SMC Client/Server Implementation

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1 Introduction to SMC Client/Server Operations

The Oracle StorageTek SMC product offers a client/server feature that allows you to execute SMC and HSC on different MVS hosts, or LPARs. Note that the SMC Client/Server feature uses only software executing on z/OS.

1.1 Benefits of Using SMC Client/Server Feature

Why should customers change from executing HSC on each host to running the SMC client/server feature?

There are several major benefits for all customers:

- Reduce global tape outages. When HSC is recycled on one host, the SMC client/server feature automatically switches communication to an alternate host. There is no limit to the number of alternate HSC servers that can be defined.
- Reduce host-to-host communication (COMMPATH) bottlenecks. When the number of active HSC hosts in a TapePlex is reduced to two, or possibly three, the COMMPATH message traffic between HSC hosts is correspondingly reduced.
- Reduce CDS contention. Sharing the CDS between a smaller number of HSC hosts reduces the time spent waiting for the CDS reserve.
- Reduce library contention. In particular, reducing the number of HSC hosts sharing long SL8500 library strings significantly improves library performance and also reduces load on the library for COMMPATH LMU traffic.

For VSM customers, running the SMC client/server feature has additional benefits:

- Since VTCS is a major generator of host-to-host communication messages, reduction of the number of hosts is especially beneficial in a VSM environment. Although the VTCS facility that allows putting VTCS locks in the z/OS Coupling Facility may alleviate this issue for some customers, it cannot be used when different LPARs in the same TapePlex are in different sysplexes.
- In a VSM environment, VTCS does most of the CDS updates. By reducing CDS contention between hosts, CDS (and thus HSC/VTCS) performance may improve dramatically.
- Directing all VTCS requests to a single host (with a second HSC/VTCS system acting only as a backup server) allows VTCS to optimize its internal resource management, especially migrates and recalls.
- Internal scratch cache consistency is maintained automatically, improving scratch selection performance.

- Management of RTD and MVC resources is more efficient if done by a single host.

1.2 SMC Client/Server and Cross TapePlex Replication

The VTCS Cross-TapePlex Replication feature, introduced in ELS 7.0, uses the services of SMC-defined TapePlexes and servers to send VTV metadata to the TapePlex receiving VTV data.

If you decide to use the Cross TapePlex Replication feature, you will need to define TapePlexes and servers in your SMC configuration, and the ability to send VTV data to another TapePlex is dependent on the TCP/IP communication between the sending and receiving TapePlexes. Once you have set up your SMC configuration for Cross TapePlex Replication, you are well on the way to reducing the number of LPARs running HSC/VTCS in all TapePlexes.

1.3 MVS/CSC and LibraryStation

Note that beginning with ELS 7.0, communication between MVS/CSC and LibraryStation is no longer supported. MVS/CSC is still supported for customers using ACSLS for library management software, and LibraryStation is still supported for non-mainframe clients using HSC for library management software. However, for customers using only z/OS clients and servers, the only supported option is the SMC client server feature.

2 Getting Started with Client Server

The following steps should be performed before attempting to implement a client server environment.

- Read the Configuring and Managing SMC Chapter 3 (ELS 7.0) or SMC SMC Configuration and Administration Guide Chapter 2 (NCS 6.1 and 6.2).

- In ELS 7.0 the HTTP server functionality is included with SMC as part of the global FMID; no special installation procedure is required.

- If you are running a release prior to ELS 7.0, install the software for the StorageTek HTTP Server (FMID SSKY500), distributed with the NCS installation tape. Review the NCS Installation Guide description of the HTTP server parameters recommended for running the HTTP Server with SMC.

- Develop a plan for your final client server configuration, including the LPARs on which you will execute HSC, TapePlex and server names, and port addresses. Since connections between the client and server are not persistent (each transaction is its own connection), there is no limit to the number of clients that can connect to a single server. An extended simulation in the lab sustained a workload of approximately 300 virtual mounts per minute with one HSC and HTTP server. Therefore, at this time we do not recommend adding additional servers, even if you have a large number of clients and a high transaction volume. You may, however, wish to define more servers for redundancy, but only *execute* HSC/VTCS on two (or possibly three) at any one time.

- Review your HSC LIBGEN to ensure that all library drives are defined for the hosts where you plan to run HSC. If any library drive is not defined to HSC, it cannot be used by the SMC client. Note that SMC client hosts do *not* need to be defined in the LIBGEN.

- If drives have different device addresses on different hosts, or if different hosts define the same device addresses for different physical devices, see Section 8.1 SMC Release Drive Address Mapping.

- Define an OMVS segment in RACF for the user ID associated with SMC, in order to allow the SMC address space to use the communication facility. Refer to the IBM document *OS/390 IBM Communications Server IP Migration Guide* for a description of how to do this.

2.1 Client Server VTCS Considerations

If VTCS is installed on your system, ensure that both the VTCS CONFIG and the MVS HCD on the hosts where you plan to run HSC define all VTDs. VTDs do not need to be online to the server host, but the server host must have a CHPID to all VTSSs accessed by client systems, for sending ECAM messages to the VTSS.

If all VTDs are not currently defined to the server host, execute the VTCS CONFIG utility to update the server host VTD definitions. For example, assume you plan to run the HSC as a server on MVSA and have the following HOST statement in your VTCS CONFIG:

```
HOST NAME=MVSA
       VTD LOW=9000 HIGH=901F
```

Add the following statement as follows and execute the VTCS CONFIG utility:

```
VTD LOW=9020 HIGH=903F NOVERIFY
```

3 Client Server in a JES3 Environment

In general client server in JES3 has the same requirements as in JES2. However, it is important to note that in JES3 the allocation will be performed by a JES3 GLOBAL host while message processing may be done by the JES3 LOCAL host. The HSC designated as the server for BOTH the GLOBAL and LOCAL hosts must have all device addresses defined in the LIBGEN and VTCS CONFIG, and all virtual device addresses must be defined in the HCD of the server host.

4 SMC Command Parameter Recommendations

The following section describes several SMC command parameters that may affect your environment.

4.1 TCPIP Command Parameters

With PTF L1A00MR (SMC 6.1) or L1A00N1 (SMC 6.2) applied, or base ELS 7.0, by default your SMC subsystem will start a communications monitor task. The primary functions of the communications monitor are:

- If there are currently no active server paths, attempt to communicate to each path in sequence to establish a path. If a path is successfully established, pending mounts are redriven.

- If the SMC is currently active on a server path other than the first server defined ("primary" server), attempt to communicate with the first server in the list. If communication can be re-established, switch the current active path back to the primary server.

- In addition, the communications monitor task periodically checks for pending mounts that have been requested but not satisfied. Virtual mounts are automatically re-driven.

4.1.1 TCPIP MONITOR Parameter

By default the communication monitor is active when SMC is recycled after the PTF is applied.   You can disable the monitor by specifying TCPIP MONITOR(OFF).   The default value is 60, meaning that the monitor functions are repeated every 60 seconds.

4.1.2 TCPIP PREFPRIMARY Parameter

By default the communication monitor the communication monitor prefers the primary (first defined) server. You can alter this behavior to revert to the previous SMC behavior (no automatic server switch as long as there is an active communication path) by specifying TCPIP PREFPRIM(OFF).

4.2 TAPEPLEX Command Parameters

In SMC 6.2 the term "TapePlex" was introduced to replace the somewhat ambiguous term "LIBRARY." The remainder of this document will use the new terminology. If you are executing on SMC 6.1, you will need to use the term "LIBRARY" where the document specifies "TAPEPLEX."

4.2.1 TAPEPLEX WTORDEST Parameter

The WTORDEST parameter provides the ability to relay HSC WTOR messages associated with mounts (such as scratch shortage, volume not in the library, etc.) to the SMC client console. Depending on your operation and

your automated message handling, you may want to set the WTORDEST(CLIENT) option on the TapePlex to allow responses to be entered from the client console rather than the HSC server console. WTORDEST(CLIENT) is honored when the HSC server is either local or remote. Note that not all HSC WTOR messages honor the WTORDEST setting. See the Configuring and Managing SMC (ELS 7.0) or SMC Configuration and Administration Guide (NCS 6.1 and 6.2) for the list of WTORDEST HSC messages.

4.3 SERVER Command Parameters

4.3.1 SERVER WAIT Parameter

The WAIT parameter indicates the number of seconds that SMC will wait for a response before it assumes that a communication or server problem exists. By default, SMC waits 300 seconds (5 minutes) for a response to a mount or dismount request. If the specified WAIT parameter is less than the mount default, it applies *only* to allocation volume lookup requests; if the specified WAIT parameter is greater than the mount default, it applies to all requests. The default WAIT value of 60 seconds is adequate in most installations. However, if your HSC CDS backup runs longer than the WAIT time, allocation volume lookup requests will time out and cause server switching to a different HSC system, which will also be unable to respond to the request during the backup window. Therefore, you should set your WAIT parameter to match the normal execution time of your CDS backup job.

4.3.2 SERVER INITFAIL Parameter

Note that the INITAIL parameter has been functionally replaced by the SMC Communications Monitor (PTF L1A00MR for 6.1 and L1A00N1 for 6.2). With this PTF applied, the Communication Monitor is in charge of retrying when there is no active communication link, and a server is never disabled due to communication failures. The INITFAIL parameter is ignored in the base ELS 7.0 code and in SMC releases 6.1 and 6.2 with the Communications Monitor PTF applied.

4.3.3 SERVER FAIL Parameter

Note that with the Communication Monitor feature, a server is never disabled due to communication errors. The FAIL parameter is ignored in the base ELS 7.0 code and in SMC releases 6.1 and 6.2 with the Communications Monitor PTF applied.

4.3.4 SERVER RETRY Parameter

The RETRY parameter indicates the number of times SMC will retry sending a specific message to the server. The default value of 3 is usually sufficient, but you may want to increase this value depending on your network reliability. If an error occurs when the message is sent to the server, SMC waits one second and then retries, up to the maximum number of retries specified. If a message is successfully sent during one of the retries, it is not counted as an

error and is not added to the FAIL count. If the error occurs in receiving the response, for non-mount requests SMC waits the specified server WAIT time, then retries the request up to the specified number of retries. For mount requests, SMC tracks the mount failure on the drive and redrives the mount once a successful request to the server is processed, if the mount is still outstanding.

4.4 ALLOCDEF Command Parameters

4.4.1 ALLOCDEF FAILNOINFO Parameter

The ALLOCDEF command FAILNOINFO parameter may be used to indicate how allocation should be managed when SMC is unable to determine volume information due to the inability to communicate with one or more TapePlexes. When SMC is unable to obtain volume information from the server, it is unable to exclude drives from allocation that are unsuitable, and may, for example, allow a virtual volume to be allocated to a real tape drive. By specifying the FAILNOINFO parameter, you can cause the job to fail at allocation rather than forcing the job to be cancelled when a volume cannot be mounted. FAILNOINFO values are ON, OFF, and SPECIFIC. If FAILNOINFO SPECIFIC is specified, and SMC communicates with a TapePlex that recognizes the specific volume, the unavailable TapePlex is ignored. If FAILNOINFO ON is specified, and SMC communicates with a TapePlex that recognizes the specific volume or has available scratch volumes based on the policy, the unavailable TapePlex is ignored.

4.5 UNITATTR Command Parameters

4.5.1 UNITATTR TAPEPLEX Parameter

The TAPEPLEX parameter is added to the UNITATTR command in SMC 6.2 to allow a TapePlex name to be specified for a device address or range of device addresses. This parameter can be used to define drives as belonging to a TapePlex before the HSC associated with the TapePlex is active. This allows the SMC to manage the re-drive of mounts associated with the devices using defined policy information (such as scratch subpool). The TAPEPLEX parameter may also be used to define which TapePlex SMC should consider the "owner" of a device address that is defined in more than one HSC TapePlex.

4.6 HTTP Command (SMC 7.0)

In ELS 7.0 the HTTP server is now a function within the SMC subsystem. This function replaces the requirement for a separate HTTP server address space. The HTTP server function should be started only on hosts where there is an active HSC subsystem. The normal format of the SMC HTTP command is:

```
HTTP START PORT(port_number)
```

Additional parameters are described in the ELS 7.0 Command, Control Statement, and Utility Reference.

5 Converting to SMC Client Server (HSC Only)

Assume that you are currently executing HSC and SMC on a number of LPARs and want to convert to a client server environment. The following steps are an example of a plan to get to your desired configuration:

1. Plan your final configuration before you start (see Section 2).

2. Select one of your server hosts currently running HSC, and start the HTTP server on that host. For the purposes of this example, assume that the TCP/IP host name for this server host is MVSA. On the SMC executing on MVSA, add the following SMC command to the the SMCCMDS dataset:

    ```
    HTTP START PORT(8888)
    ```

    In ELS 7.0 and above, the SMC HTTP server is started as a separate subtask under the SMC subsystem. In NCS 6.1 and 6.2, the STK HTTP server is started as a separate subsystem.

3. Select a "pilot" client host, and define appropriate TapePlex and SERVER statements. For the purposes of this example, assume that the TCP/IP hostname for this pilot client host is MVSB. Define the HSC on the pilot host as the local subsystem for the tapeplex. On the SMC executing on MVSB, add the following SMC commands to the SMCCMDS dataset::

    ```
    TAPEPLEX NAME(HSCLIB) LOCSUB(HSC0)

    SERVER NAME(SRV1) TAPEPLEX(HSCLIB) HOST(MVSA) PORT(8888)
    ```

4. Start the SMC client as usual. Then disable the local subsystem and attempt to communicate with the server:

    ```
    TAPEPLEX NAME(HSCLIB) LOCDIS

    RESYNC
    ```

5. Verify that you are successfully communicating with the remote TapePlex by examining the output of the RESYNC command.

6. Once your client server configuration is working for the pilot client host, start the HTTP server on a second HSC server host. For the purposes of this example, assume that the TCP/IP host name for this second server host is MVSC. In ELS 7.0 and above the SMC HTTP server is started as a separate subtask under the SMC subsystem. In NCS 6.1 and 6.2, the STK HTTP server is started as a separate subsystem.

7. Define the second server as an alternate for the first server for the pilot client SMC executing on MVSB:

```
SERVER NAME(SRV2) TAPEPLEX(HSCLIB) HOST(MVSB) PORT(8888)
```

8. On the pilot client SMC executing on MVSB, disable the first server and and issue the SMC RESYNC command to verify that you can communicate with the second server:

```
SERVER NAME(SRV1) DISABLE

RESYNC
```

9. Re-enable the first server and force a switch back to it:

```
SERVER NAME(SRV1) ENABLE

RESYNC RESTART
```

    Any local HSC system that was executing on MVSB is now replaced by the HSC servers on MVSA or MVSC. The local HSC system executing on MVSB can now be eliminated.

10. Continue to convert additional client hosts in a similar manner until you reach your desired final configuration. In this example we have HTTP servers and HSC subsystems operating on MVSA and MVSC (sharing the same CDS and harware configuration). The SMC client on MVSB has primary and secondary server paths defined to MVSA and MVSC. Additional SMC clients with TAPEPLEX and SERVER definitions identical to those defined for the SMC executing on MVSB can be added as required. Theoritically, an unlimited number of SMC clients can be added without adding any more HTTP servers or LPARs running HSC/VTCS servers.

6 Converting from MVS/CSC and LibraryStation

In ELS 7.0 the ability to communicate between MVS/CSC and LibraryStation has been disabled, since the SMC client server solution provides the same functionality. (NOTE: MVS/CSC communicating with ACSLS and LibraryStation communicating with open clients will continue to be supported.) This section describes conversion of MVS/CSC and LibraryStation to the HTTP server and assumes NCS 6.1 or 6.2.

To convert from MVS/CSC and LibraryStation to SMC client server, the following steps are recommended:

1. Review the Section Getting Started with Client Server for pre-planning activities.

2. Ensure that you define TAPEPLEX statements for all your MVS/CSC hosts. Although SMC by default will detect the active MVS/CSC systems and communicate with them, you will need to define the TapePlexes explicitly to use SMC client server. For example, if you are executing both HSC and MVS/CSC on a client host, you would specify:

   ```
   TAPEPLEX NAME(HSCLIB) LOCSUB(HSC1)

   TAPEPLEX NAME(CSCLIB) LOCSUB(CSC1)
   ```

3. Bring up the HTTP server on the host(s) where you are currently executing LibraryStation communicating with MVS/CSC. For the purposes of this example, assume that the TCP/IP host name where the HTTP server and LibraryStation are executing is MVSA. In NCS 6.1 and 6.2, the STK HTTP server is started as a separate subsystem.

4. Select one of the hosts currently executing MVS/CSC communicating with LibraryStation and define SMC TapePlex and SERVER commands to communicate directly with HSC on MVSA:

   ```
   TAPEPLEX NAME(REMLIB)

   SERVER NAME(SRV1) TAPEPLEX(REMLIB) HOST(MVSA) PORT(8888)
   ```

5. Disable the MVS/CSC TapePlex, and issue the RESYNC command to verify that communication was established:

   ```
   TAPEPLEX NAME(CSCLIB) DISABLE

   RESYNC
   ```

6. Note that you cannot define a SERVER for an MVS/CSC TapePlex, and that SMC will not fail over between MVS/CSC and SMC client server.

7. If you have multiple LibraryStation servers defined, define an SMC SERVER corresponding to each LibraryStation host.

8. Once your SMC client server system is operational, you can stop the MVS/CSC executing on the client host.

9. Repeat the process for each host executing MVS/CSC communicating with LibraryStation.

10. Once all MVS/CSC systems are no longer active, stop the LibraryStation server(s) on the HSC host(s):

```
LS STOP
```

11. Congratulations, you have now successfully converted from MVS/CSC and LibraryStation to SMC client server.

7 SMC Communication Error Messages

An error message is issued for the first error detected when SMC attempts to communicate with the server. Subsequent error messages are produced periodically until the communication is successful or the server is disabled.

SMC communication errors generate a single SMC0128 message as a multi-line WTO.

8 Other SMC Release Considerations

SMC 6.1, 6.2, and 7.0 provide complete compatibility between clients and servers running any of these releases.

8.1 SMC Release Drive Address Mapping

If your SMC client communicates with more than one HSC TapePlex (represented by separate HSC CDSs), there are some special considerations.

In SMC 6.2 the POLICY parameter associated with TAPEREQ can be used to specify a TapePlex name for drive allocation.

8.1.1 Drive Mapping Scenario 1

SMC provides device address mapping capabilities to allow you to manage an environment where drive addresses are different on different hosts. The following example illustrates the use of the drive mapping feature in a complex multiple TapePlex environment.
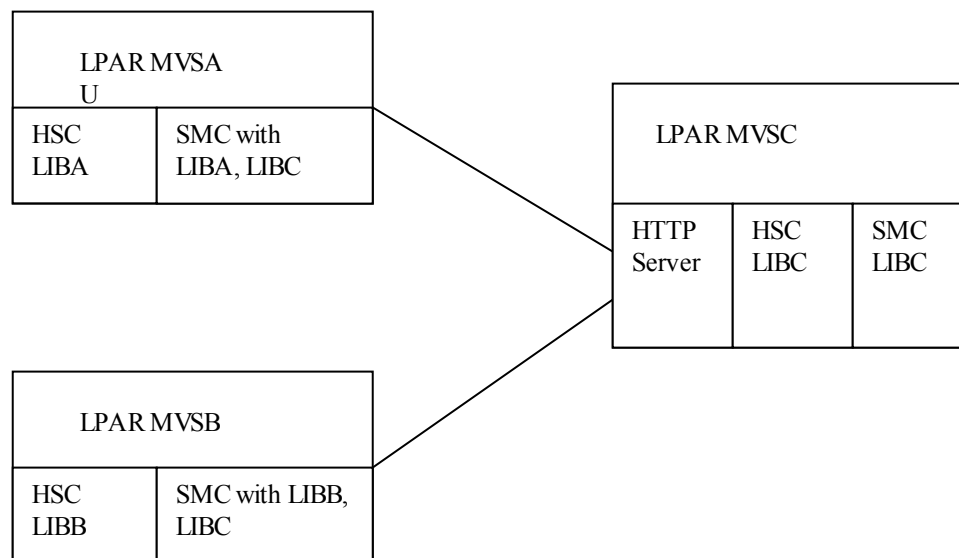
Drive Mapping Scenario #1

In Drive Mapping Scenario #1, assume that each HSC (on MVSA, MVSB, and MVSC) is a different physical TapePlex configuration with a different CDS, and that each LPAR is executing SMC. On MVSA and MVSB the SMCs access both their local TapePlex and the remote TapePlex on MVSC. Next assume the following device address configuration:

On MVSA, the tape UCBs 0800-080F, 0900-090F, and 9000-903F exist. The drives 0800-080Fare real drives in the HSC called LIBA, the drives 0900-

090F are real drives in the HSC called LIBC, and the drives 9000-903F are virtual drives in the HSC called LIBC.

On MVSB, the tape UCBs 0900-090F, 0A00-0A0F, and 9000-901F exist. The drives 0900-090F are real drives defined in the HSC called LIBB, the drives 0A00-0A0F are real drives in the HSC called LIBC, and the drives 9000-901F are virtual drives in the HSC called LIBC. (Note that the drives 0900-090F are physically different devices from the ones on MVSA defined in LIBC).

On MVSC the tape UCBs 0900-090F, 0A00-0A0F, and 9000-901F exist, and all are defined in the HSC called LIBC.

In SMC if the same device address is reported by multiple TapePlexes, the TapePlex that SMC will consider as the drive owner is unpredictable. To ensure that the device UCB address on the client maps to the correct device address on the server, Oracle recommends that you use the HSC and SMC drive mapping features to avoid conflicts in the device addresses. To do this in this example:

1. Execute the HSC SLUADMIN SET utility on the HSCs which have conflicting drive addresses to create a new "dummy" drive host and establish it as the drive host name. In the example, the utility would be executed on hosts MVSB and MVSC. Sample control statements on MVSB:

```
SET NEWHOST(DUMMYDRV) LIKEHOST(MVSB)

SET DRVHOST(DUMMYDRV)
```

On MVSC:

```
SET NEWHOST(DUMMYDRV) LIKEHOST(MVSC)

SET DRVHOST(DUMMYDRV)
```

This suggestion assumes that your HSC CDS does not contain the maximum of 16 hosts already defined. If you have no empty host "slots", one alternative is to plan your client server conversion so that you first convert hosts that do not have overlapping device addresses, in order to free up a host slot to use as the drive host. Another possibility is to define the host where you plan to run the HSC as the DRVHOST, and follow the remaining steps in this procedure. One disadvantage of using a "real" host as the dummy drive host is that HSC messages may show dummy device addresses instead of the real addresses.

2. Select dummy device addresses to use to replace those that are duplicated. These addresses should not be defined in any system as a tape device, but they may be either disk device addresses or unused device addresses in your configuration. For the example, select 0E00-0E0F and 0F00-0F0F as the "dummy" addresses for the two versions of 0900-090F. Run the SET SLIDRIVS utility to assign the dummy addresses to the dummy drive host, on MVSB:

```
SET SLIDRIVS(0E00-0E0F) FORLSMID(00:00) FORPANEL(0) +
FORHOST(DUMMYDRV)
```

On MVSC:

```
SET SLIDRIVS(0F00-0F0F) FORLSMID(00:00) FORPANEL(0) +
FORHOST(DUMMYDRV)
```

3. For the virtual drives on MVSC, execute the CONFIG utility to add the DUMMYDRV HOST. Note that the DUMMYDRV HOST must be defined for VTCS even though the drive addresses are the same and are not mapped to different addresses.

    a. Run the VTCS DECOM utility to create a current version of your VTCS configuration. The following example shows a portion of the VTCS DECOM output for a sample configuration:

```
NAME=VTSS1 LOW=70 HIGH=80 MAXMIG=3 RETAIN=5
HOST NAME=MVSC
     VTD LOW=9000 HIGH=901F
HOST NAME=DUMMYDRV
```

    b. Edit the DECOM CONFIG output to add the VTD addresses to the DUMMYDRV host. If the VTD addresses are different for different hosts, you should assign dummy addresses to the VTDs.

    c. Ensure that all VTDs accessible to any client are defined for all hosts that will execute as servers. The VTD statements for server hosts should include the NOVERIFY option for the devices that are not actually defined to the server host. (Note that the NOVERIFY option is not required on the DUMMYDRV host, since HSC/VTCS will never be started on a host named DUMMYDRV.) The following is an example of the CONFIG input after modification:

```
NAME=VTSS1 LOW=70 HIGH=80 MAXMIG=3 RETAIN=5
HOST NAME=MVSC
     VTD LOW=9000 HIGH=901F
     VTD LOW=9020 HIGH=903F NOVERIFY
HOST NAME=DUMMYDRV
```

```
        VTD LOW=9000 HIGH=903F
```

   d. Alternatively, assume that the device addresses of the VTDs
      are different on some hosts. In that case you would define the
      VTD addresses for the DUMMYDRV host to be alias device
      numbers, for example:

```
NAME=VTSS1 LOW=70 HIGH=80 MAXMIG=3 RETAIN=5
HOST NAME=MVSC
        VTD LOW=9000 HIGH=901F
        VTD LOW=9020 HIGH=903F NOVERIFY
HOST NAME=DUMMYDRV
        VTD LOW=F000 HIGH=F03F
```

   e. Execute the CONFIG utility with the updated input.

4. Recycle HSC on the hosts where the CDS was updated (MVSB and
   MVSC in this example). (Note: the SET utility can be run with hosts
   active, but the change is not recognized until HSC is recycled.)

5. Issue the SMC DRIVEMAP command for each SMC, or update the
   SMCCMDS dataset and recycle the SMCs. The SMC DRIVEMAP
   command maps the HSC DRVHOST device addresses to the LPAR
   UCB addresses. For the SMC on MVSA and MVSC:

```
DRIVEMAP CLIENT(0900-090F) SERVER(0F00-0F0F)
```

   For the SMC on MVSB:

```
DRIVEMAP CLIENT(0900-090F) SERVER(0E00-0E0F)
```

   Note that the SMC on host MVSC uses the DRVHOST device
   addresses even though its own host ID (MVSC) is defined in the HSC
   CDS, and therefore it also requires a DRIVEMAP command to map
   the addresses.

6. If you have VTCS and have used the DUMMYDRV host to set up
   dummy VTD addresses, issue SMC DRIVEMAP commands for all
   client hosts to map the client UCB drive addresses to the DUMMYDRV
   virtual drive addresses. In the example above, where the VTDs were
   assigned drive addresses F000-F03F in the DUMMYDRV host in the
   VTCS CONFIG, the following DRIVEMAP command would be used
   on the SMC on MVSA:

```
DRIVEMAP CLIENT(9000-903F) SERVER(F000-F03F)
```

   On MVSB and MVSC:

```
DRIVEMAP CLIENT(9000-901F) SERVER(F000-F01F)
```

8.1.2 Drive Mapping Scenario 2

Another scenario that may require the use of drive mapping is a device address which may be switched between two TapePlexes. For example, assume that device address 0800 on host MVSA normally maps to a drive in HSCA, for example, ACS 00, LSM 00, panel 0, slot 0. Assume that under some circumstances cables are switched so that device address 0800 is physically controlled by HSCB, ACS 01, LSM 01, panel 0, slot 0. Again the drive mapping feature in HSC and SMC can be used to tell SMC which TapePlex controls device number 0800.

Similar to Drive Mapping Scenario #1, the shared address should be mapped in both HSC systems to different unique device addresses using the DRVHOST facility. Assume you set the DRVHOST on HSCA so that the drive at ACS 00, LSM 00, panel 0, slot 0 is specified as 0900. Similarly, set the DRVHOST on HSCB so that the drive at ACS 01, LSM 01, panel 0, slot 0 is specified as 0A00. Use the SMC DRIVEMAP command to map the client drive address 0800 to the default drive.

```
DRIVEMAP CLIENT(0800) SERVER(0900)
```

This will cause SMC to direct mounts to 0800 to TapePlex HSCA, ACS 00, LSM 00, panel 0, slot 0. If the drive is physically switched, update the drive map by issuing the following commands to SMC:

```
DRIVEMAP OFF

DRIVEMAP CLIENT(0800) SERVER(0A00)

RESYNC
```

When these commands are issued, SMC will refresh its drive information and will now direct mounts to 0800 to TapePlex HSCB, ACS 01, LSM 01, panel 0, slot 0.

8.1.3 Drive Mapping Scenario 2: An Alternative Approach

Another alternative in this scenario is to use the SMC UNITATTR command to define the TapePlex which "owns" the drive that represents the device address on the SMC host. For example, assume that two TapePlexes, HSCA and HSCB, both have a VTD range from 9000-90FF, but these devices are in two physically different VTSSs. A host MVSA has UCBs defined for the address range of 9000-90FF, and has TAPEPLEX statements pointing to both HSCA and HSCB. These UCBs are actually mapped to the VTSS defined in HSCB. The following SMC UNITATTR statement directs SMC to use the HSCB definition of these drives and not the HSCA version:

```
UNITATTR ADDR(9000-90FF) MODEL(VIRTUAL) TAPEPLEX(HSCB)
```

When SMC communicates with TapePlex HSCA, it ignores any references to addresses 9000-90FF. In addition, when SMC communicates with TapePlex HSCB, the drive model for these device addresses from HSC or VTCS overrides the MODEL parameter specified in the UNITATTR statement.