



CHAPTER 17

Disk Replacement

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Introduction

This chapter describes the process of replacing a defective Cisco BTS 10200 Softswitch disk. Each Cisco BTS 10200 Softswitch system element contains two hard disks (disk 0 and disk 1) that are mirrored using Sun Solaris Disk Suite. The disk mirroring application must be disabled between the two disks in order to replace the defective disk.

Before starting the disk replacement procedures, the following procedures must be completed:

- Identify the disk that needs to be replaced by viewing the `/var/adm/messages`
- Cisco recommends that the new disk part number must be the same as the defective disk or the size of the replacement disk must be equal or larger than the good disk.
- Perform a full system backup procedure.

This chapter contains the following sections:

- [Full System Backup Procedure](#)
- [Call Agent/Feature Server or Element Management System Disk 0 Replacement](#)
- [Call Agent/Feature Server or Element Management System Disk 1 Replacement](#)

Full System Backup Procedure

The purpose of this section is to describe the needed steps to create a backup using the Flash Archive on Cisco BTS 10200 Softswitch system. The procedure is performed before and after any software upgrade or for routine maintenance purposes.



Note

It is recommended that this procedure be performed during a maintenance window or when traffic volume is low.

Before you start the backup procedure, obtain the following information:

- NFS server hostname or IP address.
- Shared directory from NFS server.
- Root user access.



Note

Provisioning is not allowed during this procedure in order to have a stable backup.

Call Agent/Feature Server Backup

Perform the following steps on STANDBY CA/FS system.

-
- Step 1** Login as root on secondary CA/FS.
- Step 2** Verify that all platforms are in STANDBY mode.
- ```
<hostname>#nodestat
```
- Step 3** Remove all unnecessary files or directories such as: **/opt/Build**, application **tar** files, etc...
- Step 4** Mount NFS server to **/mnt** directory.
- ```
<hostname>#mount <nfs server ip or hostname>:/<share dire> /mnt
```
- Step 5** Stop all platforms.
- ```
<hostname>#platform stop all
```
- Step 6** Save all platforms data directory (shared memory) to nfs server.
- ```
<hostname>#tar -cf - /opt/OptiCall/CAxxx/bin/data |gzip -fast - > /mnt/data.<hostname>.CA
<hostname>#tar -cf - /opt/OptiCall/FSAINxxx/bin/data |gzip -fast - > /mnt/data.<hostname>.FSAIN
<hostname>#tar -cf /opt/OptiCall/FSPTCxxx/bin/data |gzip -fast - > /mnt/data.<hostname>.FSPTC
```



Note

Where **xxx** is the instance number.

- Step 7** Start all platforms.
- ```
<hostname>#platform start -nocopy
```

**Step 8** Verify all platforms are up on STANDBY.

```
<hostname>#nodestat
```

**Step 9** Create excluded directories file for flash archive.

```
<hostname>#vi /tmp/excluded_dir
```

Add the following lines and save the file:

```
/opt/OptiCall/CAxxx/bin/data
```

```
/opt/OptiCall/CAxxx/bin/logs
```

```
/opt/OptiCall/FSAINxxx/bin/data
```

```
/opt/OptiCall/FSAINxxx/bin/logs
```

```
/opt/OptiCall/FSPTCxxx/bin/data
```

```
/opt/OptiCall/FSPTCxxx/bin/logs
```



**Note**

Where **xxx** is the instance number.

**Step 10** Backup the system.

```
<hostname>#mv /bin/date /bin/date.archive
```

```
<hostname>#mv /bin/.date /bin/date
```

```
<hostname>#flarcreate -n <hostname> -I -X /tmp/excluded_dir -c /mnt/<hostname>.archive
```

```
<hostname>#mv /bin/date /bin/.date
```

```
<hostname>#mv /bin/date.archive /bin/date
```

**Step 11** Un-mount NFS server.

```
<hostname>#umount /mnt
```

**Step 12** Switchover all platforms.

Perform the following commands from the **Active-EMS**.

```
<hostname>#ssh optiuser@<hostname>
```

```
cli>control feature-server id=FSAINxxx;target-state=standby-active;
```

```
cli>control feature-server id=FSPTCxxx;target-state=standby-active;
```

```
cli>control call-agent id=CAxxx;target-state=standby-active;
```



**Note**

Where **xxx** is the instance number of each platform.

**Step 13** Repeat the same steps for the PRIMARY CA/FS.

## Element Management System/Bulk Data Management System Backup

Perform the following steps on STANDBY EMS/BDMS system.

- 
- Step 1** Remove all unnecessary files or directories such as: **/opt/Build**, application **tar** files, etc...
- Step 2** Mount NFS server to **/mnt** directory.  
`<hostname>#mount <nfs server ip or hostname>:<share dire> /mnt`
- Step 3** Stop all platforms.  
`<hostname>#platform stop all`
- Step 4** Save Oracle database and msq1 directories.  
`<hostname>#tar -cf - /data1/oradata |gzip -fast - >/mnt/oradata.<hostname>`
- Step 5** Create excluded directories file for flash archive.  
`<hostname>#vi /tmp/excluded_dir/data1/oradata`
- Step 6** Start all platforms.  
`<hostname>#platform start -nocopy`
- Step 7** Verify all platforms are up on STANDBY.  
`<hostname>#nodestat`
- Step 8** Backup the system.  
`<hostname>#mv /bin/date /bin/date.archive`  
`<hostname>#mv /bin/.date /bin/date`  
`<hostname>#flarcreeate -n <hostname> -I -X /tmp/excluded_dir -c /mnt/<hostname>.archive`  
`<hostname>#mv /bin/date /bin/.date`  
`<hostname>#mv /bin/date.archive /bin/date`
- Step 9** Un-mount NFS server.  
`<hostname>#umount /mnt`
- Step 10** Switchover all platforms.  
 Perform the following commands from the **Active-EMS**.  
`<hostname>#ssh optiuser@<hostname>`  
`cli>control bdms id=BDMS01;target-state=standby-active;`  
`cli>control element-manager id=EM01;target-state=standby-active;`
- Step 11** Repeat the same steps for PRIMARY EMS/BDMS.
-

# Call Agent/Feature Server or Element Management System Disk 0 Replacement

**Note**

The letter "x" in cxt0d0 or cxt1d0 throughout the procedure is referring to the SCSI controller ID of the system (either 0 or 1). To find out the controller ID, use the **format** command.

**Step 1** Login as root.

**Step 2** Verify application status.

```
<hostname>#nodestat
```

**Note**

If all platforms on this node are ACTIVE, then you need to switchover to STANDBY side using the CLI command.

**Step 3** Stop all BTS 10200 platforms.

```
<hostname>#platform stop all
```

**Step 4** Perform the following commands to detach all submirror metadvice.

```
<hostname>#metadetach -f d2 d0
<hostname>#metadetach -f d14 d12
<hostname>#metadetach -f d11 d9
<hostname>#metadetach -f d5 d3
<hostname>#metadetach -f d8 d6
```

**Step 5** Perform the following commands to clear all submirror metadvice.

```
<hostname>#metaclear d0
<hostname>#metaclear d12
<hostname>#metaclear d9
<hostname>#metaclear d3
<hostname>#metaclear d6
```

**Step 6** Delete database replica on defective disk.

```
<hostname>#metadb -d -f /dev/dsk/cxt0d0s4
```

**Step 7** Verify that there is no existing metadvice on defective disk.

```
<hostname>#metastat -p |grep cxt0d0
```

**Step 8** Use the **cfgadm** command to determine the defective disk parameter.

Example:

```
secca38#cfgadm -al
```

| Ap_Id                 | Type     | Receptacle | Occupant          | Condition |
|-----------------------|----------|------------|-------------------|-----------|
| c0                    | scsi-bus | connected  | configured        | unknown   |
| c0::dsk/c0t0d0        | CD-ROM   | connected  | configured        | unknown   |
| c1                    | scsi-bus | connected  | configured        | unknown   |
| <b>c1::dsk/c1t0d0</b> | disk     | connected  | <b>configured</b> | unknown   |
| c1::dsk/c1t1d0        | disk     | connected  | configured        | unknown   |
| c2                    | scsi-bus | connected  | unconfigured      | unknown   |
| usb0/1                | unknown  | empty      | unconfigured      | ok        |
| usb0/2                | unknown  | empty      | unconfigured      | ok        |

**Step 9** Take disk 0 offline.

```
<hostname>#cfgadm -c unconfigure c1::dsk/cxt0d0
```

Example:

```
Secca38#cfgadm -c unconfigure c1::dsk/c1t0d0
```

**Step 10** Verify that Disk 0 is offline.

Example:

```
secca38#cfgadm -al
```

| Ap_Id                 | Type     | Receptacle | Occupant            | Condition |
|-----------------------|----------|------------|---------------------|-----------|
| c0                    | scsi-bus | connected  | configured          | unknown   |
| c0::dsk/c0t0d0        | CD-ROM   | connected  | configured          | unknown   |
| c1                    | scsi-bus | connected  | configured          | unknown   |
| <b>c1::dsk/c1t0d0</b> | disk     | connected  | <b>unconfigured</b> | unknown   |
| c1::dsk/c1t1d0        | disk     | connected  | configured          | unknown   |
| c2                    | scsi-bus | connected  | unconfigured        | unknown   |
| usb0/1                | unknown  | empty      | unconfigured        | ok        |
| usb0/2                | unknown  | empty      | unconfigured        | ok        |

```
secca38#tail /var/adm/messages
```

```
Nov 2 15:53:25 secca38 genunix: [ID 408114 kern.info] /pci@1f,700000/scsi@2/sd@0,0 (sd0)
offline
```

**Step 11** Remove the defective disk and insert the new replacement disk into slot 0.

**Step 12** Use the **cfgadm** command to bring the new Disk 0 on line.

```
<hostname># cfgadm -c configure c1::dsk/cxt0d0
```

Example:

```
Secca38#cfgadm -c configure c1::dsk/c1t0d0
```

**Step 13** Verify that the new Disk 0 is on line.

```
<hostname>#cfgadm -al
```

Example:

```
secca38#cfgadm -al
```

| Ap_Id                 | Type     | Receptacle | Occupant          | Condition |
|-----------------------|----------|------------|-------------------|-----------|
| c0                    | scsi-bus | connected  | configured        | unknown   |
| c0::dsk/c0t0d0        | CD-ROM   | connected  | configured        | unknown   |
| c1                    | scsi-bus | connected  | configured        | unknown   |
| <b>c1::dsk/c1t0d0</b> | disk     | connected  | <b>configured</b> | unknown   |
| c1::dsk/c1t1d0        | disk     | connected  | configured        | unknown   |
| c2                    | scsi-bus | connected  | unconfigured      | unknown   |
| usb0/1                | unknown  | empty      | unconfigured      | ok        |
| usb0/2                | unknown  | empty      | unconfigured      | ok        |

```
secca38#tail /var/adm/messages
```

```
Nov 2 15:53:25 secca38 genunix: [ID 408114 kern.info] /pci@1f,700000/scsi@2/sd@0,0 (sd0)
online
```

**Step 14** Use the **format** and **prtvtoc** commands to partition the new disk

Disk layout:

```
Slice 0 /(root)2000MB
Slice 1 /var 5000MB
Slice 3 swap 4000MB
Slice 4 unassigned 24MB
Slice 5 /opt The rest of the disk space
Slice 6 unassigned 2000MB
```

**Step 15** Create the database replica on the new disk.

```
<hostname>#metadb -a -f -c 3 /dev/dsk/cxt0d0s4
```

**Step 16** Perform the following commands to create submirror metadvice.

```
<hostname>#metainit -f d0 1 1 /dev/dsk/cxt0d0s0
<hostname>#metainit -f d12 1 1 /dev/dsk/cxt0d0s6
<hostname>#metainit -f d9 1 1 /dev/dsk/cxt0d0s5
<hostname>#metainit -f d3 1 1 /dev/dsk/cxt0d0s1
<hostname>#metainit -f d6 1 1 /dev/dsk/cxt0d0s3
```

**Step 17** Install the boot block on the new disk.

```
<hostname>#installboot /usr/platform/`uname -i`/lib/fs/ufs/bootblk /dev/rdisk/cxt0d0s0
```

**Step 18** Sync Disk 0 (new disk) with Disk 1.

```
<hostname># metattach d2 d0
<hostname>#metattach d14 d12
<hostname>#metattach d11 d9
<hostname>#metattach d5 d3
<hostname>#metattach d8 d6
```

**Note**

The disk sync process will take awhile depending on the disk size. To find out the percentage completion of this process, you can run the **metastat|grep %** command.

**Step 19** Start all BTS 10200 platforms.

```
<hostname>#platform start -nocopy
```

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# Call Agent/Feature Server or Element Management System Disk 1 Replacement


**Note**

The letter "x" in cxt0d0 or cxt1d0 throughout the procedure is referring to the SCSI controller ID of the system (either 0 or 1). To find out the controller ID, use the **format** command.

**Step 1** Login as root.

**Step 2** Verify application status.

```
<hostname>#nodestat
```


**Note**

If all platforms on this node are ACTIVE, then you need to switchover to STANDBY side using the CLI command.

**Step 3** Stop all BTS 10200 platforms.

```
<hostname>#platform stop all
```

**Step 4** Perform the following commands to detach all submirror metadvice.

```
<hostname>#metadetach -f d2 d1
<hostname>#metadetach -f d14 d13
<hostname>#metadetach -f d11 d10
<hostname>#metadetach -f d5 d4
<hostname>#metadetach -f d8 d7
```

**Step 5** Perform the following commands to clear all submirror metadvice.

```
<hostname>#metaclear d1
<hostname>#metaclear d13
<hostname>#metaclear d10
<hostname>#metaclear d4
<hostname>#metaclear d7
```

**Step 6** Delete database replica on defective disk.

```
<hostname>#metadb -d -f /dev/dsk/cxt1d0s4
```

**Step 7** Verify that there is no existing metadvice on defective disk.

```
<hostname>#metastat -p |grep cxt1d0
```

**Step 8** Use the **cfgadm** command to determine the defective disk parameter.

Example:

```
secca38#cfgadm -al
```

| Ap_Id                 | Type     | Receptacle | Occupant          | Condition |
|-----------------------|----------|------------|-------------------|-----------|
| c0                    | scsi-bus | connected  | configured        | unknown   |
| c0::dsk/c0t0d0        | CD-ROM   | connected  | configured        | unknown   |
| c1                    | scsi-bus | connected  | configured        | unknown   |
| c1::dsk/c1t0d0        | disk     | connected  | configured        | unknown   |
| <b>c1::dsk/c1t1d0</b> | disk     | connected  | <b>configured</b> | unknown   |
| c2                    | scsi-bus | connected  | unconfigured      | unknown   |
| usb0/1                | unknown  | empty      | unconfigured      | ok        |
| usb0/2                | unknown  | empty      | unconfigured      | ok        |

**Step 9** Take disk 1 offline.

```
<hostname>#cfgadm -c unconfigure c1::dsk/cxt1d0
```

Example:

```
Secca38#cfgadm -c unconfigure c1::dsk/c1t1d0
```

**Step 10** Verify that Disk 1 is offline.

Example:

```
secca38#cfgadm -al
```

| Ap_Id                 | Type     | Receptacle | Occupant            | Condition |
|-----------------------|----------|------------|---------------------|-----------|
| c0                    | scsi-bus | connected  | configured          | unknown   |
| c0::dsk/c0t0d0        | CD-ROM   | connected  | configured          | unknown   |
| c1                    | scsi-bus | connected  | configured          | unknown   |
| c1::dsk/c1t0d0        | disk     | connected  | configured          | unknown   |
| <b>c1::dsk/c1t1d0</b> | disk     | connected  | <b>unconfigured</b> | unknown   |
| c2                    | scsi-bus | connected  | unconfigured        | unknown   |
| usb0/1                | unknown  | empty      | unconfigured        | ok        |
| usb0/2                | unknown  | empty      | unconfigured        | ok        |

```
secca38#tail /var/adm/messages
```

```
Nov 2 15:53:25 secca38 genunix: [ID 408114 kern.info] /pci@1f,700000/scsi@2/sd@0,1 (sd1)
offline
```

**Step 11** Remove the defective disk and insert the new replacement disk into slot 1.

**Step 12** Use the **cfgadm** command to bring the new Disk 1 on line.

```
<hostname># cfgadm -c configure c1::dsk/cxt1d0
```

Example:

```
Secca38#cfgadm -c configure c1::dsk/c1t1d0
```

**Step 13** Verify that the new Disk 0 is on line.

```
<hostname>#cfgadm -al
```

Example:

```
secca38#cfgadm -al
```

| Ap_Id                 | Type     | Receptacle | Occupant          | Condition |
|-----------------------|----------|------------|-------------------|-----------|
| c0                    | scsi-bus | connected  | configured        | unknown   |
| c0::dsk/c0t0d0        | CD-ROM   | connected  | configured        | unknown   |
| c1                    | scsi-bus | connected  | configured        | unknown   |
| c1::dsk/c1t0d0        | disk     | connected  | configured        | unknown   |
| <b>c1::dsk/c1t1d0</b> | disk     | connected  | <b>configured</b> | unknown   |
| c2                    | scsi-bus | connected  | unconfigured      | unknown   |
| usb0/1                | unknown  | empty      | unconfigured      | ok        |
| usb0/2                | unknown  | empty      | unconfigured      | ok        |

```
secca38#tail /var/adm/messages
```

```
Nov 2 15:53:25 secca38 genunix: [ID 408114 kern.info] /pci@1f,700000/scsi@2/sd@0,1 (sd1)
online
```

**Step 14** Use the **format** and **prtvtoc** commands to partition the new disk.

Disk layout:

```
Slice 0 /(root)2000MB
Slice 1 /var 5000MB
Slice 3 swap 4000MB
Slice 4 unassigned 24MB
Slice 5 /opt The rest of the disk space
Slice 6 unassigned 2000MB
```

**Step 15** Create the database replica on the new disk.

```
<hostname>#metadb -a -f -c 3 /dev/dsk/cxt1d0s4
```

**Step 16** Perform the following commands to create submirror metadvice.

```
<hostname>#metainit -f d0 1 1 /dev/dsk/cxt1d0s0
<hostname>#metainit -f d12 1 1 /dev/dsk/cxt1d0s6
<hostname>#metainit -f d9 1 1 /dev/dsk/cxt1d0s5
<hostname>#metainit -f d3 1 1 /dev/dsk/cxt1d0s1
<hostname>#metainit -f d6 1 1 /dev/dsk/cxt1d0s3
```

**Step 17** Install the boot block on the new disk.

```
<hostname>#installboot /usr/platform/`uname -i`/lib/fs/ufs/bootblk /dev/rdisk/cxt1d0s0
```

**Step 18** Sync Disk 1 (new disk) with Disk 0.

```
<hostname># metattach d2 d1
<hostname>#metattach d14 d13
<hostname>#metattach d11 d10
<hostname>#metattach d5 d4
<hostname>#metattach d8 d7
```

**Note**

The disk sync process will take awhile depending on the disk size. To find out the percentage completion of this process, you can run the **metastat|grep %** command.

**Step 19** Start all BTS 10200 platforms.

```
<hostname>#platform start -nocopy
```

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