

BIG-IP[®] System: Folders Administration

Version 11.6



Table of Contents

Legal Notices.....	5
Acknowledgments.....	7
Chapter 1: About Folders.....	19
About folders on the BIG-IP system.....	20
About folder /Common.....	20
Relationship of folders to partitions.....	20
Folder and object naming.....	21
Object referencing between folders.....	21
Folder attributes.....	21
About the root folder.....	21
Chapter 2: Working with Folders.....	23
Creating a folder.....	24
About moving and renaming objects.....	24
Restrictions on move operations.....	24
Enabling the feature.....	25
Disabling the feature.....	25
Examples.....	26
Moving a single object to another folder.....	26
Moving multiple objects to another folder.....	26
Moving an object using a relative path name.....	26
Renaming an object.....	27
Renaming and moving an object.....	27
About iApp objects.....	27
About moving a folder to another folder.....	28

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Chapter 1

About Folders

- *About folders on the BIG-IP system*
 - *About folder /Common*
 - *Relationship of folders to partitions*
 - *Folder and object naming*
 - *Object referencing between folders*
 - *Folder attributes*
 - *About the root folder*
-

About folders on the BIG-IP system

A *folder* is a container for BIG-IP® configuration objects and files on a BIG-IP device. Virtual servers, pools, and self IP addresses are examples of objects that reside in folders on the system.

In the context of the BIG-IP system, a folder is a container for BIG-IP system objects. Folders resemble standard UNIX directories, in that the system includes a hierarchy of folders and includes a `root` folder (represented by the `/` symbol) that is the parent for all other folders on the system.

You can create sub-folders within a high-level folder. For example, if you have a high-level folder (partition) within the `root` folder named `Customer1`, you can create a sub-folder, such as `App_B`, within `Customer1`.

A folder can contain other folders.

One of the important ways that you can use folders is to set up full or granular synchronization and failover of BIG-IP configuration data in a device group. You can synchronize and fail over all configuration data on a BIG-IP device, or you can synchronize and fail over objects within a specific folder only.

You manage BIG-IP folders and sub-folders using the Traffic Management Shell (`tmssh`) command line interface.

About folder `/Common`

During BIG-IP™ system installation, the system automatically creates a folder named `/Common`. At a minimum, this folder contains all of the BIG-IP objects that the system creates as part of the installation process.

Until you create other folders on the system, all objects that you or other users create automatically reside in folder `/Common`.

Relationship of folders to partitions

For each partition on the BIG-IP® system, there is an equivalent high-level folder. For example, for partition `Common`, there is a corresponding high-level folder named `/Common`. This close association of administrative partitions to folders means that when you use the BIG-IP Configuration utility to create objects on a BIG-IP device, the system puts those objects in the current partition, in a folder that you choose. Examples of BIG-IP objects that reside in folders are virtual servers, pools, and self IP addresses.

If you create another administrative partition, such as partition `App_A`, the BIG-IP system automatically creates a high-level folder named `/App_A`. You can then create BIG-IP configuration objects that pertain to application `A` by changing the current partition to `App_A` and then either creating the objects in folder `/App_A`, or creating a sub-folder within `/App_A` and then navigating to that sub-folder.

Note that you cannot delete high-level folders that directly correspond to administrative partitions. For example, if the BIG-IP system has a partition named `App_A`, you cannot delete the corresponding folder `/App_A`.

Folder and object naming

The folder in which an object resides automatically becomes part of the object name. For example, if you create a pool in partition `Common`, in folder `/Common`, and then name the pool `my_pool`, the full name of the pool on the system is `/Common/my_pool`. If you create the pool in partition `App_A`, in folder `/App_A`, then the full name of the pool is `/App_A/my_pool`.

Object referencing between folders

When you create two BIG-IP® objects in separate folders, where one object references the other, the referenced object must reside in `/Common` or a sub-folder of `/Common`.

For example, if you create a virtual server in folder `/App_B`, and the virtual server references a load balancing pool, the pool object must reside in folder `/Common` or in a sub-folder of `/Common`.

Folder attributes

To satisfy redundancy requirements, every folder on a BIG-IP device has two specific redundancy attributes that enable granular synchronization and failover of BIG-IP data within a device group:

- A **device group** attribute (for configuration synchronization)
- A **traffic group** attribute (for failover)

If the folder was created through an iApps® application service, then the relevant iApps service is also an attribute of the folder.

About the root folder

At the highest-level, the BIG-IP® system includes a `root` folder. The `root` folder contains all BIG-IP configuration objects on the system, by way of a hierarchical folder and sub-folder structure within it.

By default, the BIG-IP system assigns a Sync-Failover device group and a traffic group to the `root` folder. All folders and sub-folders under the `root` folder inherit these default assignments.

Chapter 2

Working with Folders

- *Creating a folder*
 - *About moving and renaming objects*
 - *Examples*
 - *About moving a folder to another folder*
-

Creating a folder

You can use the Traffic Management Shell (`tmsh`) to create a new folder.

1. Access the `tmsh` command line prompt.
2. Set your current folder to the folder in which you want to create the new folder.
3. Type `create sys folder folder_name`
 For example, to create a folder within the `/Common` folder, set the current folder to `/Common` and type `create sys folder my_new_folder`.
 This creates a new folder named `/Common/my_new_folder`.

About moving and renaming objects

You can move certain BIG-IP® objects from one folder to another, and optionally, you can rename the objects in the process. In general, the objects that you can move and rename are:

- Most of the objects within the BIG-IP Local Traffic Manager™ module (virtual servers, pools, profiles, monitors, and so on)
- Self IP addresses
- Device names
- Folders

Warning: *Currently, the ability to move certain BIG-IP objects to other folders and to rename those objects is an experimental feature. F5 Networks recommends that you disable this feature after you have moved or renamed any BIG-IP objects. Also, use of this feature could result in a loss of statistics and a disruption in BIG-IP® Global Traffic Manager™ GTM™) service. If you plan to move or rename a virtual server, please contact your GTM administrator before doing so.*

Restrictions on move operations

This table lists and describes a few restrictions to be aware of when moving BIG-IP® Local Traffic Manager™ (LTM®) objects from one folder to another.

Feature	Restriction
Global traffic management	When you move a local traffic virtual server that is associated with a GTM™ configuration, GTM must re-discover the virtual server. This could affect the status of the GTM objects associated with the virtual server. To avoid any disruption in GTM service or loss of statistics, contact your GTM administrator before moving or renaming a virtual server.
iRules®	You cannot move an object if the object is referenced by an iRule and the iRule is in use by a virtual server. Such an attempt produces an <code>mcpd</code> runtime configuration error. The behavior mimics the deletion of referenced objects; that is, you can delete a pool when the pool is used by an iRule, as long as a virtual server is not referencing the iRule.

Feature	Restriction
Object referencing	If an object is associated with another object, you cannot move the object to a different high-level folder corresponding to a partition. The BIG-IP system disallows this type of move in order to prevent an invalid object reference. For example, if a virtual server in <code>/Common</code> references a profile in <code>/Common</code> , you cannot move the profile to folder <code>/Partition</code> . Doing so would result in an invalid reference. As a best practice, objects such as pools or profiles that are used by multiple objects such as virtual servers should reside in folder <code>/Common</code> .
Default profiles	You cannot move a default profile from folder <code>/Common</code> to another folder. All default profiles on the system must remain in <code>/Common</code> .
Health monitors	You cannot move multiple monitors that are associated with more than one monitor rule. The BIG-IP system terminates any attempt to perform this type of move operation.
iApps®	When you move an iApp application service, you must move the entire iApp folder, which includes the service object and all dependant objects. If an iApp service contains an object that does not currently support the <code>mv</code> command, the move operation terminates with a message indicating the object that the BIG-IP system cannot move.

Enabling the feature

You can enable a feature that allows you to move certain BIG-IP® configuration objects from one folder to another or to rename a BIG-IP object. By using this feature, you avoid the need to delete an object in a folder and recreate the object in another folder. Note that after enabling this feature, you must use the Traffic Management Shell (`tmsh`) command line interface to move or rename BIG-IP objects.

1. Access the `tmsh` command line interface.
2. At the `tmsh` prompt, type `modify /sys db mcpd.mvenabled value true`

After performing this task, you can move BIG-IP objects to other folders and rename BIG-IP objects.

Disabling the feature

After managing configuration objects or folders you might want to disable the ability to move certain BIG-IP® configuration objects from one folder to another or to rename a BIG-IP object using the command line.

1. Access the `tmsh` command line interface.
2. At the `tmsh` prompt, type `modify /sys db mcpd.mvenabled value false`

After performing this task, you can no longer move BIG-IP objects to other folders and rename BIG-IP objects.

Examples

You can use this feature in several ways.

Moving a single object to another folder

You can move a single local traffic object to another folder. In this case, you use the `tmsh mv` command with the `to-folder` keyword.

1. Access the `tmsh` command line prompt.
2. Type `mv ltm object_type object_name to-folder folder_name`.
For example, you can type `mv ltm pool myPool_1 to-folder /Common/pools`, or you can specify the object's full path name, such as `mv ltm pool /Common/myPool_1 to-folder /Common/pools`

After you perform this task, the specified local traffic object resides in another folder.

Moving multiple objects to another folder

You can move multiple objects to the new folder, as long as all objects are of the same type. For example, in a single move operation, you can move three pools to a single folder. In this case, you are not required to specify the `to-folder` keyword.

1. Access the `tmsh` command line prompt.
2. Type `mv ltm object_type object_name object_name folder_name`.
For example, you can type `mv /ltm pool myPool_1 myPool_2 /Common/pools`, or you can specify the object's full path name, such as `mv ltm pool /Common/myPool_1 /Common/myPool_2 /Common/pools`

After you perform this task, the specified local traffic objects reside together in another folder.

Moving an object using a relative path name

You can move an object to another folder with a single command, using a relative path name and the `to-folder` keyword.

1. Access the `tmsh` command line prompt.
2. Type `mv ltm object_type relative_path_name object_name to-folder folder_name`.
For example, you can type `mv ltm pool ../myPool_1 to-folder /other_pools`. Similarly, you can use relative path names to move an object that is one level higher into the current folder: `mv ltm pool ../myPool_1 to-folder`

After you perform this task, the specified local traffic object resides in another folder.

Renaming an object

You can rename an object without moving the object to another folder.

1. Access the `tmsh` command line prompt.
2. Type `mv ltm object_type current_object_name new_object_name`.
For example, if your current folder is `/Common/pools` and you want to rename a pool named `myPool_1` to `myPool_2`, you can type: `mv /ltm pool myPool_1 myPool_2`. Alternatively, you can rename the object using its full path name: `mv /ltm pool /Common/pools/myPool_1 /Common/pools/myPool_2`.

After you perform this task, the specified local traffic object has a different name and resides in the same folder.

Renaming and moving an object

You can rename an object and move the object to another folder, in a single operation.

1. Access the `tmsh` command line prompt.
2. Type `mv ltm object_type current_object_name new_folder_with_new_object_name`.
For example, you can type: `mv /ltm pool myPool_2 /Common/pools/myNewPool_2`

After you perform this task, the specified local traffic object resides in another folder and has a new name.

About iApp objects

Moving an object out of an iApp folder

You can move a local traffic object out of an iApp folder into other folders or sub-folders of an application without breaking the connection to the parent iApp service, allowing for custom organization. For example, you can move `pool my_pool` in the iApp folder `/Common/myapp.app` to a non-iApp folder. The following are two examples:

```
mv ltm pool /Common/myapp.app/my_pool /Common/allpools/my_pool
mv ltm pool /Common/myapp.app/my_pool /Common/myapp.app/pools/my_pool
```

Moving an object into an iApp folder

If a local traffic object was not created as part of an iApp service, you can still move the object into an iApp folder and automatically associate it with that iApp service. For example, you can move the object `my_pool` into the iApp folder `/myapp.app`, renaming the object at the same time:

```
mv ltm pool /Common/pools/my_pool /Common/myapp.app/my_app_pool
```

Moving an object from one iApp folder to another

You can move local traffic objects directly from one iApp folder to another. You can do this in either of two ways. For example:

```
mv ltm pool /Common/myapp.app/app_pool_1 to-folder /Common/myapp2.app
mv ltm pool /Common/myapp.app/app_pool_1 /Common/myapp2.app/app_pool_1
```

Additionally, you can move multiple objects of the same type from one iApp service to another iApp service, simply by using a multi-source `mv` command:

```
cd /Common/myapp.app
mv ltm pool app_pool_1 app_pool_2 app_pool_3 to-folder /Common/myapp2.app
```

About moving a folder to another folder

You can move an entire folder to another folder. When you move a folder to another folder, the BIG-IP system also moves all objects in the moved folder. The system disallows this type of move operation if the move breaks normal object rules, such as if the move would cause an object to reference an object in another partition.

If the moved folder inherits any attributes from its parent folder, the value of those attributes could change after the folder is moved. For example, before a move operation, a folder might inherit a device group value of `my_sync_only_device_group` from its parent folder. If you move the folder to a folder that inherits a device group value of `my_sync_failover_device_group`, the moved folder inherits that new value.

Index

/Common folder *20*

D

device groups
and root folder *21*

F

folder attributes *21*
folder hierarchy *21*
folder restrictions *24*
folders
about moving *28*
creating *24*
defined *20*
object naming *21*
object referencing *21*
relationship with partitions *20*

G

granular synchronization
with folders *20*

I

iApp application services
and folder attributes *21*
iApp objects
about moving *27*

M

multiple objects
moving *26*

O

object move/rename
disabling *25*
enabling *25*
sample tasks *26*
object moving
about *24*
object naming *21*
object referencing
between folders *21*
objects
moving with relative path *26*
renaming *27*
renaming and moving *27*
restrictions on moving *24*

P

partition
Common *20*
relationship with folders *20*

R

redundancy
and folder attributes *21*
relative path names
specifying *26*
root folder *21*

S

single objects
moving *26*

T

traffic groups
and root folder *21*

