you know the SmartConsole application.

Multi-Domain View

Use the *Multi-Domain view* to manage Multi-Domain Servers, Domains, system objects, configuration settings and other features. You must log into a Multi-Domain Server to see the Multi-Domain view.

For a guided tour of **Multi-Domain** view, click the **What's New** button  at the bottom left of the window. Click the **<** and **>** icons to scroll between the different What's New screens.

Multi-Domain view elements



Item	Description
1	View, as selected from the **Navigation Toolbar** and **View** tree (This example shows the **Multi-Domain** > **Domains** view)
2	Navigation toolbar
3	Menu
4	View tree
5	Actions toolbar
6	Session Management toolbar
7	Validation tab
8	Logged in administrator
9	Server details area
10	Task information area
11	Management script commands and API

Connecting to SmartConsole

Use SmartConsole to connect to a Multi-Domain Server when you work with Multi-Domain Management objects and settings. Use SmartConsole to connect to a Domain Server when you work with Domain Security Policies, rules, objects and configuration settings. You can also connect to Domains or specified Domain Servers from within the Multi-Domain view.

To connect to a Multi-Domain Server:

1. Run SmartConsole.
2. Enter your user name and password.
3. Enter the Multi-Domain Server IP address, and then click **Login**.
4. In the **Welcome** screen, select MDS from the list, and then click **Proceed**.
   SmartConsole opens in the **Domains** view.

To connect directly to a Domain:

1. Run SmartConsole.
2. Enter your user name and password.
3. Enter the Multi-Domain Server IP address, and then click **Login**.
4. In the **Welcome** screen, select a Domain from the list, and then click **Proceed**.
   SmartConsole opens with the selected Domain Server.

To connect to a Domain Server from the SmartConsole Multi-Domain view:

1. Connect to a Multi-Domain Server with SmartConsole.
2. In the **Multi-Domain** > **Domains** view, right-click the required Domain Server in the grid.
3. Select **Connect to Domain Server**.

Note - In a High Availability deployment (see "Working with High Availability" on page 56), you can only make changes to a Domain from the active Domain Server. The active Domain Server shows with a black icon. If you connect to a standby Domain Server (white icon), SmartConsole opens in the Read Only mode.

Gateways & Servers View

The **Gateways & Servers** view shows all Security Gateway, Domain Server, and Domain Log Server objects in the Multi-Domain Management environment. This feature lets administrators, with applicable permissions, see and work with them in one convenient location.

You can double-click an object in this view to open its configuration window in the Domain's SmartConsole. For example, if you double-click, GW105 on the example below, the London_Server Domain Server opens in SmartConsole and shows the GW105 configuration window.

The Gateways & Servers view

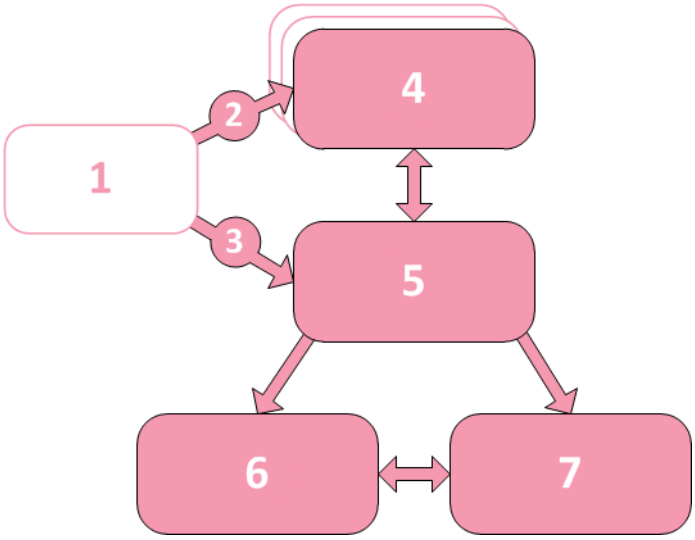
Status	Name	Domain	IP	Version	Active Blades	Hardware
–	GW105	London	192.168.3.105	R77.20	...	4000 Appliances
–	GW106	NewYork	192.168.3.106	R77.20	...	12000 Appliances
–	GW107	Tokyo	192.168.3.107	R77.20	...	13000 Appliances
–	GW115	London	192.168.3.115	R77.30	...	21000 Appliances
–	GW116	NewYork	192.168.3.116	R77.30	...	13000 Appliances
–	GW117	Tokyo	192.168.3.117	R77.30	...	61000 Appliances
–	London_Server	London	192.168.3.150	R80		Open server
–	London_Server_2	London	192.168.3.161	R80		Open server
–	London_Server_3	London	192.168.3.170	R80		Open server
–	London_Server_4	London	192.168.3.130	R80		Open server
–	New_York_Server	NewYork	192.168.3.160	R80		Open server
–	NewYork_Server	NewYork	192.168.3.151	R80		Open server
–	NewYork_Serve...	NewYork	192.168.3.171	R80		Open server
–	NewYork_Serve...	NewYork	192.168.3.131	R80		Open server
–	Tokyo_Server	Tokyo	192.168.3.152	R80		Open server
–	Tokyo_Server_2	Tokyo	192.168.3.162	R80		Open server
–	Tokyo_Server_3	Tokyo	192.168.3.172	R80		Open server
–	Tokyo_Server_4	Tokyo	192.168.3.132	R80		Open server

Architecture and Processes

In This Section:

Server Architecture

This section is an overview of the new management architecture introduced in R80, as shown in this diagram:



These are the principal process and components:

Item	Description
1	R80.20.M1 SmartConsole application
2	**CPMI** - Legacy Check Point Management Interface
3	**Web Services** - Handles communication with the new CPM process
4	**FWM** - Legacy management server process
5	**CPM** - R80.20.M1 main management server process
6	**PostgreSQL** - Relational database system that contains the Rule Base, management objects and configuration settings
7	**Solr** - Query and search platform

Communication between the SmartConsole application (**1**) and the CPM (**5**) process uses Web Services (**3**). CPM communicates directly with the PostgreSQL (**7**) database to update tables or

records. CPM can also use a use Solr (**6**) to run a query to get information or locate records in the PostgreSQL database.

SmartConsole uses the CPMI (**2**) protocol to communicate with the legacy FWM (**4**) process. This is necessary for backward compatibility with pre-R80 Security Gateways. In this case, CPM and FWM communicate directly with each other.

In a Multi-Domain Management environment, only one CPM, PostgreSQL, and Solr instance is necessary to handle transactions with all Domain Servers. In the backward compatibility mode, there is one FWM instance for each Domain Server.

Note - Because many of the processes are shared between the MDS and all the Domains, it is not possible to stop or start a Domain server independently of all the other Domains. It is only possible to stop per Domain processes, like FWM, for specific Domains.

CPM

CPM is the Check Point main management server process for this release. It is a multi-threaded, Java process that uses Web services to expose its functionality and to efficiently handle many, concurrent requests.

- CPM uses port 19009 for remote communication and port 9009 for local SIC traffic
- Log files are located in `In $MDS_TEMPLATE/log` (<*file_name*>`.elg`)
- Jar files are located in `In $MDS_TEMPLATE/cpm-server`

PostgreSQL

PostgreSQL is the relational database manager that handles all data of the Multi-Domain Management and the single Domains Management, and configuration parameters. It also manages a connection pool to support concurrent connections, where each connection is a different process. The pool size is between 10 to 50 concurrent connections.

- PostgreSQL uses port 5432
- The PostgreSQL database is located at `$CPDIR/database/postgresql` (Also known as `$PGDIR`)
- PostgreSQL logs are in `$MDS_TEMPLATE/log/postrges.elg`

Solr

Solr is the enterprise search platform that handles the state-of-the-art search capabilities in SmartConsole. When a user searches for data in SmartConsole, Solr handles the request and gets the data from the PostgreSQL tables. Solr stores some partial data in a cache for better search performance.

- Solr uses port 8983
- Solr is deployed at `$FWDIR/solr`

Multi-Domain Server Processes

Each Multi-Domain Server Level process has one instance on every Multi-Domain Server/Multi-Domain Log Server machine, when it is running. These processes run on the Multi-Domain Server.

Process	Description
cpd	SVN Foundation infrastructure process
cpca	The Certificate Authority management process
fwd	Audit Log server process
fwm	Legacy Check Point management server main process (R77.x and earlier)

For proper operation of the Multi-Domain Server, these processes must run together with CPM, postres, and solr. An exception to this rule is instances where cpca cannot run, such as for Domain Log Servers. cpca must always run for Domain Servers.

Domain Server Processes

Each one of these processes runs a different instance for each Domain Server:

Process	Description
cpd	SVN Foundation infrastructure process
cpca	The Certificate Authority manager process (Domain Servers only)
fwd	Log server process
fwm	Legacy Check Point management server main process (R77.x and earlier)
status_proxy	Status collection of SmartLSM Security Gateways
sms	Manages communication with UTM-1 Edge Security Gateways

For proper operation of the Domain Server, cpca, fwd and fwm must always run, except for specified configurations where cpca cannot run. Other processes are required only as necessary for applicable functionality.

Check Point Registry

The Check Point registry, at $CPDIR/registry/HKLM_registry.data, contains installation and version information for the different components of Check Point products. Each Multi-Domain Server, Multi-Domain Log Server, Domain Server, and Log Server has its own registry. The $CPDIR environment variable points to the registry location on each platform or context.

Automatic Start of Multi-Domain Server Processes

The script for the automatic start of Multi-Domain Server processes upon boot is at /etc/init.d. The name of the file is firewall1. A link to this file appears in /etc/rc3.d directory under the name S95firewall1.

Environment Variables

Different Multi-Domain Server processes require standard environment variables that:

- Point to the installation directories of different components
- Contain management IP addresses
- Hold data important for correct initialization and operation of the processes

Additionally, specific environment variables control certain parameters of different functions of Multi-Domain Server.

Multi-Domain Server installation contains shell scripts for *C-Shell* and for *Bourne Shell*, which define the necessary environment variables:

- The C-Shell version is `/opt/CPshrd-R80.20.M1/tmp/.CPprofile.csh`
- The Bourne Shell version is `/opt/CPshrd-R80.20.M1/tmp/.CPprofile.sh`

Sourcing these files (or in other words, using "`source`" command in C-Shell or "`.`" command in Bourne Shell) will define the environment necessary for the Multi-Domain Server processes to run.

Standard Check Point Environment Variables

Variable	Description
`FWDIR` `MSDIR`	Location of Check Point Security Gateway binary/configuration/library files • In the Multi-Domain Server environment, this environment variable is equal to `MDSDIR` • In Domain Server environment, it contains `/opt/CPmds-R80/customers/<Domain Server Name>/CPsuite-R80/fw1`
`PGDIR`	Location of the PostgreSQL database - `$CPDIR/database/postgresql`
`MDS_TEMPLATE`	Location of log files and JARs
`CPDIR`	Location of Check Point SVN Foundation binary/configuration/library files that point to different directories in Multi-Domain Server and Domain Server environments
`MDSDIR`	Location of the Multi-Domain Server installation (`/opt/CPmds-R80`)
`SUROOT`	Points to the location of SmartUpdate packages

Deploying Multi-Domain Management

In This Section:

This chapter includes information to help you plan your deployment and gives a general overview of the deployment process.

Planning your Deployment

This section includes best practices and other suggestions to help make your Multi-Domain Management deployment work efficiently.

Multi-Site High Availability Deployment

Large enterprises use Multi-Domain Management in a multi-site, High Availability deployment, with many Multi-Domain Servers located at remote sites, often in different countries. Each Multi-Domain Server and Multi-Domain Log Server continuously synchronizes with its remote peers.

The advantages of this type of deployment are:

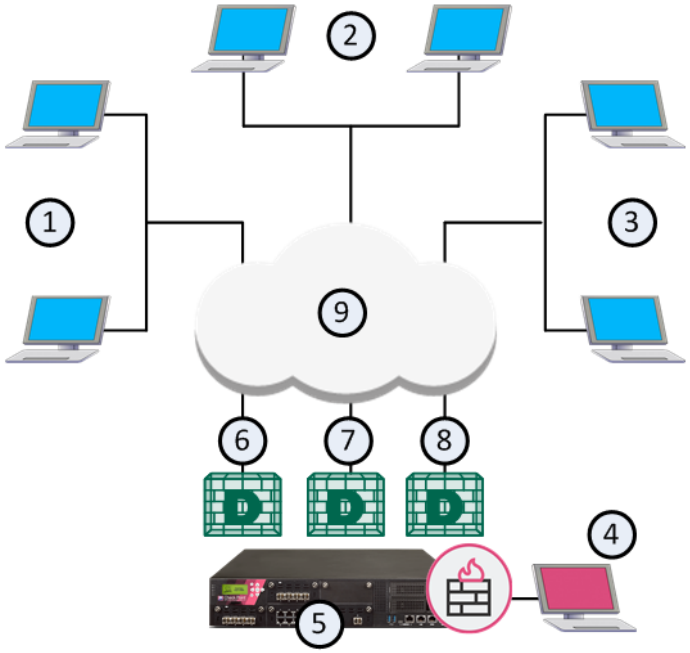
- Full Multi-Domain Server, Multi-Domain Log Server, and Domain Server redundancy
- Domain Server load sharing that can balance traffic based on geographic location
- Many administrators can connect to different Multi-Domain Servers to manage Security Policies and system configuration from different locations

Single Site Deployments

Small organizations, with moderate traffic volumes can use a single-site deployment, with one Multi-Domain Server that manages a set of Domains.

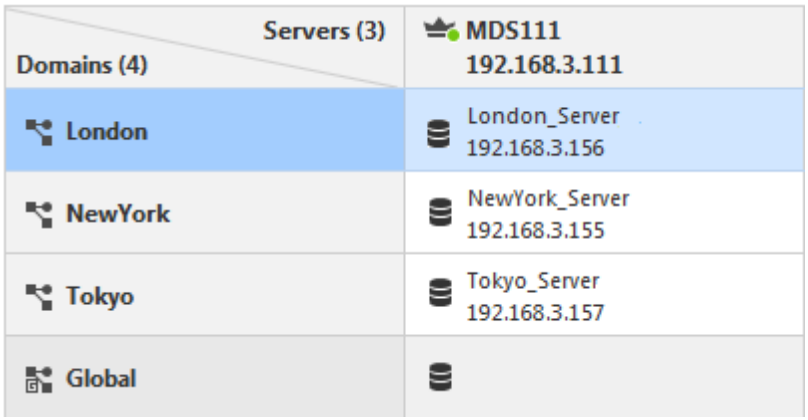
Best Practice - For this type of deployment, use a backup solution that periodically saves the system databases and settings to another device.

This example shows a single-site Multi-Domain Server deployment with three Domains at remote locations. Each Domain has many gateways to protect the internal networks and resources. This example has only one Multi-Domain Server and does not use High Availability.



Item	Description
1	London Domain and networks
2	New York (Headquarters) Domain and networks
3	Tokyo Domain and networks
4	SmartConsole clients, typically at a network control center.
5	Multi-Domain Server
6	London Domain Server
7	New York Domain Server
8	Tokyo Domain Server
9	Internet

This illustration shows the configuration grid in the SmartConsole **Multi Domain** view for the example deployment:



Note - The system automatically creates the Global Domain when you install Multi-Domain Management.

Platform & Performance Issues

Make sure that your Multi-Domain Management system hardware is compliant with the system requirements for this release. If your Multi-Domain Server has more than one interface, make sure that the total traffic load complies with the performance load recommendations for that Multi-Domain Server.

Topology, IP Addresses and Routing

All Multi-Domain Servers must have at least one interface with a routable IP address. You must configure these Multi-Domain Servers to run DNS server queries and to resolve the IP addresses and host names.

Configure your network routing for IP communication between:

- All Multi-Domain Servers, Domain Servers and Multi-Domain Log Servers
- Different Domains, if necessary
- Domain Servers, Domain Log Servers and Security Gateways in a Domain
- A Domain Server and its Domain High Availability peers
- SmartConsole and Multi-Domain Servers, Domain Servers and Domain Log Servers

Make sure that IP addresses and routing configuration can handle special issues, such as Multi-Domain Servers in different physical locations.

Using More than one Interface on a Multi-Domain Server

If there is more than one interface on a Multi-Domain Server, you must configure at least one interface to be the *leading interface*. Multi-Domain Servers (Primary and Secondary) and Multi-Domain Log Servers use the leading interface to communicate with each other for database synchronization.

Make sure that all Multi-Domain Server interfaces are routable. Domain Servers must be able to communicate with their Domain Security Gateways. Domain Log Servers must be able to communicate with their Domain Security Gateways.

Changing the Leading Interface

You define the leading interface during the installation procedure, but you can change it later. If you add a new interface to a Multi-Domain Server after installation, define the Leading Interface manually.

To add a New Leading Interface:

1. From the Multi-Domain Server command line, run: `mdsconfig`
2. Select **Leading VIP Interfaces**, and then select **Add external IPv4 interface**.
3. Enter the interface name and press **Enter**.

Changing the Leading Interface:

1. From the Multi-Domain Server command line, run: `mdsconfig`
2. Do steps 2-3, in the above procedure, to add new interface.
3. Select **Leading VIP Interfaces**.
4. Select **Remove External IPv4 interface**.
5. Enter the interface name to remove and press **Enter**.

Synchronizing Clocks

All Multi-Domain Server system clocks must synchronize to approximately one second. Before you create a new Multi-Domain Server or Multi-Domain Log Server, you must synchronize its clock with other system components.

Clock synchronization is important for these reasons:

- SIC trust can fail if devices are not synchronized correctly
- SmartEvent Correlation Unit uses time stamps, which must be accurate
- Make sure that cron jobs run at the correct time
- Certificate validation is based on the correct time

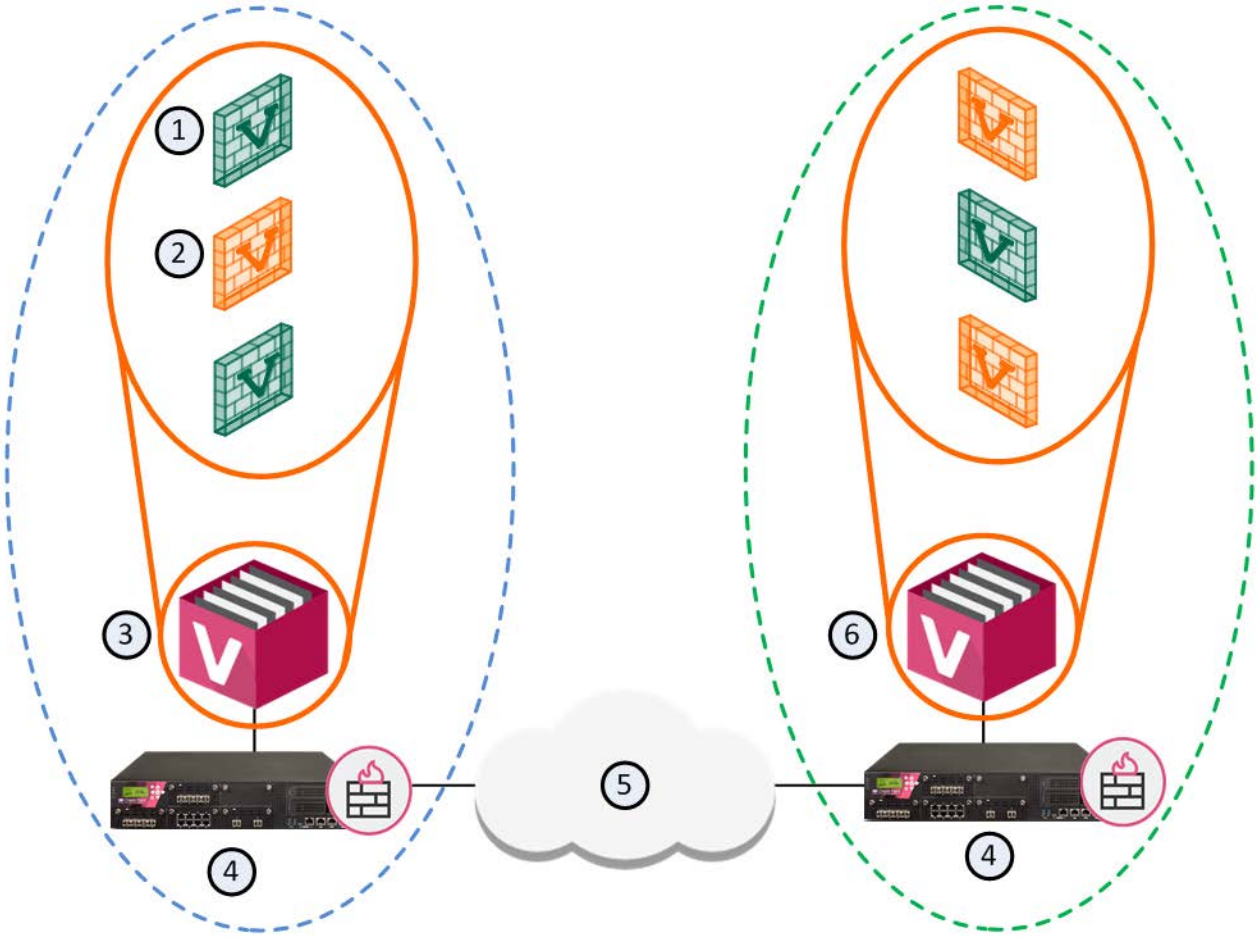
Use these resources to synchronize component system clocks:

- Manually, using the Portal or the operating system CLI
- A third-party synchronization utility

Protecting the Multi-Domain Management Deployment

It is a security best practice to deploy a Check Point Security Gateway that protects the Multi-Domain Servers, Multi-Domain Log Server and other components. You can manage this Security Gateway with a Domain Server or a Security Management Server that is not part of a Multi-Domain Management environment.

This simple use case shows a small High Availability deployment with a Security Gateway protecting each Multi-Domain Server. One of the Domain Servers manages these Security Gateways.



Item	Description
1	Active Domain Servers
2	Standby Domain Servers
3	Primary Multi-Domain Server with Active and Standby Domain Servers
4	Security Gateways
5	Internet
6	Secondary Multi-Domain Server with Active and Standby Domain Servers

Security Gateway Managed by a Domain Server

You can create a Domain and Domain Server to manage the Policies for Security Gateways that protect Multi-Domain Servers in your environment.

Workflow for this scenario:

1. Run SmartConsole and log into the Multi-Domain Server.
2. Create a new Domain and Domain Server.
3. Connect to the new Domain SmartConsole and create a Security Gateway object.
4. Enable the **Firewall** and other Software Blades on this gateway.
5. Create and install a Security Policy for the Security Gateway.

Defining an Access Control Policy for Multi-Domain Server Components

You must create rules in your Security Policies to allow communication between the different Multi-Domain Management components. You can define these rules in global configurations or in local Domain Policies.

Use this table as a guideline to allow connections between specified components:

Activity	Source	Destination
Allow connections between SmartConsole and the Multi-Domain Server	SmartConsole Multi-Domain Server	Multi-Domain Server SmartConsole
Allow connections between Multi-Domain Servers	Multi-Domain Servers	Multi-Domain Servers
Allow connections between Domain Servers and Security Gateways	Domain Server Security Gateway	Security Gateway Domain Server
Allow Domain Server status data and certificate exchange between Domain Server High Availability peers Allow Domain Server synchronization between peers	Domain Server peer	Domain Server peer

See the *R80.20.M1 Security Management Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_SecurityManagement_AdminGuide/html_frameset.htm to learn how to create a Security Policy.

Using External Authentication Servers

Multi-Domain Management supports these external authentication solutions:

- RADIUS
- TACACS
- RSA SecurID ACE/Server

When an administrator logs in, an authentication requests goes to the external authentication server, which sends a reply to the Multi-Domain Server. TACACS and RADIUS use the Multi-Domain Server as a proxy between the Domain Server and the external authentication server. To make this work correctly, you must configure each Multi-Domain Server on the authentication server.

Note - If the Multi-Domain Server is DOWN, the Domain Server cannot authenticate administrators.

Configuring External Authentication

To configure External Authentication:

1. Connect to the Multi-Domain Server with SmartConsole.
2. In the **Domains** view, select the Global Domain, and then click **Connect**.
3. Connect to the Global Domain with SmartConsole, and then create a host object for the authentication server.
4. Define the Multi-Domain Management administrators in the authentication server.
5. In SmartConsole, select **Administrators**.
6. Select an existing administrator or click **New**.
7. In the **General** tab, select the applicable **Authentication Scheme**.
8. If the selected authentication server is **RADIUS** or **TACACS**, select the server that you configured in the Global Domain SmartConsole.
9. If the authentication server is SecurID:
   a) Close SmartConsole.
   b) Generate the file `sdconf.rec` on the ACE/Server, and configure the user to use *Tokencode* only.
   c) Copy `sdconf.rec` to `/var/ace/` on each Multi-Domain Server.
   d) Open `/etc/services` in a text editor and add the following lines:
      ```
      securid 5500/udp
      securidprop 5510/tcp
      ```
   e) Reboot the Multi-Domain Server.

Note - The <`authentication_server`> parameter is required for TACACS and RADIUS.

Managing Domains

In This Section:

A *Domain Server* is the functional equivalent of a Security Management Server in a single-domain environment. You connect directly to a Domain Server with SmartConsole to manage a Domain and its components:

- Domain Security Gateways
- Domain Security Policies, rules, and other Domain level security settings
- Domain system objects, such as services, users, and VPN Communities.
- Domain Software Blades and their related configuration settings

This chapter shows how to create and manage Domains and Domain Servers. Also included in this chapter are procedures for creating and configuring a Secondary Multi-Domain Server.

Creating a New Domain

Use this procedure to create a new Domain together with the first Domain Server for this Domain.

To create a new Domain:

1. Connect to the Multi-Domain Server with SmartConsole.
2. In the **Multi-Domain** > **Domains** view, click **New**.
3. In the **Domain** window, enter a unique Domain name.
4. Click the **+** icon in the **General** > **Domain Servers** section.
   In a High Availability deployment, you must select a Multi-Domain Server from the list.
   a) Enter a unique Domain Server name or accept the default name.
   b) Enter the Domain Server IP address, or click **Resolve IP** to get the IP Address from the Multi-Domain Server address pool.
   c) Accept the default Domain Server type and click **OK**.
   d) Click **Trusted Clients** and select one or more trusted clients from the list that can connect to this Domain Server.
   e) Optional: Click **Additional Information** and enter contact information for the person responsible for this Domain Server.
5. Click **OK** to save the new Domain and Domain Server.

Notes:

- When you create a new Domain, you must always create at least one new Domain Server with it.
- You can also use this procedure to create Standby Domains and Domain Servers for Domain Server for redundancy and Load Sharing. To do this, there must be at least one Secondary Multi-Domain Server in the deployment.
- To create a Log Server, you must have a Multi-Domain Log Server or a Secondary Multi-Domain Server in your environment.

Assigning Trusted Clients to Domains

You must assign all Domains to one or more trusted SmartConsole clients before you can connect to them. If you do not do this, an error message will show when you try to connect.

Each Domain assignment identifies trusted SmartConsole clients based on one of these criteria:

- An IP address
- A host name
- A range of IP addresses
- Net mask
- IP addresses with wildcard characters
- **Any** - All SmartConsole clients can connect

To assign a trusted client to a Domain:

1. Connect to the Multi-Domain Server with SmartConsole
2. Select **Multi-Domain** > **Permissions & Administrators** > **Trusted Clients**.
3. Click **New**.
4. In the **New Trusted Client** window, enter a unique name for this Domain assignment.
5. Select an identification criterion from the **Type** list and enter the applicable information.
6. Add one or more Domains to the **Domain Assignment** list.
7. Optional: Select **Multi-Domain Server Trusted Client** to apply this assignment to Multi-Domain Servers in addition to the specified Domains.

To add another Domain to an existing trusted client:

1. Select **Multi-Domain > Permissions & Administrators > Trusted Clients**.
2. Double-click the trusted client name.
3. In the **Trusted Client** window, add one or more Domains to the **Domains Assignment** list.

To change a Domain assignment:

1. Select **Multi-Domain** > **Permissions & Administrators** > **Trusted Clients**.
2. Double-click an existing trusted client name.
3. Select an identification criterion from the **Type** list and enter or change the applicable information.
4. Add or delete one or more Domains in the **Domain Assignment** list.
5. Optional: Select **Multi-Domain Server Trusted Client** to apply this assignment to Multi-Domain Servers in addition to the specified Domains.

Configuring Automatic Domain IP Address Assignment

You can configure a Multi-Domain Server to assign an IP address to Domain Servers managed by this Multi-Domain Server from a predefined pool of IP addresses. This makes sure that the assigned IP address is not in use by other Multi-Domain Servers or Domain Servers.

To configure a Multi-Domain Server to assign IP addresses to Domain Servers:

1. In the **Multi-Domain** view, right-click a Multi-Domain Server and select **Edit**.
   The **Multi-Domain Server** window opens.
2. From the navigation tree, select **Multi-Domain**.
3. In the **IP Range** section, enter the first and last IP address in the range.
4. Click **OK**.

Changing an Existing Domain Configuration

To change an existing Domain configuration:

1. Connect to the Multi-Domain Server with SmartConsole.
2. In the **Multi-Domain** > **Domains** view, double-click the applicable Domain.
3. In the **Domain** window, select the Domain Server and click the pencil icon (edit).
   Note - You cannot change the Domain name. If you try to do this, an error message shows.
4. Add, delete or change the other Domain definitions as necessary.

Deleting a Domain Server

To Delete a Domain Server:

1. Connect to the Multi-Domain Server with SmartConsole and go to the **Domains** view.
2. Right click a Domain Server in the grid, and then select **Delete**.

Deleting a Domain

To delete a Domain:

1. In the **Domains** section, right-click a Domain.
2. Select **Delete** from the context menu.

This action automatically deletes the active and secondary Domain Servers, Domain Log Servers, and the Domain object.

Connecting to a Domain Server

To connect directly to a Domain:

1. Login to SmartConsole.
2. In the **Welcome** screen, select a Domain from the list, and then click **Proceed**.
   SmartConsole opens with the active Domain Server in the **Gateways & Servers** view.

To connect to a Domain Server from the SmartConsole Multi-Domain view:

1. Connect to a Multi-Domain Server with SmartConsole.
2. In the **Multi-Domain** > **Domains** view, right-click the active Domain Server in the grid.
3. Select **Connect to Domain Server**.

Note - In a High Availability deployment, you can only make changes to a Domain from the active Domain Server. The active Domain Server shows with a black icon. If you connect to a standby Domain Server (white icon), SmartConsole opens in the Read Only mode.

Working with Cross-Domain Management

The Multi-Domain Management **Gateways & Servers** view lets administrators see and work with Domain Servers, Security Gateways, and other objects for all Domains in one convenient window. You must have the applicable permissions to see and work with these objects.

To open the Gateways & Servers view:

1. Connect to a Multi-Domain Server with SmartConsole.
2. Click **Gateways & Servers**.

   The **Gateways & Servers** view shows all Security Gateway and Domain Server objects.

Status	Name	Domain	IP	Version	Active Blades	Hardware
–	GW105	London	192.168.3.105	R77.20	...	4000 Appliances
–	GW106	NewYork	192.168.3.106	R77.20	...	12000 Appliances
–	GW107	Tokyo	192.168.3.107	R77.20	...	13000 Appliances
–	GW115	London	192.168.3.115	R77.30	...	21000 Appliances
–	GW116	NewYork	192.168.3.116	R77.30	...	13000 Appliances
–	GW117	Tokyo	192.168.3.117	R77.30	...	61000 Appliances
–	London_Server	London	192.168.3.150	R80		Open server
–	London_Server_2	London	192.168.3.161	R80		Open server
–	London_Server_3	London	192.168.3.170	R80		Open server
–	London_Server_4	London	192.168.3.130	R80		Open server
–	New_York_Server	NewYork	192.168.3.160	R80		Open server
–	NewYork_Server	NewYork	192.168.3.151	R80		Open server
–	NewYork_Serve...	NewYork	192.168.3.171	R80		Open server
–	NewYork_Serve...	NewYork	192.168.3.131	R80		Open server
–	Tokyo_Server	Tokyo	192.168.3.152	R80		Open server
–	Tokyo_Server_2	Tokyo	192.168.3.162	R80		Open server
–	Tokyo_Server_3	Tokyo	192.168.3.172	R80		Open server
–	Tokyo_Server_4	Tokyo	192.168.3.132	R80		Open server

To work with a Security Gateway, double-click gateway object. A SmartConsole instance for the applicable Domain Server opens and automatically shows the **Gateway** window for the selected Security Gateway. In a High Availability environment, the Active Domain Server opens.

To work with a Domain, double-click its Domain Server object. A SmartConsole instance for the applicable opens and automatically shows the **Host** window for the selected Domain Server. In a High Availability environment, make sure that you select the Active Domain Server, which opens in the Read/Write mode. Standby Domain Servers open as Read-Only and you cannot make any changes to Domain objects.

Changing an Existing Multi-Domain Server

You can change the settings for an existing Multi-Domain Server or Multi-Domain Log Server.

To change the settings for an existing Multi-Domain Server:

1. Double-click the Multi-Domain Server or Multi-Domain Log Server in the top row of the **Domains** grid.
2. In the **Multi-Domain Server** window, change the parameters in the **General**, **Multi-Domain** **("**Configuring Automatic Domain IP Address Assignment**" on page** 28**)** and **Log Settings** views.

Note - You cannot change the Multi-Domain Server name.

Setting the Domain Server Display Format

You can change how Domain Servers show in the **Domains** grid.

To set the Domain Server display format:

1. Go to **Multi-Domain** > **Preferences**.
2. Select a display format:
   - Domain Server Name and IP (default)
   - Domain Server IP
   - Domain Server Name

Global Management

In This Section:

The Global Domain

The **Global Domain** is a collection of rules, objects and settings shared with all Domains or with specific Domains. The system automatically creates the Global Domain when you install Multi-Domain Management. You cannot delete the Global Domain.

You organize global rules, objects and settings into *global configurations*. Each global configuration can include one or more of these components:

- One **Global Access Control Policy** - Global rules that control access to network resources. This includes rules for Firewall, Application Control, URL Filtering, and IPsec VPN. The **Network** Policy Layer is created automatically after installation or upgrade. You can manually create an Application or other Global Policy Layers as necessary.
- One **Global Threat Prevention Policy** - Global rules that prevent malware, intrusions and other threats. This includes rules for IPS, Anti-Bot, Anti-Virus, and other Threat Prevention features. The Threat Prevention Policy Layer is created automatically after installation or upgrade.
- **Global Objects** - System objects and configuration settings that are common to all or to specific Domains. Connect to the Global Domain with SmartConsole to create and configure global objects.

Connecting to the Global Domain

To connect to the Global Domain:

1. Connect to the Multi-Domain Server with SmartConsole.
2. In the **Domains** view, right-click the Global Domain, and then click **Connect to Domain**.
   A SmartConsole instance opens for the Global Domain.

Changing the Global Domain

This section includes basic procedures for working the contents of the Global Domain.

When connected to the Global Domain you can:

- Create, delete or change Global Access Control and Threat Prevention Policies.
- Create, delete or change rules in Global Policies.
- Create, delete or change global objects.

These activities are not supported in this release:

- Create a new Global Domain.
- Define Security Gateways as installation targets in global configuration rules. You must use local Policies to do this.

Working with Global Objects

Use global objects in global configuration rules. Global objects work much in the same way as objects in local Policy rules.

The Global Domain includes many, predefined global objects for your convenience. These default global objects are visible (read only), in the Global Domain. You cannot delete or change them.

You can create, change or delete user-defined global objects in the Global Domain only. Global objects are visible in local Domains in the read-only mode.

Important - Before you delete a global object, make sure that no global or local policy rules use this global object. This can cause errors when you reassign global configurations.

To add a new global object:

1. Connect to the Global Domain with SmartConsole.
2. Click the **Objects** menu, and then select an object type from the menu.
   You can also create a new global object with the **Object Explorer**.
3. Configure the required parameters.
4. Click **OK** to save the new object.

To change a user-defined global object, select it in the **Object Explorer**, and then change the applicable settings.

To delete a user-defined object, select it in the **Object Explorer** and click **Delete**.

Important - After you complete the global object task, assign or reassign the global configuration to the applicable Domains (see "Global Assignments" on page 40). This action automatically:

- Publishes the changes that were done on the Multi-Domain Server
- Updates the local Domain and its Rule Base

Working with Global Configuration Rules

This section is a general overview of the procedure for defining rules in the Global Policies. To learn more about Policy rules and their configuration procedures, see the *R80.20.M1 Security Management Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_SecurityManagement_AdminGuide/html_frameset.htm.

Global Policy Layers have one placeholder for local Domain rules. You can create global rules above and below this placeholder. In the local Domain Policy Layer, you define local rules in the placeholder. If there are no local Domain rules, the placeholder can be empty.

The position of rules in Domain Policy Layers defines the order in which they are enforced. It is important to put rules in the correct sequence. Global Policy Layers do not have implied rules, but implied rules can be inherited from global properties in local Domains.

Best Practice - Define a global cleanup rule in each Policy Layer.

There is no NAT Rule Base in the Global Domain and you cannot define NAT settings there. You must define NAT rules manually in Domain Policy Layers.

Workflow for global Domain Policy Layers:

1. Connect to the Multi-Domain Server with SmartConsole.
2. In the **Domains** view, right-click the Global Domain, and then click **Connect to Domain**.
   A SmartConsole instance opens for the Global Domain.
3. Select **Access Control** and **Threat Prevention** Policy Layers and configure their rules.
4. Publish your changes.
5. Go to **Multi-Domain** > **Global Assignments**, and assign the configuration ("Configuring an Assignment" on page 40) to the local Domains. If you assigned the configuration before, and made changes to the Global Domain Policy, reassign the global ("Reassigning" on page 41) domain configuration to the local Domains.
   The system creates a task, during which these actions occur:
   - Makes sure that all Global and local Domain Layer rules are consistent and work together correctly. For example, it makes sure that new local Policy Layers are connected to existing local Domain Policy Layers.
   - Updates the local Domain and its Rule Base.
   - Publishes the changes again.
   - Changes the assignment status to **Up to Date**.
6. Install Policies on the local Domains.

Sample Access Control Policy Layer

Global Access Control rules use a placeholder for local Domain rules. The position of this placeholder in the Rule Base controls the order that Security Gateways handle global and local Policy rules. For simplicity of presentation, this example shows one Global Policy Layer that has both Network and Application rules. In the real world, there are different Policy Layers for these two rule types.

Sample Global Policy Layer

No.	Name	Source	Destination	VPN	Services & Applications	Action
1	Management to Gateway traffic	Gateways Management	Management Gateways	Any	Any	Accept
2	FB & Twitter	Internal Net	Any	Any	Facebook Twitter	Drop
3	Placeholder for Domain Rules					Domain Layer
4	DMZ Notify	Internal Net	DMZ Net	Any	Any	Inform
5	Cleanup	Any	Any	Any	Any	Drop

In this example, the placeholder for local Domain rules is rule number 3. Global Domain rules 1 and 2 run before the local Domain rules. Global rule 4 and the cleanup rule run after the local Domain rules.

Each local Domain Policy includes both Global Domain Policy rules and local Domain rules that apply to its Security Gateways. Local Domain Policy rules show in a Domain Layer under a parent rule.

Sample Domain Policy Layer with Global and Local Domain Rules

No.	Name	Source	Destination	VPN	Services & Applications	Action
1	Management to Gateway traffic	Gateways Management	Management Gateways	Any	Any	Accept
2	FB & Twitter	Internal Net	Any	Any	Facebook Twitter	Drop
3	Parent Rule for Local Domain Policy					
3.1	External to SD server	External Net	Host_10.10.10.11	Any	Any	Accept
3.2	Finance	Finance Top Mgmt.	Finance Dept	Any	Any	Accept
3.3	File Sharing Allowed	Any	Any	Any	Dropbox Google Docs CP Threat Cloud	Accept
4	DMZ Notify	Internal Net	DMZ Net	Any	Any	Inform
5	Cleanup	Any	Any	Any	Any	Drop

In this example, the Security Gateways handle the global configuration rules (1 and 2) and then the local Domain rules. If there is still no match in the local rules, the Security Gateways handle the last two global rules, including the cleanup rule.

Although a local Domain can define implied rules, it is a best practice to put critical global rules at the beginning of the Rule Base. Put the global cleanup rule at the end. This overrides the implicit cleanup rule and gives you flexibility to define an effective sequence for local Domain rules.

Sample Threat Prevention Policy Layer

Global Threat Prevention rules use a placeholder for local Domain rules. The position of this placeholder in the Rule Base controls the order that Security Gateways handle global and local Policy rules. The first rule that matches traffic generates the specified action.

Sample global Policy Rule Base

No.	Name	Protected Scope	Protection Site	Action	Track	Install On
1	Max Security	Portal Server Finance Server	N/A	Strict	Alert Packet Capture	Policy Targets

No.	Name	Protected Scope	Protection Site	Action	Track	Install On
Global Exceptions (No Rules)						
E-1.1	MS Office False Positives	Any	MS Word MS Publisher MS Excel	Detect	Log Packet Capture	Policy Targets
2	Printers & Other Devices	Peripheral Net	N/A	Basic	Log Packet Capture	Policy Targets
Global Exceptions (No Rules)						
3	Parent Rule for Domain Policy			Domain Layer		
4	Cleanup	Any	N/A	Optimized	Log Packet Capture	Policy Targets
Global Exceptions (No Rules)						

In this example, the local Domain placeholder is rule number 3. Global Domain rules 1 and 2 run before the local Domain rules. Global Domain rule 4 is the default rule that runs after the local Domain rules.

Each Domain Policy includes both global rules and local rules that apply to its Security Gateways. Local Domain Policy rules show in a local Domain Layer under a parent rule.

Sample Domain Rule Base with global and local Domain Rules

No.	Name	Protected Scope	Protection Site	Action	Track	Install On
1	Max Security	Portal Server Finance Server	N/A	Strict	Alert Packet Capture	Policy Targets
Global Exceptions (No Rules)						
E-1.1	MS Office False Positives	Any	MS Word MS Publisher MS Excel	Detect	Facebook Twitter	Policy Targets
2	Printers & Other Devices	Peripheral Net	N/A	Basic	Log Packet Capture	Policy Targets
Global Exceptions (No Rules)						
3	Placeholder for Domain Policy			Domain Layer		
3.1	Management Threats	Management	N/A	Optimized	Log Packet Capture	Policy Targets

No.	Name	Protected Scope	Protection Site	Action	Track	Install On
3.2	Guests	Guest	N/A	Strict	Log Packet Capture	Policy Targets
4	Cleanup	Any	N/A	Optimized	Log Packet Capture	Policy Targets

This example shows Policy Layer with Global Domain rules together with the local Domain rules.

Using Layers with the Global Domain

- You create Global Access Control and Threat Prevention Policy Layers in the Global Domain. You configure Local Domain Policy Layers in the applicable local Domains.
- The Global **Network** Policy Layer is created automatically, but you can manually create a Global **Application** Layer. The Global Threat Prevention Layer is created automatically. If your policy installation targets contains pre-R80.x gateways, the Network and Application layers are the only supported layers. Do not create more Policy Layers.
- In each Policy Layer, the position of the local Domain Policy Layer is defined by the position of its placeholder in the Rule Base. You can add global rules above or below the placeholder. You can define Threat Prevention rule exceptions for Global and local Domain Policy Layers.
- You can temporarily disable the local Domain Policy Layer. In SmartConsole for the applicable local Domain, right-click in the **No.** column of the placeholder, and then select **Disable**. The Domain Policy shows as grayed-out. To re-enable it, right-click the same cell, and select **Disable** again. Publish the session.

  Note - You cannot disable local Policy Layers in the Global Domain. This option is not available.
- To delete the rules from a local Domain Layer, click the pencil icon in the **Action** column, and select **No domain rules** in the local Domain. Publish the session.
- To use a different Domain Policy Layer, click the pencil icon in the **Action** column, and select a different Domain Policy Layer from the list. Publish the session.

Upgrade Issues

When you upgrade an R77.x or earlier Multi-Domain Server, existing Policies are converted in this manner:

- If a pre-R80.x Policy has a Global Access Control Policy with no defined rules (placeholder only), its mode is automatically set to **no global Policy** after an upgrade to R80.x. You can change the mode as necessary for both R80.x and pre-R80.x Policies.
- The **Firewall** Policy is converted into an R80.10 **Network** Policy Layer. Its implicit cleanup rule is set to **Drop**.
- The **Application & URL Filtering** Policy is converted to the **Application** Policy Layer. The implicit cleanup rule for it is set to **Accept**.
- If a Domain contains **IPS** rules, an IPS Layer is automatically created in the R80.x Threat Prevention Policy for the applicable Domain.

Policy Layers and Administrator Permissions

The use of Policy Layers lets you define granular permissions for different aspects of security management. In a typical organization, only administrators with **Global Management** or **Superuser** privileges can work with Global Policy Layers. **Domain Managers** or **Domain Level Only** administrators typically have permissions to work with specified Policy Layers in their local Domains.

Dynamic Objects and Dynamic Global Objects

Dynamic objects are "logical" network objects for which IP addresses or address ranges are not explicitly defined. You define dynamic objects in the Global Domain and use them in global configuration rules. The dynamic objects are resolved to local objects when you assign the global policy to the local Domains.

You can create dynamic objects for most object types, including Security Gateways, hosts, services, networks and groups. Use the standard global objects available in SmartConsole or create your own global objects. All dynamic objects must have the `_global` suffix, which identifies the objects as global.

There are two types of dynamic objects:

- **Dynamic Global Network Objects** - In each Domain, you define a host object with the same name as the global dynamic object. During the assignment of the global policy, the references to the global dynamic object in different rules are replaced by the reference to the local host object with the same name. The *_global* syntax triggers the reference replacement mechanism.
- **Dynamic Objects** - The dynamic object is assigned an IP at the Security Gateway level, when you assign the global configuration to a Domain and install Policies on the Security Gateways. There is no need to create a corresponding local object.

The use of dynamic objects makes it possible to create global rules with no specified network objects. This lets you create rules that are templates.

Defining Rules with Dynamic Objects

To create a new global dynamic object:

1. Connect to Global Domain SmartConsole.
2. In the **Object Explorer**, select **New** > **Network Objects** > **Dynamic Object**.
3. Select:
   - **Dynamic Global Network Object** - The dynamic global object is replaced by a matching Domain object,

   Or
   - **Dynamic Object -** The dynamic object is assigned an IP at the Security Gateway level.
4. In the **New Dynamic Object** window, enter a name.

   For the Dynamic Global Network Object, the name must have the suffix `_global`. For example, `FTP_Server_global`.
5. Drag the dynamic object to the applicable cells in the global Rule Base.
6. Click **Publish**, and then assign the Global Policy to all the applicable Domains.

To use a dynamic global network object in a local Domain rule:

1. Connect to SmartConsole for each applicable Domain.
2. In each Domain, create a local object with the same name as the Dynamic Global Network Object, with the `_global` suffix.

   The local object must include the applicable local parameters, such as the IP address.

When you assign the global policy to the local Domain, the local object replaces this Dynamic Global Network Object.

For Dynamic Objects, there is no need to create an equivalent local object.

Applying Global Rules to Security Gateways by Function

You can create Security Rules in Global Domain that are installed on some Security Gateways or groups of Security Gateways and not others. This way, Security Gateways with different functions on one Domain can receive different security rules for a specified function or environment. When you install global policy to a number of similarly configured Domains, the related global rules are installed to all of the related Security Gateways on each Domain.

This feature is particularly useful for enterprise deployments of Multi-Domain Management, where Domains typically represent geographic subdivisions of an enterprise. For example, an enterprise deployment may have Domains for business units in New York, Boston, and London, and each Domain is similarly configured, with a Security Gateway (or Security Gateways) to protect a DMZ, and others to protect the perimeter. This capability lets you configure the global policy so that some global security rules are installed to DMZ Security Gateways, and different rules are installed to the perimeter Security Gateways.

Note - Global security rules can be installed on Security Gateways, Edge Security Gateways, and Open Security Extension (OSE) devices.

To install a specified security rule on a specified Security Gateway or types of Security Gateways:

1. Connect to the Global Domain for the related Global Policy.
2. In the **Objects Categories** tree, go to **New** > **Network Object** > **Dynamic Objects** and select **Dynamic Global Network Object**.
3. Name the dynamic object, and add the suffix `_global` to the end of the name.
4. Create rules to be installed on Security Gateways with this function, and drag the dynamic object you created into the **Install On** column for each rule.
5. Launch SmartConsole for each related Domain.
6. Create a group object with the name of the dynamic object you created, including the suffix `_global`.

   Best Practice - While you can give a Security Gateway a name of the global dynamic object, we recommend to create a group to preserve future scalability (for instance, to include another Security Gateway with this function). We do not recommend changing the name of an existing Security Gateway to the dynamic object name.
7. Add to the group all the Security Gateways on the Domain that you want to receive these global security rules.
8. From the Multi-Domain Management view, re-assign the global policy to the related Domains.

Creating a Global Policy in the Global SmartConsole

You create Global Policies in the Global SmartConsole. You create Domain policies in the SmartConsole launched using the Domain Server. Let us consider an MSP that wants to implement a rule which blocks unwanted services at Domain sites. The Multi-Domain Management Superuser, Carol, wants to set up a rule which lets the Domain administrators decide which computers are allowed to access the Internet.

Source	Destination	VPN	Service	Action
MyRule	Any	Any Traffic	Any	accept

After she created a Global Policy which includes this rule, she assigns and installs it to specific Domains and their Security Gateways. Each Domain administrator must create a group object with the same name as in the Domain Server database. This is done in SmartConsole. This way, local administrators translate the dynamic global object into sets of network object from the local database.

For details about how to use the SmartConsole, see the *R80.20.M1 Security Management Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_SecurityManagement_AdminGuide/html_frameset.htm.

These are the differences between the Domain SmartConsole and the Global SmartConsole:

Feature	Domain SmartConsole	Global SmartConsole
Rule Base	Local, applying to the Domain network only.	Global, applying to multiple networks of all Domains assigned this Global Policy.
	Domain Security Rules and Global Rules (in Read Only mode) if the Global Policy is assigned to the Domain.	Global Rules and a place holder for Domain rules.
	Not associated with the Domain other security policies.	Automatically added to all of the assigned security policies of Domains.
	Each Domain policy is independent, with its own rules.	All the assigned Domain policies share the global rules.
Network Objects	Local to this network only.	Global to multiple networks of all Domains assigned this Global Policy.
Global Properties	Enabled.	Disabled (manipulations is through the Domain SmartConsole).
Saving a Security Policy	Adds the security policy to the list of Domain security policies.	Adds the Global Policy to the Global Policies database (and displays it in the **Global Policies** Tree of SmartConsole).

Note - You cannot use the Global SmartConsole to create Security Gateway objects. Instead, use a SmartConsole connected to a specific Domain Server to create these objects.

Global Assignments

A *global assignment* is a Multi-Domain Management system object that assigns a global configuration to one specified Domain. You create global assignments to assign different combinations of Global Access Control Policies, Global Threat Prevention Policies, and global object definitions to different Domains.

When you create a new global assignment, it automatically assigns the specified global configuration to the specified Domain. It also publishes the assignment and updates local Domain Policies.

Best Practice - When you create a new Domain, create a global assignment for that Domain at the same time.

When you do one or more of these actions, you must publish the Global Domain session and *reassign* the global configuration:

- Add, delete, or change rules in a global configuration
- Add, delete, or change user-defined objects in a global configuration
- Define the SmartEvent object in the global database
- Change the definition of a global assignment

The assign/reassign action does not automatically install Policies.

Best Practice - Install Policies after you assign or reassign a global assignment.

Configuring an Assignment

To create a new global assignment:

1. Connect to the Multi-Domain Server with SmartConsole.
2. Go to **Multi-Domain** > **Global Assignment**s.
3. Click **Assign** > **New Assignment**.
4. In the **New Assignment** window, select a **Local Domain**.
5. Optional: Select a Global **Access Control Policy** for this local Domain.

   You can click **Advanced** to open the **Advanced Assignment** window to assign the selected Policy:
   - Only to the specified, local Domain Policies
   - To all local Domain Policies, except for those explicitly specified
6. Optional: Select a Global **Threat Prevention Policy** for this local Domain.

   You can click **Advanced** to open the **Advanced Assignment** window to assign the selected Policy:
   - Only to the specified, local Domain Policies
   - To all local Domain Policies, except for those explicitly specified
7. Optional: Enable **Manage protection actions**.

   This option lets you change IPS protection actions for Security Gateways on the local Domain.
8. Click **Assign**.
9. In the confirmation window, click **Publish & Assign.**

   The system creates a task, which:
   - Updates the local Domain and its Rule Base

- Publishes the changes
- Changes the assignment status to **Up to Date**

To change an existing global assignment:

1. Connect to the Multi-Domain Server with SmartConsole.
2. In the **Global Assignments** view, double-click a Domain.
3. In the **Assignment** window, follow steps 4-6 above.
4. Click **Assign**.
5. In the confirmation window, click **Publish & Assign.**

   The system creates a task which:
   - Updates the local Domain and its Rule Base
   - Publish the changes
   - Changes the assignment status to **Up to Date**

Important: You can create a global assignment that does not include a Global Access Control and Threat Prevention Policy. To do this, select the **None** value to both Policy types. The global configuration assigns only the defined global objects and settings to Domains.

Reassigning

When you make changes to the global configuration items, the assignment status changes to **Not up to date**. The assignment status does not change if you make changes to the local Domain Policies.

To reassign global configurations:

1. Connect to the Multi-Domain Server with SmartConsole, and then click **Global Assignments**.
2. In the **Global Assignments** window, right-click one or more Domains.
   You can reassign to more than one Domain at the same time.
3. Click **Reassign**.

   The system creates a task which:
   - Updates the local Domain and its Rule Base
   - Publishes the changes
   - Changes the assignment status to **Up to Date**.

Handling Assignment Errors

Global assignments run as a task that you can monitor while you work on other tasks.

To monitor assignment/reassignment tasks:

1. In the **Multi-Domain** view, click the task information area.

   The **Recent Tasks** window opens.
2. Find the assignment task.

   If your task does not show, click **Show More**.
3. Click **Details**.

   The **Assignment Task Details** window shows the task progress and details.
4. If the task fails and returns an error message, correct the error, and then try to assign/reassign the global configuration again.

Some common errors include:

- Global objects with duplicate or illegal names
- Deleted global objects used in a rule
- Global rule validation errors

Deleting a Global Assignment

When you delete a global assignment, the global configuration rules and objects no longer apply to its Domain.

Best Practice - Immediately create a new global assignment so that Domain Security Gateways continue to enforce global configuration rules.

Important - You must remove global objects from all local Domain rules before you can delete a global assignment. If there is a rule that uses a global object when you try to delete a global assignment, the delete operation fails.

To delete a global assignment:

1. In the **Global Assignments** view, select a Domain.
2. Click the **Delete** icon on the **Actions** toolbar.
3. In the **Remove** window, select an assignment, and then click **Remove**.

Global Assignment Status

You can see the global assignment status in the **Assignment Up to Date** column, in the **Multi-Domain** > **Global Assignments** view. For each Domain, the date of the last assignment shows together with a status icon:

Assignment is up to date - no action necessary.

The global configuration is not assigned or the assignment is not up to date. Assign or update the global configuration as soon as possible.

Updating IPS Protections

Check Point continuously develops and improves its protections against emerging threats. You can manually update the database with latest IPS protections. You must also configure the Global Domain to automatically download contracts and other important data.

Note - Security Gateways with IPS enabled only get the updates after you install Policy.

For troubleshooting or for performance tuning, you can revert to an earlier IPS protection package.

To manually update the IPS protections:

1. Connect to the Global Domain with SmartConsole.
2. Click **Security Policies > Threat Prevention**.
3. In the **Related Tools** section, click **Updates**.
4. In the **IPS** section, click **Update Now**.
5. Connect to the Multi-Domain Server with SmartConsole.

6. Reassign the global configuration.

To revert to an earlier protection package:

1. Connect to the Global Domain with SmartConsole.
2. Click **Security Policies > Threat Prevention**.
3. In the **IPS** section of the **Threat Prevention Updates** page, click **Switch to version**.
4. In the window that opens, select an **IPS Package Version**, and click **OK**.
5. Connect to the Multi-Domain Server with SmartConsole.
6. Reassign the global configuration.

To make sure that **Contract Downloads** is enabled:

1. Connect to the global Domain with SmartConsole.
2. From the main menu, select **Global Properties**.
3. In the **Global Properties** window, click **Security Management**.
4. Make sure that **Automatically download contracts and other important data** is selected.
   This parameter is enabled by default. If it is not enabled, select it.
5. If you enabled the parameter, connect to Multi-Domain Server and reassign the global configuration.

Updating the Application & URL Filtering Database

Check Point constantly develops and improves its protections against the latest threats. You can manually update the Application & URL Filtering database with the latest applications and URLs.

To manually update the Application & URL Filtering protections:

1. Connect to the Global Domain with SmartConsole.
2. Click **Security Policies > Access Control**.
3. In the **Related Tools** section, click **Updates**.
4. In the **Application & URL Filtering** section, click **Update Now**.
5. Connect to the Multi-Domain Server with SmartConsole.
6. Assign or reassign the global configuration.

Managing Administrators and Permissions

In This Section:

In a Multi-Domain Management environment, administrators manage system objects and settings, such as:

- Multi-Domain Servers and Multi-Domain Log Servers
- Domains and Domain Servers
- High Availability configuration and synchronization
- Domain Security Gateways, networks and other objects
- Domain Security Policies and rules
- Global Domain

Permission profiles let you assign permissions to Multi-Domain Management administrators, based on their area of responsibility. You can assign granular permissions to administrators that manage different elements of the Multi-Domain Management environment.

Configuring Administrators

To configure an administrator:

1. Connect to the Multi-Domain Server with SmartConsole, and go to **Permissions & Administrators** > **Administrators**.
2. Click **New**, or select an existing administrator and then click **Edit**.
3. In the **Administrator** view, configure the settings described in the next sections.

Administrator - General

Authentication

- **Name** - Enter a unique administrator name.
- **Authentication Method** - Select an authentication method and enter other authentication parameters as necessary. To learn more about the various authentication methods, see the *R80.20.M1 Security Management Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_SecurityManagement_AdminGuide/html_frameset.htm.

  To set a default value for this parameter, go to **Permissions & Administrators** > **Advanced** > **Administrator Settings** > **Authentication Default Values**. Select a default authentication from the list.
- **Certificate Information** - Optional: Click **Create** to generate a new certificate.

- You can use a certificate with or without an authentication method.
- For an existing administrator definition, you can revoke an existing certificate and create a new one.

Permissions

- **Multi-Domain Permission Profile** - Select a Multi-Domain permission profile from the list ("Working with Permission Profiles" on page 46).

  Accept the default permission profile or select a different one. You can also create a new permission profile to assign. For an existing administrator, the currently selected permission profile shows.

  Click the **View** icon to see details of the currently assigned permission profile.

  If the **Edit** icon shows, you have permissions to see and change the currently selected permission profile. Click the **Edit** icon to change the settings.

  Permission Profiles per Domain - Select one or more Domains, and then select a Domain permission profile for each one.

  + - Click to select a Domain to add to the profile.

  X - Click to remove the selected Domain from the profile.

  Note - The **Permission Profiles per Domain Section** does not show for superusers, because Read/Write Domain permission profiles are assigned automatically to all Domains.
- **Expiration -** Define when this administrator account expires.
  - **Never** - The administrator account does not expire.
  - **Expire at** - Select an expiration date for this administrator.

  To set a default value for this parameter, go to **Permissions & Administrators** > **Advanced** > **Administrator Settings** > **Default Expiration Values**.

Contact Options

You can optionally add contact information for this user:

- **Email** - Enter the administrator email address.
- **Contact Details** - Enter additional contact information.
- **Phone** - Enter the administrator telephone number.

Note - If you upgraded from an earlier release, the system copies these values into the new release.

Creating a Certificate for Logging in to SmartConsole

When you define an administrator, you must configure the authentication credentials for the administrator.

The authentication credentials for the administrator can be one of the supported authentication methods, or a certificate, or the two of them.

You can create a certificate file in SmartConsole. The administrator can use this file to log in to SmartConsole using the *Certificate File* option. The administrator must provide the password for the certificate file.

You can import the certificate file to the CryptoAPI (CAPI) certificate repository on the Microsoft Windows SmartConsole computer. The administrator can use this stored certificate to log in to

SmartConsole using the *CAPI Certificate* option. The SmartConsole administrator does not need to provide a password.

To create a certificate file:

1. In the **New Administrator** window, in the **Certificate Information** section, click **Create**.
2. Enter a password.
3. Click **OK**.
4. Save the certificate file to a secure location on the SmartConsole computer.

The certificate file is in the PKCS #12 format, and has a `.p12` extension.

Note - Give the certificate file and the password to the SmartConsole administrators. The administrator must provide this password when logging in to SmartConsole with the **Certificate File** option.

To Import the certificate file to the CAPI repository:

1. On the Microsoft Windows SmartConsole computer, double-click the certificate file.
2. Follow the instructions.

Working with Permission Profiles

A permission profile is a predefined set of permissions that you assign to administrators in a Multi-Domain Management environment. This lets you manage complex, granular permissions for many different administrators with one definition.

There are two types of permission profiles:

- **Multi-Domain permission profiles** - Defines administrator permissions for the full Multi-Domain Management environment.
- **Domain permission profiles** - Defines the permission set per Domain

Predefined Multi-Domain Permission Profiles

Multi-Domain Management includes predefined Multi-Domain and Domain permission profiles that are ready to use. You cannot delete or change these profiles. You can create custom permission profiles as necessary for your environment.

These are the predefined Multi-Domain permission profiles available in this release. In the **Permissions Profile** view, double-click each profile to see the permissions it includes:

Permission Profile	Permissions
Multi-Domain Superuser	Manage all elements of the Multi-Domain Management environment, including: Multi-Domain Servers, Multi-Domain Log Servers, Domains, Domain Servers, Global Policies, administrators and permission profiles. Multi-Domain Superusers manage all Domain objects, including gateways, Policies, rules, networks and other objects.

Permission Profile	Permissions
Domain Superuser	Manage all Domains, Domain Servers, Domain networks, global objects, and global configurations. They manage Domain objects, including gateways, Policies, rules, networks and other objects. Domain Superusers can create and manage other administrators, manage other administrators' sessions, and manage permission profiles at the same or lower levels. Domain Superusers cannot create or change the settings for Multi-Domain Servers or Multi-Domain Log Servers.
Global Manager	Manage Global Domains, global configurations, global rules, and global assignments. Global Managers can manage Domains, but not add or delete domains or manage Multi-Domain Servers. Global managers can manage administrators with equal or lower permissions. Global Managers can create new global assignments and can assign Global Policies to Domains that they have permissions to manage. Domain-Level permissions are based on the assigned Domain permission profile.
Domain Manager	Manage Domain Policies, networks and objects based on their permission profile. Domain Managers can manage administrators with equal or lower permissions. Domain Managers can reassign Global Policies to Domains that they have permissions to manage. They cannot create new global assignments. Domain-Level permissions are based on the assigned Domain permission profile.
Domain Level Only	Manage Domain Policies, networks and objects based on their permission profile. These administrators cannot manage the Multi-Domain Management system or its configuration settings, or login to the Multi-Domain Servers. Domain-Level permissions are based on the assigned Domain permission profile.

Pre-Defined Domain Permission Profiles

When you assign an administrator to Domain, you must also assign a Domain Permission Profile. You can assign a predefined Permission Profile or a custom Permission Profile for this administrator.

Permission Profile	Permissions
Read/Write	Read and write permissions for all Domain settings and data without session management or DLP confidential data. The **Read/Write** option lets the administrator see and configure an item.
Read Only	Read only permissions for all Domain data. Read Only lets the administrator see an item, but not change it.

Working with Multi-Domain Permission Profiles

Use this procedure to create or change customized Multi-Domain permission profiles. Only administrators with superuser permissions can do this.

To create a custom permission profile:

1. Connect to the Multi-Domain Server with SmartConsole, and go to **Permissions & Administrators** > **Permission Profiles**.
2. In the **Permission Profile** page, click **New**.
3. Select **New Multi-Domain Permission Profile**.
4. In the **New Multi-Domain Permission Profile** window, select an administrator role and configure the permission settings. The next section explains the available settings and parameters.

To change an existing Multi-Domain permission profile:

1. Select a permission profile on the **Permission Profiles** page.
2. Click **Edit** and change the administrator role and permission settings as necessary.

To delete an existing Multi-Domain permission profile:

1. Select a permission profile on the **Permission Profiles** page.
2. Click **Delete**.

Multi-Domain Permission Profile Parameters

Multi-Domain Levels

Select an administrator role:

- **Superuser** - Manage all aspects of the Multi-Domain Management environment.
- **Manager** - Manage Domains as specified in the **Permissions** section of Administrator definition.
- **Domain Level Only** - Same as Manager, but with no Multi-Domain permissions.

The selected role affects the permissions that you can configure in the next parts: **Multi Domain Management**, **Global Management**, and **Domain Management**. For example, Superusers always have Domain Management permissions.

Multi-Domain Management Activities

Enable or disable permissions for these activities:

- **MDS Provisioning** - Create and manage Multi-Domain Servers and Multi-Domain Log Servers. Only superusers can select this option.
- **Manage All Domains** - Create and manage all Domains and Global Domains. This option is enabled by default for superusers. Managers can select it.
- **Manage Administrators** - Create and manage Multi-Domain Management administrators with the same or lower permission level. For example, a Domain manager cannot create superusers or global managers. This option is enabled automatically for superusers. Managers can select it.
- **Manage Sessions** - Connect/disconnect Domain sessions, publish changes, and delete other administrator sessions.
- **Management API login** - Lets an administrator log in to the Security Management Server and run api commands using these tools
  - *mgmt_cli* (Linux and Windows binaries)
  - *Gaia CLI* (clish)
  - *Web Services* (REST)
- **Global VPN Management** - Lets the administrator select **Enable global use** for a Security Gateway shown in the MDS **Gateway & Servers** view. (To see the option, right-click on the gateway object).

Global Management Activities

All options are enabled automatically for superusers. Managers can select them.

- **Manage Global Assignments** - Create, update and delete global assignments.
- **Default profile for all Global Domains** - Change the default permission profile for all global Domains.
- **View global objects in Domains** - Lets an administrator with no global objects permissions view the global objects in the domain. This option is required for valid domain management.

Domain Management

This profile defines the default Domain permissions that automatically apply when you create a new administrator account. After you create the administrator account, you can change its Domain profile as necessary.

Select a default profile from the list. This option is enabled automatically for superusers, and Managers can optionally select it.

Creating Custom Domain Permissions

Customized Domain permission profiles are a set of granular permissions for Domain level activities in SmartConsole.

To configure custom permission profiles:

1. In the **Permission Profiles** window, click **New Domain Permission Profile**.
   The **New Domain Permission Profile** window opens.
2. Configure read/write permissions for each Software Blade, feature, resource, and the API in

these categories as necessary:

- **Overview -** Select default or custom permission options
- **Gateways -** Work with Security Gateway management tasks and VSX provisioning
- **Access Control** - Work with Access Control rules and install Access Control Policies
- **Threat Prevention -** Work with Threat Prevention rules, profiles, and protections. Install Threat Prevention Policies
- **Others -** Work with different features not in other categories
- **Monitoring and Logging -** See and manage logs, monitoring features and related reports
- **Events and Reports -** Work with SmartEvent events, policy and reports
- **Management -** Manage sessions and High Availability options

To prevent administrators from working with an item, clear its option.

Notes:

- You cannot prevent administrators from seeing some resources. You cannot change their options.
- Some resources do not have **Read** or **Write** options. You can only select or clear them.

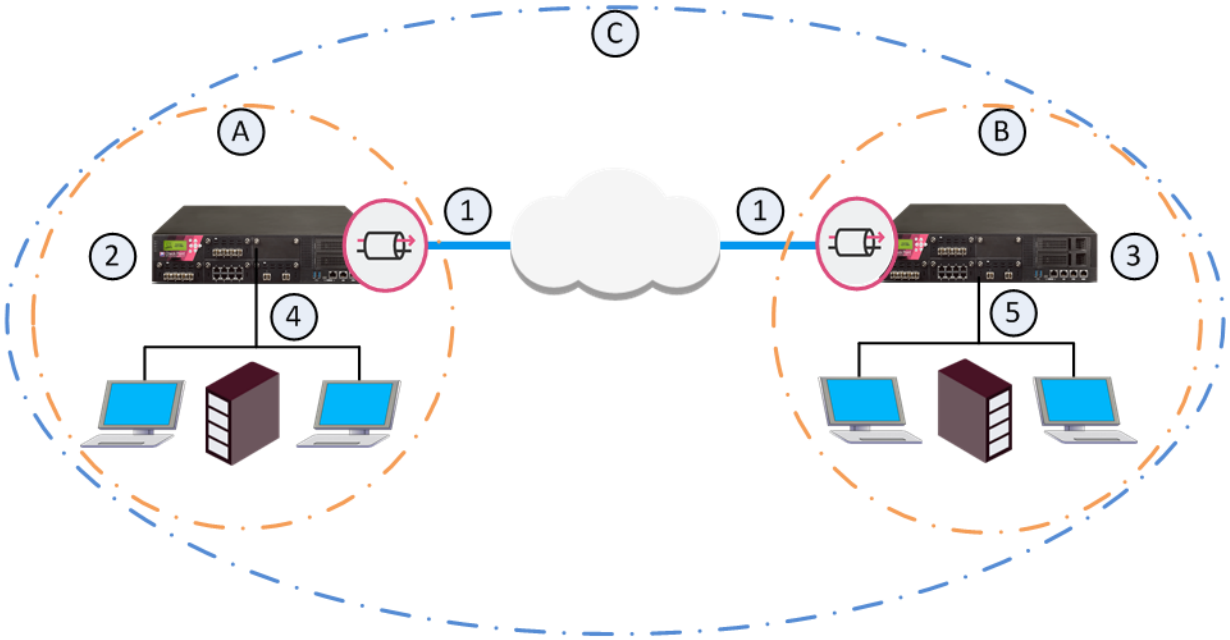
VPN and Multi-Domain Management

In This Section:

Global VPN Communities

Large enterprises often have branches in different cities or countries. With each branch managed by a different Domain, the enterprise can use a central management system to centrally manage all the various Domains. When connectivity is established, the connections must be secure and have high levels of privacy, authentication, and integrity.

A Global VPN Community connects the enterprise's gateways through VPN and lets the enterprise manage them under one network. You define the Global VPN Community in the Global Domain. The Multi-Domain Server utilizes its knowledge about the different Domain Server environments to create a VPN community which can manage them.



Item	Description
A	Domain A on Multi-Domain Server
B	Domain B on Multi-Domain Server
C	Global VPN Community
1	VPN tunnel
2	Security Gateway configured in Domain A
3	Security Gateway configured in Domain B

Item	Description
4	VPN Domain of Security Gateway 2
5	VPN Domain of Security Gateway 3

To learn more about VPN communities, see the *R80.10 Site to Site VPN Administration Guide* http://downloads.checkpoint.com/dc/download.htm?ID=53104.

VPN Connectivity

When you establish a Global VPN Community, it replaces part of the configuration of Externally Managed Security Gateways and automates the exchange of certificates for each Domain Server.

These trusted entities create VPN trust in a Multi-Domain Management deployment:

- Certificates issued by a Domain Server Internal Certificate Authority (ICA).
- External third party Certificate Authority servers (using OPSEC connectivity).
- Pre-shared secrets.

The ICA of the Domain Server issues certificates used by Domain Security Gateways to create SIC trust. Each Security Gateway supports certificates issued by the CAs of the other Domains.

For more information on VPN with Externally Managed Gateways, see the *R80.10 Site to Site VPN Administration Guide* http://downloads.checkpoint.com/dc/download.htm?ID=53104.

Configuring Global VPN Communities

Workflow for Creating a Global VPN Community

To create a Global VPN Community:

1. Configure a VPN Domain on each participating Security Gateway ("Step 1 - Configuring a VPN Domain on Each Security Gateway" on page 53).
2. Enable each participating Security Gateway for global use ("Step 2 - Enabling Gateways for Global Use" on page 53).
3. In the Global Domain, define a VPN Community ("Step 3 - Creating the VPN Global Community" on page 53), and add the Global Security Gateway objects to the Global VPN Community. The Global Security Gateway objects represent the participating Domain Security Gateways.
4. Define a Security Policy ("Step 4 - Defining a Security Policy" on page 54) - You can create a Global policy and assign it to the Local Domains, or you can create the Security Policy rules only in the Local Domains.
5. Assign the Global configuration to the applicable Domains ("Step 5 - Assigning the Global Configuration to the Local Domains " on page 54). After assignment, you must also install the policy on the participating gateways.

Step 1 - Configuring a VPN Domain on Each Security Gateway

You define the Domain Security Gateways in the Domain SmartConsole.

To define a VPN Domain on a Security Gateway:

In the gateway editor:

1. In **General Properties**, enable **IPSec VPN**.
2. In **Network Management** > **VPN Domain**, configure the settings for the VPN Domain. you must define a VPN Domain and specify if the VPN Domain is based on the network topology or a specific IP address range.

For information on configuration of a VPN Domain , see the *R80.10 Site to Site VPN Administration Guide* http://downloads.checkpoint.com/dc/download.htm?ID=53104.

Multi-Domain Server holds these IP address ranges used by the Security Gateways. During the assignment of the Global configuration, the Multi-Domain Server transfers this information to all the Domains with participating gateways in the Global VPN Community.

Step 2 - Enabling Gateways for Global Use

Repeat this step for all Security Gateways that are to participate in the Global VPN Community:

In the Multi-Domain Server SmartConsole > **Gateways & Servers** view, right-click a Security Gateway and select **Enable Global Use**.

A global Security Gateway object and a VPN Domain object are created for the Security Gateway in the Global Domain. Different Domains can coincidentally contain Security Gateways with the same name. Because each global Security Gateway object must have its own unique **Global Name,** the **Global Names Template** automatically assigns a unique name for each global Security Gateway. The default global name format is `<Security Gateway name>_of_<Domain name>`.

For example:

- Security Gateway name = **MyGateway**
- Domain name = **MyDomain**
- Global name = **MyGateway_of_MyDomain**

Enabling clusters for global use

You can enable a cluster for global use in the same way that you enable a Security Gateway. A global cluster object and a VPN Domain object will be created for the cluster in the Global Domain

Step 3 - Creating the VPN Global Community

After you enabled VPN on the gateways, and enabled the gateways for global use, you can create the Global VPN Community.

To create a Global VPN Community:

1. In the Global Domain, go to **Security Policies** > **Access Control** > **Access Tools** > **VPN Communities** > **New**.
2. Add the global Security Gateway objects, defined in step 1, as participating Security Gateways in the community.

To learn more about VPN communities, see the *R80.10 Site to Site VPN Administration Guide* http://downloads.checkpoint.com/dc/download.htm?ID=53104

Step 4 - Defining a Security Policy

The configuration of Security Gateways into a Global VPN Community does not automatically let the gateways access each other. For the gateways to communicate with each other you must define an Access Control Security Policy.

You can define the Access Control Security Policy in the Global Domain or in the Local Domains or both.

To define a Global Security Policy, see Global Policy Management (see "Global Management" on page 31). To learn more about the Access Control Security Policy Rule Base, see the *R80.20.M1 Security Management Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_SecurityManagement_AdminGuide/html_frameset.htm.

Step 5 - Assigning the Global Configuration to the Local Domains

After you create the Global VPN Community, and in some case, also the Global Policy, you must assign the Global configuration to the Local Domains. After assignment, install policy on the Local Domains.

To assign the global configuration to the Local Domains:

1. Make sure you published all the changes made in the Global Domain.
2. In the Multi-Domain Server SmartConsole > **Multi-Domain** view > **Global Assignments**, assign the Global objects to the Local Domains ("Configuring an Assignment" on page 40)
3. Install policy on the Security Gateways.

Note - All Security Gateways which participate in the Global VPN Community must use a Simplified VPN Policy.

For each Domain with gateways in the Global VPN Community, a global **CA Server** object is created in the Global Domain. During the assignment process, the Multi-Domain Server automatically exports relevant Domain ICA information (such as the CA certificate) to all the Domain Servers with gateways that participate in the community. This way, all the gateways in the community can trust the others' ICAs.

After the assignment, the Global VPN Community object shows in each Domain with gateways in the community. If you assign a Global Policy to a Domain that has no gateways in the community, this Domain does not show the community object and the community gateway objects.

Reassigning the Global Configuration to One or More Local Domains

If you make changes to the global configuration, reassign the configuration to the Domains.

To reassign the Global configuration to the Local Domains:

1. In the Multi-Domain Server SmartConsole > **Multi-Domain** view > **Global Assignments**, select the Domains that have gateways which participate in the Global VPN Community and click **reassign**.
2. In the **Reassign** window, select **Install policy on successful assignment**. This installs the Global Policy on the Security Gateways which participate in the Global VPN Community.

   Note - This operation assigns the Policy to all selected Domains, and then installs the Policy on all Domain Security Gateways, in one step. It does not let you select specific Security Gateways on which to install the Policy. The selected Policy is installed on all Security Gateways in the

selected Domains. Assigning the Policy to many Domains and all their Security Gateways can take some time. Use this option with caution.

Working with High Availability

In This Section:

Overview of High Availability

High Availability is redundancy and database backup for management servers. Synchronized servers have the same policies, rules, user definitions, network objects, and system configuration settings.

Multi-Domain Management implements High Availability at these levels:

- **Multi-Domain Server High Availability** is an Active/Active redundancy solution that uses two or more fully synchronized Multi-Domain Servers for continuous redundancy. All Multi-Domain Servers are Active. You can log into and work with the primary or secondary Multi-Domain Servers.
- **Domain Server High Availability** is both a redundancy and a Load Sharing solution for Domains. You create a Domain Server on two or more Multi-Domain Servers. These Domain Servers synchronize fully for continuous redundancy.

  One Domain Server is Active and the others are Standby. Each Multi-Domain Server can have both Active and Standby Domain Servers. You can configure the Active Domain Server on different Multi-Domain Servers for effective load sharing.

All High Availability deployments include one Primary Multi-Domain Server and one or more Secondary servers. Synchronization occurs automatically when administrators publish sessions with changes to Policies, objects or configuration settings.

Primary and Secondary Multi-Domain Servers

The order in which you install Multi-Domain Servers is significant. You must define the first physical server as a Primary Multi-Domain Server in the First Time Wizard. You must define all other Multi-Domain Servers as Secondary in the First Time Wizard.

Active and Standby Domain Servers

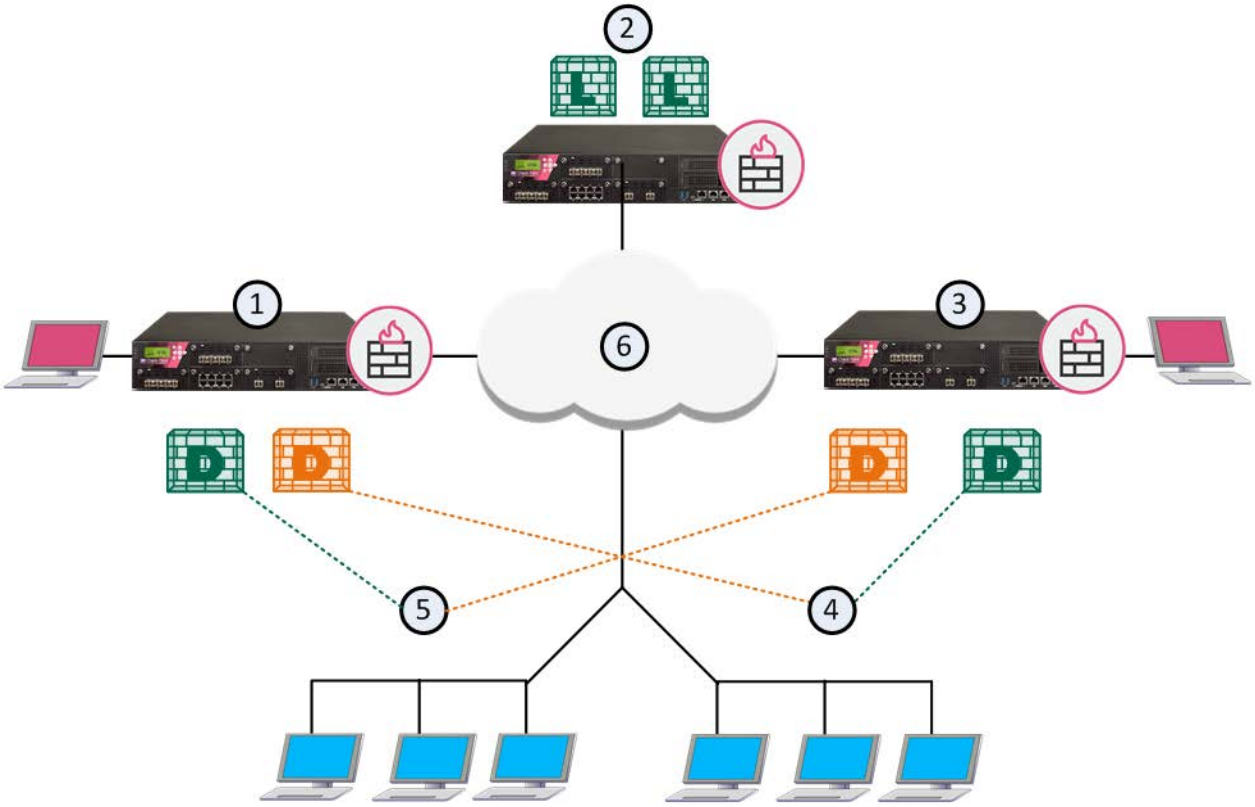
You can only use the Active Domain Server to manage Domain gateways, networks, Security Policies objects and system configuration. Standby Domain Servers synchronize fully for redundancy. You can connect to a Standby Domain Server in the Read Only mode to look at current object configurations and Rule Base.

In the standard configuration, there is only one Active Domain Server for each Domain. All others are Standby Domain Servers. If the Active Domain Server fails, you must manually change a Standby Domain Server to Active.

Multi-Site High Availability Deployment Example

This example shows a Multi-Site, High Availability deployment with two Multi-Domain Servers and one Multi-Domain Log Server. A real-life deployment will have many more assets.

Each Multi-Domain Server has two Domains configured for Load Sharing, where a different Domain Server is Active at each location. Administrators can connect to all Multi-Domain Servers. For best performance, connect to the Multi-Domain Server nearest to your geographical location.



Item	Description
1	London Multi-Domain Server with an Active Domain Server for London and a Standby Domain Server for Tokyo
2	Multi-Domain Log Server with Domain Log Servers for London and Tokyo
3	Tokyo Multi-Domain Server with an Active Domain Server for Tokyo and a Standby Domain Server for London
4	Tokyo network
5	London network
6	Internet
	Active Domain Server

Item	Description
	Standby Domain Server
	Domain Log Server

This illustration shows the configuration grid in the SmartConsole **Multi Domain** view for the example deployment:

Servers (4) / Domains (4)	Firewall-192.168.3.101	MDS102 192.168.3.102	MLM103 192.168.3.103
London	London_Server 192.168.3.150	London_Server_2 192.168.3.161	London_Server_4 192.168.3.130
Tokyo	Tokyo_Server 192.168.3.152	Tokyo_Server_2 192.168.3.162	Tokyo_Server_4 192.168.3.132
Global			

The system automatically creates the Global Domain when you install Multi-Domain Management.

Creating a Secondary Multi-Domain Server

This section shows you how to create a new secondary Multi-Domain Server.

Important: Before you start this procedure, make sure to define the physical server as the correct server type (Secondary Multi-Domain Server or Multi-Domain Log Server) during installation. An incorrect definition can cause deployment failure.

To create a new, secondary Multi-Domain Server:

1. If you did not do so, install a new R80.20.M1 secondary Multi-Domain Server.
   Follow the procedures in the *R80.20.M1 Installation and Upgrade Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_Installation_and_Upgrade_Guide/html_frameset.htm. Make sure to define this server as a secondary Multi-Domain Server in the First Time Wizard. Connect to the Primary Multi-Domain Server with SmartConsole and go the **Domains** view.
2. In the **Multi-Domain** navigation toolbar, click **New** > **Multi-Domain Server**.
3. Enter a unique name for this Multi-Domain Server.
   To get the IP address automatically, the name must be in the DNS.
4. Enter the IPv4 address or click **Resolve IP** to get the IP address from the DNS.
5. Select the platform operating system, software version, and hardware type.
6. Click **Connect** to establish SIC trust.

The new Multi-Domain Server automatically synchronizes with all existing Multi-Domain Servers and Multi-Domain Log Servers. The synchronization operation can take some time to complete, during which a notification indicator shows in the task information area.

Domain Server High Availability and Load Sharing

This section includes procedures for configuring the Multi-Domain Management environment for secondary Multi-Domain Servers and a Multi-Domain Log Server. When you install Multi-Domain Management for the first time, select **Primary Multi-Domain Server** in the First Time Wizard. For High Availability and Load Sharing, select **Secondary Multi-Domain Server** in the First Time Wizard.

Each Domain has one Active and one or more Standby Domain Servers. For example, if a deployment has three Multi-Domain Servers, each Domain can have one Active and two Standby Domain Servers. This lets the Domains load be shared between several physical Multi-Domain Servers. A Domain can have only one active Domain Server on each Multi-Domain Server.

Example of Domain Server High Availability with Load Sharing:

Servers (3) / Domains (4)	MDS110 192.168.3.110	MDS104 192.168.3.104	MDS111 192.168.3.111
DOM155	192.168.3.155	192.168.3.176	192.168.3.166
DOM165	192.168.3.156	192.168.3.178	192.168.3.165
DOM175	192.168.3.158	192.168.3.175	192.168.3.167
Global			

By default, the Primary Domain Server is Active. All other Domain Servers for that Domain are Standbys. You can change a Standby Domain Server to Active as necessary.

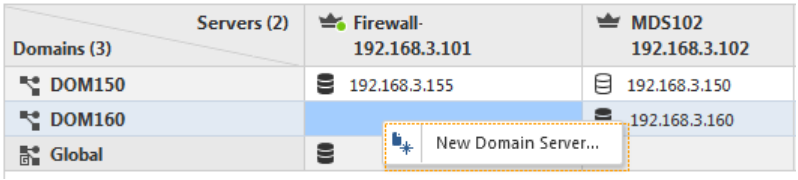
All Domain management operations, such as working with Security Policies, users, networks and other objects, occur on the Active Domain Server. Standby Domain Servers automatically synchronize with the Active Domain Server. Security Gateways can get a Security Policy and a Certificate Revocation List (CRL) from either the Active or Standby Domain Servers.

Creating a Secondary Domain Server

When you first create a Domain, you also define the Primary Domain Server. Use this procedure to create Secondary Domain Servers for existing Domains.

To create a secondary Domain Server:

1. Connect to the Multi-Domain Server with SmartConsole.
2. In the Domains view, right-click the empty cell at the intersection of the applicable Multi-Domain Server and Domain in the grid.



3. Select **New Domain Server**.
4. In the **Domain Server** window, configure the Domain Server name and IP address.

Domain Server synchronization starts automatically and can take some time to complete.

Note - You cannot change settings for an existing Domain Server. You must first delete the Domain Server and then create a new one.

To delete a secondary Domain Server configuration, right-click the applicable cell and select **Delete**.

Synchronization

In a multi-domain environment, the Multi-Domain Servers work in active-active mode. All Multi-Domain Servers are active and synchronize each other.

The Domains managed by the Multi-Domain Server work in active-standby mode, where the Active Domain Server synchronizes all the standby Domain Servers.

The system automatically synchronizes periodically and when an administrator publishes changes to the configuration.

Initial Synchronization

Initial synchronization occurs automatically when you create a secondary Multi-Domain Server, Multi-Domain Log Server, or Domain Server. The system generates a task to copy all databases and system information from the connected server to the new server.

Multi-Domain Server and Multi-Domain Log Server synchronization tasks show in the **Task Information** area, in the Multi-Domain Server SmartConsole. Domain synchronization tasks show in the Domain SmartConsole.

Periodic Synchronization

Multi-Domain Servers synchronize with all other peers and Multi-Domain Log Servers. Periodic synchronization occurs automatically, and when an administrator publishes a session. Private (non-published) sessions do not synchronize.

Periodic synchronizations are incremental. Only database changes synchronize with peers. Active Domain Servers synchronize to the standby Domain Servers.

Manual Synchronization

Manual synchronization is a full synchronization that overwrites all data on the peers. It disconnects all connected clients and overrides active sessions and running tasks.

When changes made in a session are published on the Active server (made public), the changes are synchronized to the Standby server. Unpublished, private sessions are not synchronized.

Best practice - Use this option with caution, and only in cases of synchronization error. We recommend that you publish changes before initiating full sync.

For Domain Servers, you can only run a manual synchronization from the active Domain Server to the standby peers.

Manually Synchronizing a Multi-Domain Server

You can manually synchronize the connected Multi-Domain Server with a peer Multi-Domain Server.

To manually synchronize Multi-Domain Servers:

1. Click the **Synchronization Status** area at the bottom of the SmartConsole window.
2. In the **High Availability Status** window, select a peer Multi-Domain Server to synchronize.
3. Click **Sync Peer**.

Synchronization starts immediately and the status shows in the window. The synchronization operation can take many minutes to complete.

Warning: Use manual synchronization with caution. This can overwrite all data on the peer Multi-Domain Server if they do not synchronize correctly.

Manually Synchronizing Domain Servers

You can manually synchronization a Standby Domain Server with the Active Domain Server on a different Multi-Domain Server.

To manually synchronize Domain Servers for a Domain:

1. Open SmartConsole for the active Domain Server.
2. Click **Menu** > **High Availability**.
3. In the **High Availability Status** window, click **Actions** > **Sync Peer**.

Synchronization starts immediately and the status shows in the window. The synchronization operation can take many minutes to complete.

Multi-Domain Server ICA Database Synchronization

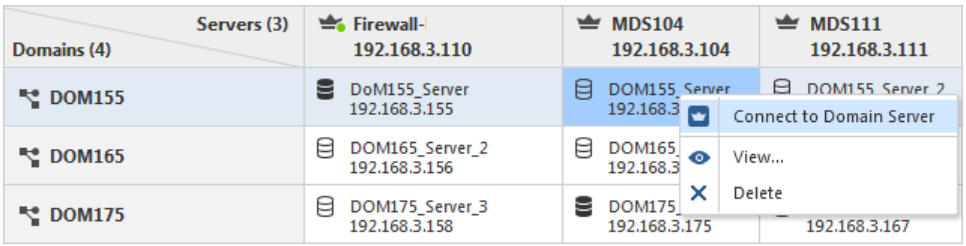
When you create a new secondary Multi-Domain Server, the Internal Certificate Authority (ICA) on the Primary Multi-Domain Server generates a certificate when you establish SIC trust. The ICA can generate a certificate for a new administrator, if required by the authentication method. In a High Availability deployment with more than one Multi-Domain Server, the system synchronizes the ICA databases as necessary.

Changing the Active Domain Server

If the current Active Domain Server is responsive, use this procedure to set a different Domain Server to Active.

To change an Active Domain Server:

1. Right-click the cell for a Standby Domain Server, and then select **Connect to Domain Server**.



2. In the Domain SmartConsole instance, click **Menu** > **High Availability**.
3. In the **High Availability Status** window, click a Standby Domain Server **Actions** > **Set Active**.
4. Close SmartConsole and re-connect to the newly Active Domain SmartConsole.

The Standby Domain Server changes to Active. The Standby Domain Servers automatically synchronize, and a confirmation message shows in the **High Availability** Status window. The synchronization operation can take many minutes to complete.

To manually set the Active Domain Server to Standby

1. Right-click the cell for the Active Domain Server, and select **Connect to Domain Server**.
2. Click **Menu** > **Management High Availability**.
3. In the **High Availability Status** window, click **Actions** > **Set Standby**.
4. Confirm when prompted.

The Active Domain Server changes to Standby. Continue the procedure to set a different Domain Server to Active. Until you do this, Domain SmartConsole clients open in the Read Only mode and you cannot work with Domain objects or Policies.

Note - SmartConsole clients connected to the Active Domain Server will be disconnected during the procedure for changing the Active Domain Server.

Looking at High Availability Status

To see Multi-Domain Server and Multi-Domain Log Server High Availability status:

1. Select **Management High Availability** from the **SmartConsole menu**.

   The **High Availability Status window** shows all Multi-Domain Servers and Multi-Domain Log Servers in your environment, together with their synchronization status.

Icon	Status
	Multi-Domain Server (that you are connected to) - Synchronization OK
	Multi-Domain Server Synchronization OK
	Multi-Domain Log Server Synchronization OK
	Multi-Domain Server - Not synchronized - No connection with peer

To see Domain Server High Availability status:

1. Connect to a Domain with SmartConsole.

   By default, SmartConsole connects to the Active Domain Server.

2. Select **Management High Availability** from the **SmartConsole menu**.

   The **High Availability Status** window shows the status of all Domain Servers for the selected Domain. You can manually synchronize the peer servers with the Domain Server to which you are connected. You can also connect with SmartConsole to a peer Domain Server in the Read Only mode.

Icon	Status
	Active Domain Server - Synchronization OK
	Standby Domain Server - Synchronization OK
	Domain Log Server - Synchronization OK
	Domain Server not synchronized - No connection with peer
	Domain Server synchronization in process or has a problem

Note - Domain servers status is reflected also in the Domains view in the SmartConsole connected to the Multi-Domain Server. For more information on synchronization status, see the *R80.20.M1 Security Management Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_SecurityManagement_AdminGuide/html_frameset.htm.

Failure Recovery

In many cases, you can recover a failed Primary Multi-Domain Server in a High Availability deployment. To do this, promote an existing Secondary Multi-Domain Server to become the Primary. Promote a Secondary Domain Server to become Primary Domain Server. You can then install and configure a new secondary Multi-Domain Server.

Important: Use Domain Server promotion only to recover a failed Multi-Domain Server.

Connecting to a Secondary Multi-Domain Server

To connect to a secondary Multi-Domain Server:

1. Make sure that all functional, Secondary Multi-Domain Servers and Multi-Domain Log Servers are up and running.
2. Connect to a secondary Multi-Domain Server with SmartConsole.
3. If the Global Domain Server to be promoted to Primary is not Active, change it to Active:
   a) In the **Domains** view, right-click the **Global Domain**, and then click **Connect to Domain**.

      A SmartConsole instance opens for the Global Domain.
   b) Go to **Menu** > **Management High Availability**.
   c) In the **High Availability Status** window, click **Actions** > **Set Active** for the connected Global Domain.

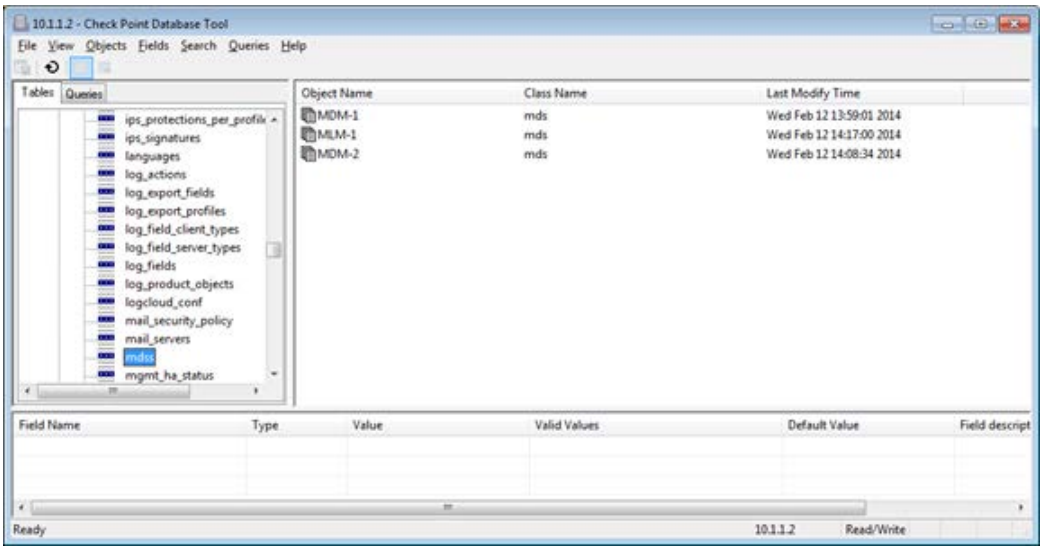
Promoting the Secondary Multi-Domain Server to Primary

This procedure is necessary because there are no automatic steps to promote a Secondary Multi-Domain Server when the Primary Multi-Domain Server fails.

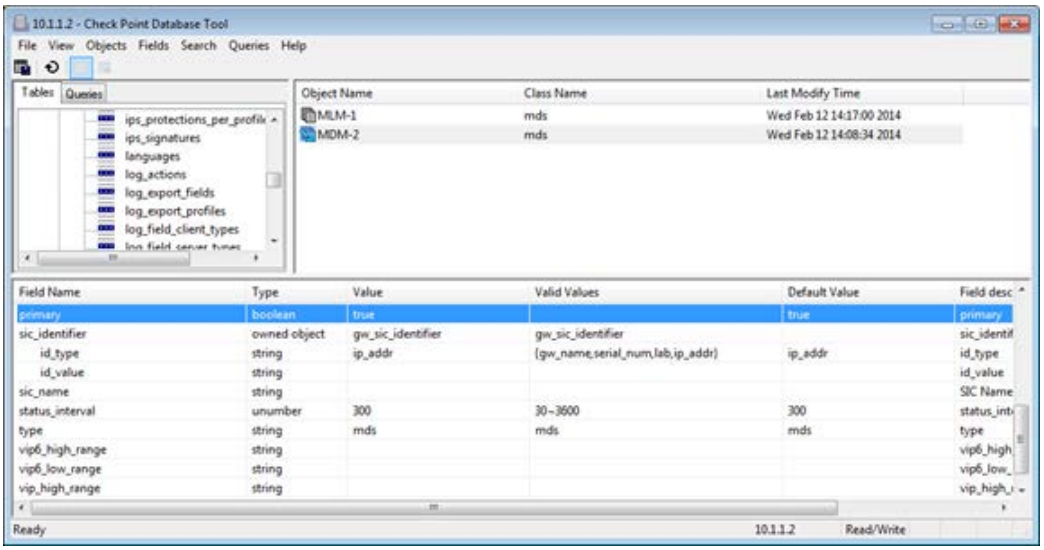
To promote a Secondary Multi-Domain Server to Primary:

1. Run these commands on the Secondary Multi-Domain Server to be promoted:
   ```
   cpprod_util FwSetPrimary 1
   cpprod_util CPPROD_SetValue PROVIDER-1 Primary 4 1 1
   cpprod_util CPPROD_SetValue SIC ICAState 4 3 1
   ckp_regedit -d //SOFTWARE//CheckPoint//SIC OTP
   ckp_regedit -d //SOFTWARE//CheckPoint//SIC ICAip
   ```
   These commands update the Secondary Multi-Domain Server registry.
2. Connect to the Check Point Database tool with the Secondary Multi-Domain Server IP address.
   ```
   C:\Program Files (x86)\CheckPoint\SmartConsole\R80.20.M1\
   PROGRAM\GuiDBedit.exe /mds
   ```

3. On the **Tables** tab, select **Other** and then select (or search for) Multi-Domain Servers.



4. Delete the failed Domain Server object from the **Object Name** column.
5. Select the Multi-Domain Server to promote.
6. Double-click the **Primary** field in the bottom pane.



7. Change the value to **true**.
8. Save the database (**File** > **Save All** or **Ctrl-s**).

Restoring Domain Servers

Follow these instructions for each Domain on the failed Primary Domain Server.

Important - To use this procedure, there must be at least one Active Domain Server on a different Multi-Domain Server.

To restore the Domain Servers:

1. In SmartConsole **Domain** view, select a Domain Server to promote to Primary Domain Server.
2. If the selected Domain Server is Standby, change it to Active:
   a) Open the selected Domain Server in SmartConsole.
   b) Go to **Menu** > **Management High Availability**.
   c) In the **High Availability Status** window, click **Actions** > **Set Active**.

d) Close SmartConsole.

3. Run these commands on the Multi-Domain Server command line to change the active Domain Server from Secondary to Primary:

   ```
   > mdsenv <domain_server_name>
   > promote_util
   ```

   These steps set the Multi-Domain Server context to the specified Domain Server.
4. Open the newly promoted Domain Server in SmartConsole.
5. Find (with **Where Used**) and delete all instances of the failed Domain Server, including the failed Domain Server itself.
6. Publish the changes.
7. If necessary, manually synchronize the Domain Servers.
8. Re-assign Global Policies and install Policies on all Security Gateways.
9. If the promoted Domain Server is using a High Availability Domain Server license, replace it with a standard Domain Server license.

To make Domain Server Active when there is no corresponding peer and the **High Availability Status** window is not available, run these commands:

```
# mdsenv <domain_name>
# mgmt_cli make-server-active force true --domain <domain_name> --user
<user_name> --password <password>
```

These commands set the Domain Server to the Active state. Do this for all Domain Servers that do not have a High Availability peer.

Finishing the Promotion

To restore your High Availability deployment, run these commands:

```
mdsstop
mdsstart
```

Deleting a Secondary Multi-Domain Server or Multi-Domain Log Server

To delete a secondary Multi-Domain Server:

1. Move each Active Domain Server on the secondary Multi-Domain Server to another Domain Server.
2. Connect to the command line on the Multi-Domain Server to be deleted and run: `mdsstop`
3. In SmartConsole, right-click the secondary Multi-Domain Server, and then select **Delete Multi-Domain Server**.
4. Confirm the action and click **OK**.
5. Publish the change.

Note - This procedure deletes all standby and non-primary Domain Servers on the Secondary Multi-Domain Server. You cannot delete the Primary or Active Domain Server.

Re-Establishing SIC Trust for a Secondary Multi-Domain Server

Important - You can only re-establish SIC trust on a Secondary Multi-Domain Server or Multi-Domain Log Servers. There is no option to establish SIC trust on the Primary Multi-Domain Server.

It is occasionally necessary to re-establish trust between a Primary and secondary Multi-Domain Server or Multi-Domain Log Server. This can occur for many reasons, including:

- Changes to the IP address of the Primary Multi-Domain Server, Secondary Multi-Domain Server or Multi-Domain Log Server
- Failure and recovery of the Primary Multi-Domain Server
- Promotion of a Secondary Multi-Domain Server to Primary Multi-Domain Server
- Internal Certificate Authority (ICA) failure on the Primary Multi-Domain Server

To re-establish SIC trust:

1. Open a command line interface to the Secondary Multi-Domain Server or Multi-Domain Log Server.
2. Log in and run: `mdsconfig`
3. Enter the number for **Secure Internal Communication**, and then press **Enter**.
4. Enter `y` to confirm.
5. Enter and confirm the activation key.
6. Enter the number for **Exit**.
7. Wait for Check Point processes to stop and automatically restart.
8. In the SmartConsole **Multi-Domain** view, double-click a Secondary Multi-Domain Server or Multi-Domain Log Server object.
9. In the **Multi-Domain Server** window, click **Connect**.
10. In the **Initialize SIC** window, enter activation key that you entered in step 5 above.
    If successful, the **Certificate State** field shows **Trust established**.

Logging and Monitoring

In This Section:

This chapter includes information that is directly related to Multi-Domain Management, with some general background information and basic procedures. See the *R80.20.M1 Logging & Monitoring Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_LoggingAndMonitoring_AdminGuide/html_frameset.htm for the full set of conceptual information and procedures.

With R80, logging, event management, reporting, and monitoring, are more tightly integrated than ever before. Security data and trends easy to understand at a glance, with Widgets and chart templates that optimize visual display. Logs are now tightly integrated with the Policy rules so that you can access all logs associated with a specific rule by simply clicking on that rule. Free-text search also lets you enter specific search terms to retrieve results from millions of logs in seconds.

One-click exploration makes it easy to move from high-level overview to specific event details such as type of attack, timeline, application type and source. After you investigate an event, it is easy to act on it. Depending on the severity of the event, you can choose to ignore it, act on it later, or block it immediately. You can also easily toggle over to the rules associated with the event to refine your Policy. Send reports to your manager or auditors that show only the content that is relevant to each stakeholder.

In R80.x, SmartReporter and SmartEvent functionality is integrated into SmartConsole.

Using rich and customizable views and reports, R80 introduces a new experience for log and event monitoring.

The new views are available from two locations:

- **SmartConsole > Logs & Monitor**
- **SmartView Web Application**. By browsing to: *https://<Server IP>/smartview/*
  Where *Server IP* is IP address of the Multi-Domain Server or Multi-Domain Log Server.
  Note - Include the final backward slash: /

Working with Log Servers

A Domain Log Server is a dedicated host for Domain log files. A Multi-Domain Log Server is a dedicated container for Domain Log Servers. Log Servers also handle these log management activities:

- Automatically start a new log file when an existing log file is larger than the specified maximum size
- Log file backup and restoration

- Export and import log files
- Index logs for faster log queries.

It is a best practice to use Multi-Domain Log Servers and Domain Log Servers to handle logs for a Multi-Domain Management environment because of the large volume of logs.

To see the logs for a Domain and its Security Gateways, click **Logs & Monitor** in SmartConsole for that Domain. To see logs for all Domains in one view, click **Logs & Monitor** in the Multi-Domain Server SmartConsole. You can filter the logs for specified Security Gateways, Domain Servers, or Domain Log Servers.

Configuring Logging

Creating a Multi-Domain Log Server with Domain Log Servers

This section shows you how to create a new Multi-Domain Log Server and its related Domain Log Servers.

Important: Before you start this procedure, make sure that you define the physical servers as the correct server type (Secondary Multi-Domain Server or Multi-Domain Log Server) during installation. An incorrect definition can cause deployment failure.

To create a new Multi-Domain Log Server:

1. If you did not do so, install a new R80.20.M1 Multi-Domain Log Server.

   Follow the procedures in the *R80.20.M1 Installation and Upgrade Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_Installation_and_Upgrade_Guide/html_frameset.htm. Make sure to define this server as a Multi-Domain Log Server in the First Time Wizard. Connect to the Multi-Domain Server with SmartConsole and go the **Domains** view.
2. In the **Multi-Domain** navigation toolbar, click **New** > **Multi-Domain Log Server**.
3. Enter a unique name for this Multi-Domain Log Server.
4. Enter the IPv4 address or click **Resolve IP** to get the IP address from the DHCP.
5. Select the platform operating system, software version, and hardware type.
6. Click **Connect** to establish SIC trust.

To create Domain Log Servers:

1. In the SmartConsole **Multi-Domain** view, right-click the Domain Log Server cell for each Domain in the Multi-Domain Log Server column.
2. Accept the default name or enter a different, unique name.
3. Enter the IPv4 address or click **Resolve IP** to automatically assign the IPv4 address.
4. Configure the Security Gateways ("Configuring Security Gateways to Send Logs to a Log Server" on page 69) in each Domain to the send its logs to the new Domain Log Server on the Multi-Domain Log Server.

   The Domain Log Servers synchronize automatically.
5. In the SmartConsole **Multi-Domain** view, click **Menu** > **Install Database.**

The new Multi-Domain Log Server automatically synchronizes with all existing Multi-Domain Servers. The synchronization operation can take many minutes to complete, during which a notification indicator shows in the task information area.

Configuring Security Gateways to Send Logs to a Log Server

Logs are not automatically forwarded to a Log Server. You must manually configure each relevant Security Gateway to send its logs to the new Domain Log Server.

To configure Domain gateways to send logs to a Log Server:

1. Connect to the applicable Domain Server with SmartConsole, and then double-click the applicable Security Gateway.
2. In the **Logs** section, select the new Log Server from the list.

   You can delete or ignore other Log Servers in the list as necessary.
3. Click **OK**.
4. Configure other log settings as applicable.
5. Install Policy on the applicable Security Gateways.
6. Install the database on the Log Servers.

Deleting a Domain Log Server

To delete a Domain Log Server in SmartConsole:

1. Go to **SmartConsole** > **Multi-Domain** > **Domains.**
2. In the Multi-Domain Log Server column, right-click the Domain Log Server and then select **Delete**.

Configuring Log Settings

Disk cleanup deletes the oldest log files when the available disk space is less than a specified value. Disk cleanup settings are controlled at the Multi-Domain Server level and apply to all Domains and Domain Servers. Disk cleanup settings configured at the Domain Server level are ignored.

These other log management activities, when configured on a Multi-Domain Server, apply only to that Multi-Domain Server:

- Run script before cleanup
- Alerts
- Stop logging
- Create new log file

Configure these activities individually for each Domain Server and Log Server.

To configure log settings for a Multi-Domain Server:

1. In SmartConsole, go to **Multi-Domain** > **Domains.**
2. Double-click the applicable Multi-Domain Server.
3. Click **Log Settings**.
4. In the **General** view, configure these settings:
   - **Cleanup when free disk space is below** - Start the disk cleanup procedure when available disk space is less than the specified quantity. Select to enable (default) or clear to disable. Enter the minimum disk space and unit of measure (Default = 5 GB).

     This parameter applies to the Multi-Domain Server and its Domain Servers.

- **Run the following script before cleanup** - Enter a predefined script to run before the cleanup starts.
- **Send Alert when free disk space is below** - Send an alert when available disk space is less that the specified quantity. Select to enable (default). Clear to disable.

  Enter the minimum disk space and unit of measure (Default = 3 GB).

5. In the **Advanced** view, configure these settings:
   - **Accept Syslog messages** - Include syslog messages in the log files.
   - **Stop Logging** - Stop all logging activity when the available disk space is less than the specified quantity.

     Enter the minimum disk space and unit of measure (Default = 100 MB).
   - **Create a new log file** - Close and save the active log file when the active log file is larger than the specified size. The log file has an extension that is a sequential number. You can move these saved log files to external storage or export them to an external database.

     Enter the maximum log file size. (Default = 1 GB).

Log Server Deployment Scenarios

Security Gateways generate logs. The Security Policy on each Security Gateway controls which rules generate log entries. In a Multi-Domain Management environment, the Security Gateways send logs to a Domain Server or to Domain Log Servers.

Domain Servers and Multi-Domain Servers also generate audit logs. The system typically saves audit logs on a Multi-Domain Server, which automatically synchronizes to other Multi-Domain Servers in a High Availability deployment.

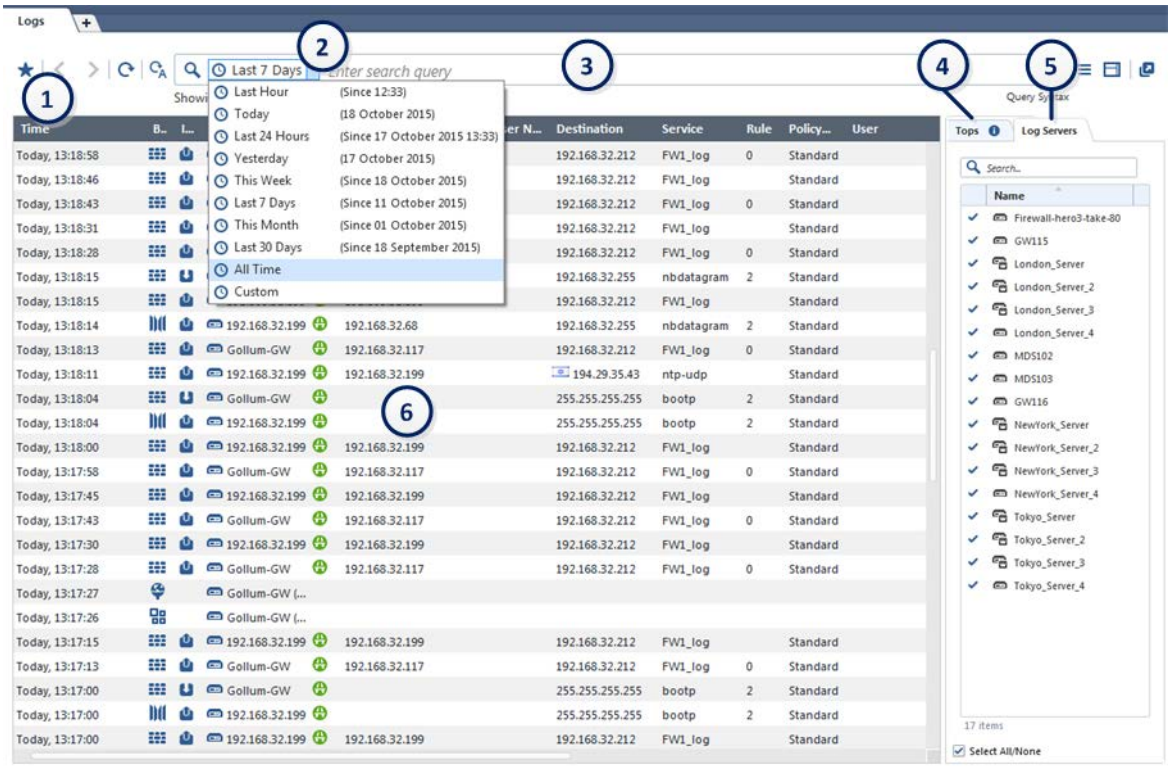
You can use one of these strategies to deploy Domain Log Servers in a Multi-Domain Management environment:

1. Each Domain has one Domain Log Server on a Multi-Domain Server (default).
2. Each Domain keeps its Domain Log Servers on one or more Multi-Domain Log Servers. If this Domain has more than one Domain Log Server, you must install each one on a different Multi-Domain Log Server.

   Best Practice - Use this strategy in large, geographically distributed environments.
3. Each Domain Security Gateway works as the Log Server for its own logs. This is known as local logging.

Using the Log View

This is an example of the **Log** view.



Item	Description
1	**Queries** - Predefined and favorite search queries.
2	**Time Period** - Search with predefined custom time periods.
3	**Query search bar** - Define custom queries in this field. You can use the GUI tools or manually enter query criteria. Shows the query definition for the most recent query.
4	**Log statistics pane** (Tab hidden) - Top results of the most recent log query.
5	**Log Servers** - All Multi-Domain Log Servers, Domain Log Servers, and other Log Server objects in the Multi-Domain Management deployment. Select one or more Log Servers from this list to include in a query.
6	**Results pane** - All log entries for the most recent query.

Monitoring Multi-Domain Management

R80.x includes many powerful, integrated features that let monitor your Multi-Domain Management environment directly in SmartConsole. Additionally, you can use the SmartView Monitor client application to work with advanced monitor features, such as:

- Custom queries to filter monitor data
- Custom monitor views
- Monitor Cooperative enforcement
- Monitor users and user activity

Monitoring Multi-Domain Server Status

To see status and general information for Multi-Domain Servers or Multi-Domain Log Servers, select **Multi-Domain** in the SmartConsole Multi-Domain Management window. This information shows in the **System Information** area:

- Multi-Domain Server/Multi-Domain Log Servers IP address
- Server type
- SIC trust status
- Last change date and the administrator who worked on it

You can use SmartView Monitor to see other, detailed status information, such as:

- Errors
- CPU, Disk, and Memory utilization
- Active events
- Alert destination

Monitoring Domain Server Status

Use the SmartConsole **Logs & Monitor** view to see Domain and Domain Server status. You can also show the combined statistics, in real time, for all Security Gateways in the Domain:

- **Device Status** - Shows Security Gateway device and Software Blade status information
- **License Status** - Shows license status for Software Blades and features
- **System Counters** - Shows operational and performance statistics

You can apply filters and show different types of graphical displays. You can also save the results to your local computer in these formats:

- HTML
- JPG
- CSV file (compatible with Microsoft Excel)
- Plain text file

To see Security Gateway status and monitoring information:

1. Open the Domain SmartConsole.
2. Select a Security Gateway.
3. Click **Monitor** on the **Actions** toolbar.
   The **Monitor Information** window opens.
4. Use the toolbar to filter data and change the graph type.

Monitoring Security Gateway Status

You can use the SmartConsole **Logs & Monitor** view to see Security Gateway status and show operational statistics in real time:

- **Device Status** - Shows Security Gateway device and Software Blade status information
- **License Status** - Shows license status for Software Blades and features

- **System Counters** - Shows operational and performance statistics
- **Traffic information** - Shows traffic, throughput, and other related statistics

You can apply filters and show different types of graphical presentation. You can also save the results to your local computer in these formats:

- HTML
- JPG
- CSV file (compatible with Microsoft Excel)
- Plain text file

To see Security Gateway status and monitoring information:

1. Open the Domain SmartConsole.
2. Select a Security Gateway.
3. Click **Monitor** on the **Actions** toolbar.
   The **Monitor Information** window opens.
4. Use the toolbar to filter data and change the graph type.

Multi-Domain Management Commands and Utilities

In This Section:

Managing Security through API and CLI

You can configure and control the management server with the new command line tools and through web services. You must first configure the API server.

The API server runs scripts that automate daily tasks and integrate the Check Point solutions with third party systems such as virtualization servers, ticketing systems, and change management systems.

You can use these tools to run API scripts on the Security Management Server:

- Standalone management tool, included with SmartConsole. You can copy this tool to Windows or Gaia computers.
  - `mgmt_cli.exe` (Windows)
  - `mgmt_cli` (Gaia)
- Web Services API that allows communication and data exchange between the clients and the Security Management Server through the HTTP protocol. It also lets other Check Point processes communicate with the management server through the HTTPS protocol.

All API clients use the same port as the Gaia portal.

To learn more about the management APIs, to see code samples, and to take advantage of user forums, see the **Developers Network** section of CheckMates https://community.checkpoint.com.

And visit the Online API Reference Guide https://sc1.checkpoint.com/documents/latest/APIs/index.html.

Configuring the API Server

To configure the API Server:

1. In SmartConsole, go to **Manage & Settings** > **Blades**.
2. In the **Management API** section, click **Advanced Settings**.
   The **Management API Settings** window opens.
3. Configure the **Startup Settings** and the **Access Settings**.

API Settings

Select **Automatic start** to automatically start the API server when you start or reboot the management server.

The **Automatic start** option is activated by default during Security Management Server installation if the management server has more than 4GB of RAM installed. If the Security Management Server has less than 4GB of RAM, **Automatic Start** is deactivated.

If you change **Automatic start** option:

1. Publish the session changes.
2. Run `api restart` on the management server.

Access Settings

Select one of these options to configure which SmartConsole clients connect to the API server:

- **Management server only** - Only the Security Management Server itself can connect to the API Server. This option only lets you use the `mgmt_cli` utility to send API requests. You cannot use SmartConsole or web services to send API requests.
- **All IP addresses that can be used for GUI clients** - You can send API requests from all IP addresses defined as **Trusted Clients** in SmartConsole. You can send API requests from all IP addresses. This includes requests from SmartConsole, Web services and the `mgmt_cli` utility.
- **All IP addresses** - You can send API requests from all IP addresses. This includes requests from SmartConsole, Web services and the `mgmt_cli` utility.

Command Line Reference

These sections include CLI commands that are associated with Multi-Domain Management. You can learn about other Check Point commands in the *R80.20.M1 CLI Reference Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_CLI_ReferenceGuide/html_frameset.htm. You can learn about Gaia operating system commands in the *R80.20.M1 Gaia Administration Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_Gaia_AdminGuide/html_frameset.htm.

cpmiquerybin

`cpmiquerybin` connects to a specified database, runs a user-defined query and shows the query results. The results can be a collection of Firewall sets or a tab-delimited list of specified fields from each retrieved object. The default database of the query tool is based on the shell environment settings.

To connect to a Domain Server database, run mdsenv (on page 78) and define the necessary environment variables. Use the Domain Server name or IP address as the first parameter.

Note - The `MISSING_ATTR` string shows when you use an attribute name that does not exist in the objects in query result.

Syntax

`cpmiquerybin` <*query_result_type*> <*database*> <*table*> <*query*> `[-a` <*attributes_list*>`]`

Parameter	Description
<*query_result_type*>	Query result in one of these formats: • `attr` – Returns values from one or more specified fields for each object. Use the -a parameter followed by a comma separated list of fields. • `object` – display FW-1 sets containing data of each retrieved object.
<*database*>	Name of the database file in quotes. For example, `"mdsdb"`. Use `""` to run the query on the default database.
<*table*>	Name of the database table that contains the data.
<*query*>	One or more query strings in a comma separated list. Use the null (`""`) query to return all objects in the database table. You can use wildcard character (*) as a replacement for one or more matching characters in your query string.
`-a` <*attributes_list*>	If you use the `query_result_type` parameter, you must specify one or more attributes in a comma-delimited list (without spaces) of object fields. You can return all object names with the special string: `__name__`

You can see complete documentation of the `cpmiquerybin` utility, with the full query syntax, examples and a list of common attributes in sk65181.
https://supportcenter.checkpoint.com/supportcenter/portal?eventSubmit_doGoviewsolutiondetails=&solutionid=sk65181

Return Values

0 - Query returns data successfully
1 - Query does not return data or there is a query syntax error

Example:

```
# cpmiquerybin attr "" network_objects "" -a __name__
DMZZone
WirelessZone
ExternalZone
InternalZone
AuxiliaryNet
LocalMachine_All_Interfaces
CPDShield
InternalNet
LocalMachine
DMZNet
```

This example shows the names of the currently defined network objects.

mds_backup

`mds_backup` backs up binaries and data from a Multi-Domain Server to a user specified working directory. You then copy the backup files from the working directory to external storage. This command requires Multi-Domain Superuser privileges.

`mds_backup` runs the `gtar` and `dump` commands to backup all databases. The collected information is stored in one `.tgz` file. The file name is a combination of the backup date and time and is saved in the current working directory. For example, `13Sep2015-141437.mdsbk.tgz`

To back up a Multi-Domain Server:

1. Run `mds_backup` from a location outside the product directory tree to be backed up. This becomes the working directory.
2. After the backup completes, copy the backup .tgz file, together with the mds_restore, `gtar` and `gzip` command files, to your external backup location.

Syntax

```
mds_backup [-g -b {-d <target_directory>} -v -l -h -s]
mds_backup [-g -b {-d <target_directory>} -v -h -s]
mds_backup -h
```

Argument	Description
-g	Executes without prompting to disconnect GUI clients.
-b	Batch mode - executes without asking anything (-g is implied).
-d	Target directory for the backup file. If not specified, the backup file is saved to the current directory. You cannot save the backup file to the root directory.
-v	"Dry run" - Show all files to be backed up, but does not perform the backup operation.
-l	Exclude logs from the backup.
-s	Stop Multi-Domain processes before the backup starts.
-h	Shows help text.

Notes:

- Do not create or delete Domains or Domain Servers until the backup operation completes.
- It is important not to run mds_backup from directories that will be backed up. For example, when backing up a Multi-Domain Server, do not run mds_backup from `/opt/CPmds-<current_release>` because it is a circular reference (backing up directory that you need to write into).
- Active log files are not backed up. This is necessary to prevent inconsistencies during the read-write operations.

  Best Practice - We recommend that you do a log switch before you start the backup procedure.
- You can back up the Multi-Domain Server configuration without the log files. This backup is typically significantly smaller than a full backup with logs. To back up without log files, add this line to the file `$MDSDIR/conf/mds_exclude.dat` configuration file:
  log/*

mds_restore

Use this command to restore a Multi-Domain Server that was backed up with `mds_backup`. It is best practice to restore to a clean install of the previous version. Use the R*80.20.M1 Installation and Upgrade Guide* https://sc1.checkpoint.com/documents/R80.20_M1/WebAdminGuides/EN/CP_R80.20_M1_Installation_and_Upgrade_Guide/html_frameset.htm for major versions, or the *Release Notes* for minor versions or hotfixes.

If the Multi-Domain Management environment has multiple Multi-Domain Servers, restore all Multi-Domain Servers at the same time.

To restore a Multi-Domain Server:

1. Go to the directory where the backup was created.
2. Log in to expert mode.
3. Run: `./mds_restore <backup_file>`
4. If you restore a Multi-Domain Server to a new IP address, configure the new address.

mdsenv

Use `mdsenv` to set shell environment variables to run commands on a specified Domain Server. When run without an argument, the command sets the shell for Multi-Domain Server level commands (`mdsstart, mdsstop`, and so on).

Syntax

`mdsenv [<name>]`

parameter	Description
<*name*>	Domain Server name.

mdsquerydb

`mdsquerydb` is an advanced database query tool that lets administrators use shell scripts to get information from Check Point Security Management Server databases. Use `mdsquerydb` to get information from the Multi-Domain Server, Domain Server and global databases.

The system comes with pre-defined queries, defined in the `$MDSDIR/confqueries.conf` configuration file. Do not change or delete these queries.

Syntax

`mdsquerydb <key_name> [-f <output_file_name>]`

Parameter	Description
<*key_name*>	Query key, which must be defined in the pre-defined queries configuration file.
`-f` <*output_file_name*>	Send the query results to the specified file name. If this parameter is not specified, the data is sent to the standard output.

Pre-Defined Query Keys

```
Keys for Multi-Domain environment:
----------------------------------
GlobalNetworkObjects    Get name and type of all global network objects
NetworkObjects          Get all Domains' internal Check Point installed network objects
Domains                 Get names of all Domains Irit B comment from QA Draft
Administrators          Get names of all Administrators
MDSs                    Get names and IPs of all MDSs
DomainManagementServers Get names of all Domain Servers
GuiClients              Get names and IPs of all gui clients
CMAs                    Backwards Compatibility (DomainManagementServers)
Customers               Backwards Compatibility (Domains)

Keys for Domain environment:
----------------------------
NetworkObjects          Get name and type of all network objects
Gateways                Get names and IPs of all gateways
```

Examples:

To retrieve list of all defined keys, run: `# mdsquerydb`

To send a list of Domains in the Multi-Domain Server database to the standard output, run:

```
# mdsenv
# mdsquerydb Domains
```

To send a list of network objects in the global database to `/tmp/gateways.txt`, run:

```
mdsenv
mdsquerydb NetworkObjects –f /tmp/gateways.txt
```

To get a list of gateway objects in the Domain Server `DServer1`, run:

```
mdsenv DServer1
mdsquerydb Gateways –f /tmp/gateways.txt
```

mdsstart

Use `mdsstart` to start the Multi-Domain Server and all Domain Servers and `mdsstop` to stop the Multi-Domain Server and all Domain Servers.

Syntax

```
mdsstart [-m|-s]
```

Parameter	Description
`-m`	Starts only the Multi-Domain Server and not the Domain Servers.
`-s`	Starts the Domain Servers sequentially. The system waits for each Domain Server to come up before it starts the next one.

You can decrease the amount of time it takes to start and stop the Multi-Domain Server when there are many Domain Servers. To do this, set the environment variable `NUM_EXEC_SIMUL` to a smaller number of Domain Servers that start or stop at the same time. By default, the system attempts to start or stop up to 10 Domain Servers at the same time.

mdsstat

`mdsstat` shows the status of processes on the Multi-Domain Server and Domain Servers. The status can be UP or Down.

Syntax

```
mdsstat [-h] [-m] [<name>]
```

Parameter	Description
`-h`	Displays help message.
`-m`	Test status for Multi-Domain Server only.
<*name*>	Enter the name of a Domain Server to show its status.

Status:

`up:` The process is up.
`down:` The process is down.
`pnd:` The process is pending initialization.
`init`: The process is initializing.
`N/A:` The process's PID is not yet available.
`N/R:` The process is not relevant for this Multi-Domain Server.

Example:

```
# mdsstat
+-----------------------------------------------------------------------------------------+
|                              Processes status checking                                  |
+-----+----------------+-----------------+------------+----------+----------+----------+
| Type| Name           | IP address      | FWM        | FWD      | CPD      | CPCA     |
+-----+----------------+-----------------+------------+----------+----------+----------+
| MDS |        -       | 192.168.3.101   | up 17284   | up 17266 | up 17251 | up 17753 |
+-----+----------------+-----------------+------------+----------+----------+----------+
| CMA |DOM211_Server   | 192.168.3.211   | up 32227   | up 32212 | up 25725 | up 32482 |
| CMA |DOM212_Server   | 192.168.3.212   | up 4248    | up 4184  | up 4094  | up 4441  |
+-----+----------------+-----------------+------------+----------+----------+----------+
| Total Domain Management Servers checked: 2     2 up   0 down                            |
| Tip: Run mdsstat -h for legend                                                          |
+-----------------------------------------------------------------------------------------+
```

migrate_global_policies

This utility transfers (and upgrades, if necessary) the global configuration database from one Multi-Domain Server to another Multi-Domain Server. `migrate_global_policies` replaces all existing global configurations. Each existing global configuration is saved with a `*.pre_migrate` extension.

If you migrate only the global configurations (without the Domain Servers) to a new Multi-Domain Server, disable all Security Gateways that are enabled for global use.

Note - You can only use `migrate_global_policies` when the target Multi-Domain Server does not have global configurations defined.

You can migrate global Policies from these Multi-Domain Management versions:

- R75.x
- R76.x
- R77.x

You can only use `migrate_global_policies` to import files created with `export_database` from Multi-Domain Servers with the above versions. You cannot export an R80.x global configuration database and then use `migrate_global_policies` on an R80.x Multi-Domain Server.

Syntax

`migrate_global_policies` <*path*>

parameter	Description
<*path*>	The **fully qualified** path to the directory where the global policies files, originally exported from the source Multi-Domain Server (`$MDSDIR/conf`), are located.

Example

```
# migrate_global_policies /tmp/exported_global_db.22Jul2007-124547.tgz
```

threshold_config

Use `threshold_config` to configure Policy thresholds. You must be in expert mode to run this command. After you run `threshold_config`, follow the on-screen instructions to make selections and configure the global settings and each threshold.

Syntax

```
threshold_config
```

When you run `threshold_config`, you get these options:

- **Show Policy name** - Shows you the name configured for the threshold Policy.
- **Set Policy name** - Lets you set a name for the threshold Policy.
- **Save Policy**- Lets you save the Policy.
- **Save Policy to file** - Lets you export the Policy to a file.
- **Load Policy from file** - Lets you import a threshold Policy from a file.
- **Configure global alert settings** - Lets you configure global settings for how frequently alerts are sent and how many alerts are sent.
- **Configure alert destinations** - Lets you configure a location or locations where the SNMP alerts are sent.
- **View thresholds overview** - Shows a list of all thresholds that you can set.
- **Configure thresholds** - Open the list of threshold categories to let you select thresholds to configure.

Creating a Domain Server

Prerequisites

- Name or Identifier of the domain, for example `MyDomain`
- Name or Identifier of the new Domain Server, for example `MyDMS`
- IPv4 address for the new Domain Server
- IPv4 Address for the Multi-Domain Server
- The Multi-Domain Server username and password for a Multi-Domain Superuser who has permission to create the new Domain Server.

To create a new Domain Server:

1. Open a terminal emulation program (such as PuTTY).
2. Open an SSH connection to the Multi-Domain Server.
3. Log in with the superuser credentials.

4. Enter expert mode.
5. Run this command:

   ```
   mgmt_cli add domain name <domain_name> servers.ip address "<ipv4>"
   servers.name "<server_name>" servers.multi-domain-server "<mdm_name>"
   ```

   For Example:

   ```
   mgmt_cli add domain name "domain1" servers.ip-address "192.0.2.1"
   servers.name "domain1_ManagementServer_1" servers.multi-domain-server
   "primary_mdm"
   ```

   The Domain Server is created. Log in to `192.0.2.1` to configure the settings.

Using XML to Export Settings for a Domain Server

You can export the settings for a Domain Server to an XML file that you can use with external automation systems. You can include the `printxml` commands in a script or run them individually from the CLI.

This sample script exports these settings to XML:

- Security policy Rule Base
- Network objects
- Services

```
printxml fw_policies ##Standard
printxml network_objects
printxml services
```

Creating and Changing an Administrator Account

To successfully manage security for a large network, we recommend that you first set up your administrative team, and delegate tasks.

We recommend that you create administrator accounts in SmartConsole, with the procedure below or with the First Time Configuration Wizard.

If you create it through the SmartConsole, you can choose one of these authentication methods:

- Check Point Password
- OS Password
- RADIUS
- SecurID
- TACACS

If you create an administrator through `mdsconfig`, the Check Point configuration tool, Check Point password is automatically configured

To create an administrator account using SmartConsole:

1. Click **Manage & Settings > Permissions and Administrators**.

   The **Administrators** pane shows by default.
2. Click **New Administrator**.

   The **New Administrators** window opens.
3. Enter a unique name for the administrator account.

   Note - This parameter is case-sensitive.

4. Set the Authentication Method, or create a certificate, or the two of them.

   Note - If you do not do this, the administrator will not be able to log in to SmartConsole.

   To define an Authentication Method:

   In the **Authentication Method** section, select a method and follow the instructions in *Configuring Authentication Methods for Administrators*.

   To create a Certificate - If you want to use a certificate to log in:

   In the **Certificate Information** section, click **Create**, and follow the instructions in *Configuring Certificates for Administrators* ("Creating a Certificate for Logging in to SmartConsole" on page 45).
5. Select a **Permissions** profile for this administrator, or create a new one.
6. Set the account **Expiration** date:
   - For a permanent administrator - select **Never**
   - For a temporary administrator - select an **Expire At** date from the calendar

   The default expiration date shows, as defined in the Default Expiration Settings. After the expiration date, the account is no longer authorized to access network resources and applications.
7. **Optional**: Configure **Additional Info - Contact Details**, **Email** and **Phone Number** of the administrator.
8. Click **OK**.

To change an existing administrator account:

1. Click **Manage & Settings** > **Permissions and Administrators**.
2. Double-click an administrator account.

   The **Administrators** properties window opens.