



CITI TECHNOLOGY INFRASTRUCTURE (ASIA PACIFIC)

Storage Integration

VALIDATION/HANDOVER TECHNICAL DOCUMENT

AP-CTI-GDCS - Proximity Risk Migration Program

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SPONSORING BUSINESS	CTI
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**CHANGE HISTORY**

Item No	Section Amended	Amended By	Amendment Date	Version No.	Description of the Change
1	First Release			1.0	Initial Version
2	Set-up, Operating & COB Procedures	Daniel, Edwin & Maria	09 November 2007	2.0	Included feedback from Storage Engineering & Operations
3	Open systems	Shaji Vasudevan	06 December 2007	3.0	Open Systems.



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APPROVALS

STORAGE INTEGRATION Validation/Handover Technical Document for AP-CTI-GDCS - PROXIMITY RISK MIGRATION PROGRAM

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1. SCOPE

IN-SCOPE - MAINFRAME

To set-up the storage and tape backup infrastructure that is required for the *Hong Kong Off-Country COB project* using the following:

- DISK Subsystem – EMC DMX and HDS USP
- TAPE Subsystem– IBM TS7740 and IBM TS3500

Also, to set-up the long distance remote mirroring technology to mirror data from Singapore to Hong Kong using EMC SRDF/A and HDS HUR.

Environment covered in the implementation are the production LPARs only. All countries except for Poland are included in the HK COB replication.

IN-SCOPE - MIDRANGE

To set-up the storage and tape backup infrastructure that is required for the *Hong Kong Off-Country COB project* using the following:

- DISK Subsystem – EMC DMX, Centera and HDS USP
- Connectivity – Connectrix SAN Switch, 2640 Router.
- TAPE Subsystem– Centricstor, L700e, SL8500

Also, to set-up the long distance remote mirroring technology to mirror data from Singapore to Hong Kong using EMC SRDF/A, Centera Replication and HDS HUR.

Environment covered in the implementation are the Production/COB environments only. All countries except for Poland are included in the HK COB replication.

OUT OF SCOPE - MAINFRAME

Not included in the scope are

- Set-up of network infrastructure related in setting-up the storage and tape backup infrastructure for *Hong Kong Off-Country COB project*.
- Set-up of Host Infrastructure related to storage connectivity.
- Poland application files are not included in the HK COB replication.

OUT OF SCOPE - MIDRANGE

Not included in the scope are:

- Set-up of network infrastructure related in setting-up the storage and tape backup infrastructure for *Hong Kong Off-Country COB project*.

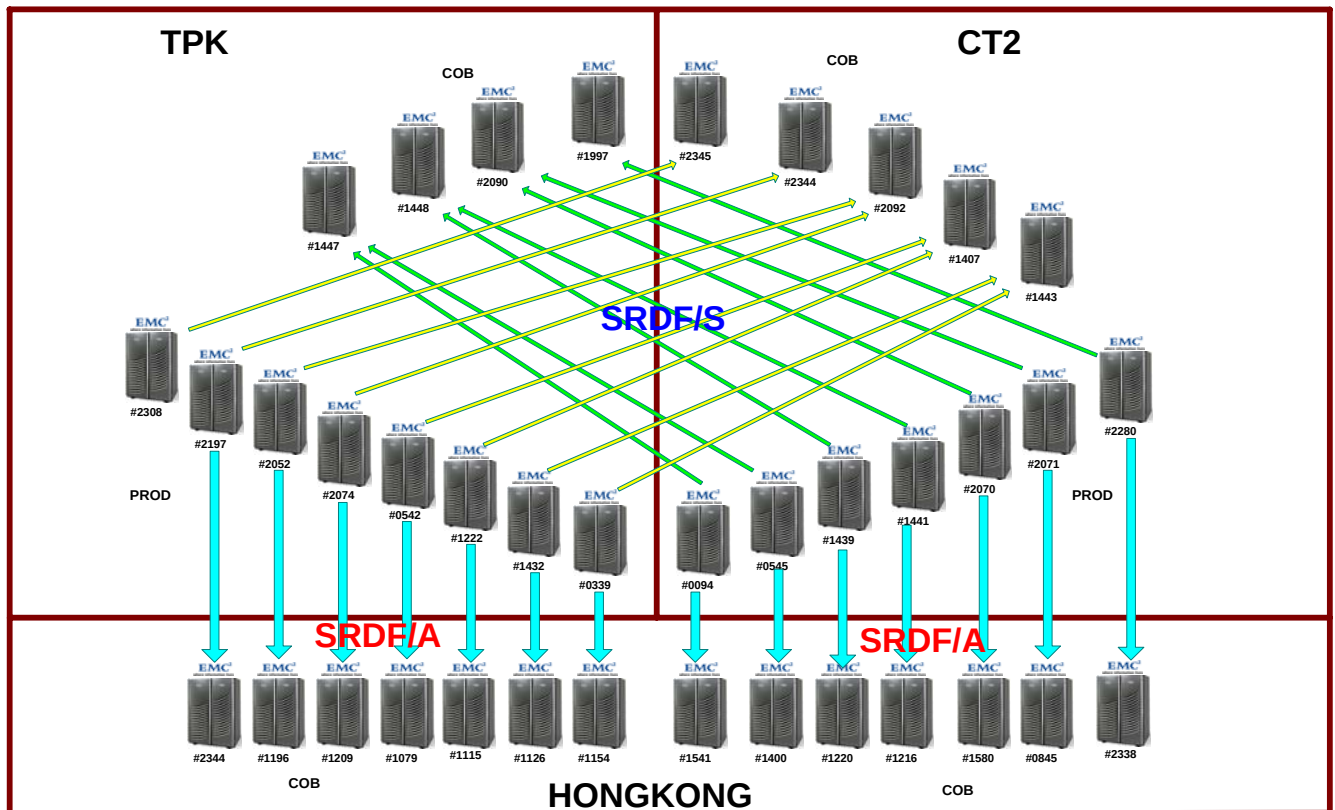
Set-up of Host Infrastructure related to storage connectivity.



2. BUILD DOCUMENTATION

A.1 EMC STORAGE INFRASTRUCTURE - MAINFRAME

Hardware Configuration



* EMC Box #2308 does not have replication in Hongkong because it contains Poland Datasets. Poland has not yet given their approval to have their COB environment in HongKong.



Hardware Mapping

CINTECH SP03/SP04

CINTECH--DMX2280	Hong Kong-DMX2338	
R1	R2	BCV
MVS address : 9000-906F	MVS address : 6000-606F	MVS address : 7000-706F
Internal device : 040-0AF	Internal device : 040-0AF	Internal Device : AC0-B2F
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : 9200-926F	MVS address : 6200-626F	MVS address : 7200-726F
Internal device : 0B0-11F	Internal device : 0B0-11F	Internal Device : B30-B9F
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : 9400-946F	MVS address : 6400-646F	MVS address : 7400-746F
Internal device : 120-18F	Internal device : 120-18F	Internal Device : BA0-C0F
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : 9600-966F	MVS address : 6600-666F	MVS address : 7600-766F
Internal device : 190-1FF	Internal device : 190-1FF	Internal DeviceE : C10-C7F
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : 9800-986F	MVS address : 6800-686F	MVS address : 7800-786F
Internal device : 200-26F	Internal device : 200-26F	Internal DeviceE : C80-CEF
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : 9A00-9A6F	MVS address : 6A00-6A6F	MVS address : 7A00-7A6F
Internal device : 270-2DF	Internal device : 270-2DF	Internal DeviceE : CF0-D5F
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144

CINTECH--DMX0094	Hong Kong-DMX1541	
R1	R2	BCV
MVS address : C000-C09F	MVS address : A000-A09F	MVS address : B000-B09F
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : C200-C29F	MVS address : A200-A29F	MVS address : B200-B29F
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : C400-C49F	MVS address : A400-A49F	MVS address : B400-B49F
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : C600-C69F	MVS address : A600-A69F	MVS address : B600-B69F
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal DeviceE : C20-CBF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96



CINTECH--DMX545	Hong Kong-DMX1400	
R1	R2	BCV
MVS address : C100-C19F	MVS address : A100-A19F	MVS address : B100-B19F
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : C300-C39F	MVS address : A300-A39F	MVS address : B300-B39F
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : C500-C59F	MVS address : A500-A59F	MVS address : B500-B59F
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : C700-C79F	MVS address : A700-A79F	MVS address : B700-B79F
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal DeviceE : C20-CBF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96

CINTECH--DMX1439	Hong Kong-DMX1220	
R1	R2	BCV
MVS address : C900-C99F	MVS address : A900-A99F	MVS address : B900-B99F
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : CB00-CB9F	MVS address : AB00-AB9F	MVS address : BB00-BB9F
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96

CINTECH--DMX1441	Hong Kong-DMX1216	
R1	R2	BCV
MVS address : C800-C89F	MVS address : A800-A89F	MVS address : B800-B89F
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : CA00-CA9F	MVS address : AA00-AA9F	MVS address : BA00-BA9F
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : CC00-CC9F	MVS address : AC00-AC9F	MVS address : BC00-BC9F
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : CE00-CE9F	MVS address : AE00-AE9F	MVS address : BE00-BE9F
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal DeviceE : C20-CBF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96



CINTECH--2070	Hong Kong-DMX1580	
R1	R2	BCV
MVS address : 9100-919F	MVS address : 6100-619F	MVS address : 7100-719F
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : 9300-939F	MVS address : 6300-639F	MVS address : 7300-739F
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : 9500-959F	MVS address : 6500-659F	MVS address : 7500-759F
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : 9700-978F	MVS address : 6700-678F	MVS address : 7700-778F
Internal device : 1E0-26F	Internal Device : 220-2AF	Internal DeviceE : C20-CAF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96

CINTECH--DMX2071	Hong Kong-DMX0845	
R1	R2	BCV
MVS address : 9900-999F	MVS address : 6900-699F	MVS address : 7900-799F
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : 9B00-9B9F	MVS address : 6B00-6B9F	MVS address : 7B00-7B9F
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : 9D00-9D9F	MVS address : 6D00-6D9F	MVS address : 7D00-7D9F
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : 9F00-9F9F	MVS address : 6F00-6F9F	MVS address : 7F00-7F9F
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal DeviceE : C20-CBF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96

**CINTECH SPJ1/SPJ2**

CINTECH--DMX1439	Hong Kong-DMX1220	
R1	R2	BCV
MVS address : CD00-CD9F	MVS address : AD00-AD9F	MVS address : BD00-BD9F
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : CF00-CF9F	MVS address : AF00-AF9F	MVS address : BF00-BF9F
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal DeviceE : C20-CBF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96

CINTECH--2070	Hong Kong-DMX1580	
R1	R2	BCV
MVS address : 9790-979F	MVS address : 6790-679F	MVS address : 7790-779F
Internal device : 270-27F	Internal Device : 2B0-2BF	Internal DeviceE : CB0-CBF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96

TELEPARK SP05/SP06

TELEPARK--DMX2197	Hong Kong-DMX2344	
R1	R2	BCV
MVS address : C600-C66F	MVS address : C600-C66F	MVS address : 4600-466F
Internal device : 040-0AF	Internal device : 040-0AF	Internal Device : AC0-B2F
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : CA00-CA6F	MVS address : CA00-CA6F	MVS address : 4A00-4A6F
Internal device : 0B0-11F	Internal device : 0B0-11F	Internal Device : B30-B9F
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : CC00-CC6F	MVS address : CC00-CC6F	MVS address : 4C00-4C6F
Internal device : 120-18F	Internal device : 120-18F	Internal Device : BA0-C0F
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : CE00-CE6F	MVS address : CE00-CE6F	MVS address : 4E00-4E6F
Internal device : 190-1FF	Internal device : 190-1FF	Internal DeviceE : C10-C7F
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : 9C00-9C6F	MVS address : 9C00-9C6F	MVS address : 3C00-3C6F
Internal device : 200-26F	Internal device : 200-26F	Internal DeviceE : C80-CEF
BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144	BASE Vol --112 Alias -- 144
MVS address : 9D00-9D6F	MVS address : 9D00-9D6F	MVS address : 3D00-3D6F
Internal device : 270-2DF	Internal device : 270-2DF	Internal DeviceE : CF0-D5F



BASE Vol --112 Alias -- 144

BASE Vol --112 Alias -- 144

BASE Vol --112 Alias -- 144

TELEPARK--DMX2074		Hong Kong-DMX1209	
R1	R2	BCV	
MVS address : 9000-99F	MVS address : 9000-99F	MVS address : 3000-309F	
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : 9100-919F	MVS address : 9100-919F	MVS address : 3100-319F	
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : 9200-929F	MVS address : 9200-929F	MVS address : 3200-329F	
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : 9400-949F	MVS address : 9400-949F	MVS address : 3400-349F	
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal Device : C20-CBF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	

TELEPARK--DMX2052		Hong Kong-DMX1196	
R1	R2	BCV	
MVS address : 9300-939F	MVS address : 9300-939F	MVS address : 3300-339F	
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : 9500-959F	MVS address : 9500-959F	MVS address : 3500-359F	
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : 9700-979F	MVS address : 9700-979F	MVS address : 3700-379F	
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : 9900-999F	MVS address : 9900-999F	MVS address : 3900-399F	
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal Device : C20-CBF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	

TELEPARK--DMX339		Hong Kong-DMX1154	
R1	R2	BCV	
MVS address : C000-C09F	MVS address : C000-C09F	MVS address : 4000-409F	
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : C200-C29F	MVS address : C200-C29F	MVS address : 4200-429F	
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : C400-C49F	MVS address : C400-C49F	MVS address : 4400-449F	
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	



MVS address : C800-C89F	MVS address : C800-C89F	MVS address : 4800-489F
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal DeviceE : C20-CBF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96

TELEPARK--1432		Hong Kong-DMX1126	
R1	R2	BCV	
MVS address : C900-C99F	MVS address : C900-C99F	MVS address : 4900-499F	
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : CB00-CB9F	MVS address : CB00-CB9F	MVS address : 4B00-4B9F	
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : CD00-CD9F	MVS address : CD00-CD9F	MVS address : 4D00-4D9F	
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : CF00-CF9F	MVS address : CF00-CF9F	MVS address : 4F00-4F9F	
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal DeviceE : C20-CBF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	

TELEPARK--DMX1222		Hong Kong-DMX1115	
R1	R2	BCV	
MVS address : 9600-969F	MVS address : 9600-969F	MVS address : 3600-369F	
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : 9800-989F	MVS address : 9800-989F	MVS address : 3800-389F	
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : 9A00-9A9F	MVS address : 9A00-9A9F	MVS address : 3A00-3A9F	
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : 9B00-9B9F	MVS address : 9B00-9B9F	MVS address : 3B00-3B9F	
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal DeviceE : C20-CBF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	

TELEPARK--DMX542		Hong Kong-DMX1079	
R1	R2	BCV	
MVS address : C100-C19F	MVS address : C100-C19F	MVS address : 4100-419F	
Internal device : 0-9F	Internal Device : 40-DF	Internal Device : A40-ADF	
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	
MVS address : C300-C39F	MVS address : C300-C39F	MVS address : 4300-439F	
Internal device : A0-13F	Internal Device : E0-17F	Internal Device : AE0-B7F	



BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : C500-C59F	MVS address : C500-C59F	MVS address : 4500-459F
Internal device : 140-1DF	Internal Device : 180-21F	Internal Device : B80-C1F
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96
MVS address : C700-C79F	MVS address : C700-C79F	MVS address : 4700-479F
Internal device : 1E0-27F	Internal Device : 220-2BF	Internal Device : C20-CBF
BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96	BASE Vol --160 Alias -- 96

Note: Coupling Facility Resource Manager (CFRM) volumes are excluded from the list of resources being mirrored to Hongkong.

RDF GROUP NAMING CONVENTION

TYPE	SP03/SP04	SPJ1/SPJ2	SP05/SP06
SRDFS	1 & 2	1 & 2	1 & 2
SRDFA	04 to 09, 26	20 to 21	13 to 19
SRDFA (OS-related volumes)	0F	2F	1F
Reserved	27 to 29	22 to 25	30 to 39
	0A – 0E	2A to 2E	1A to 1E



Hardware CACHE Upgrade

Cache and Microcode upgrade on EMC SYMM/DMX Storage in both Cintech and Telepark to Ver: 5671.59.64 for the SRDF/A requirement:

#	Site Loc	Vendor	Platform	Env	APPC Site Ref	Site No	Model	Serial No	Hosts	Current Code level	Upgraded Code level
1	Telepark 3	EMC	MF	PROD	T3-E-26	2376010	DMX2000	CK287750339	SP05, SP06 PRODUCTION	5670.92.84	5671.59.64
2	Telepark 3	EMC	MF	PROD	T3-E-30	2376010	DMX2000	CK287750542	SP05, SP06 PRODUCTION	5670.92.84	5671.59.64
3	Telepark 3	EMC	MF	PROD	T3-E-31	2376010	DMX2000	CK287751222	SP05, SP06 PRODUCTION	5670.92.84	5671.59.64
4	Telepark 3	EMC	MF	COB	T3-E-35	2376010	DMX2000	CK287751447	#545 & 0094 SLAVE	5671.54.59	5671.59.64
5	Telepark 3	EMC	MF	COB	T3-E-36	2376010	DMX2000	CK287751448	#1441 & 1439 SLAVE	5671.54.59	5671.59.64
6	Telepark 3	EMC	MF	PROD	T3-E-37	2376010	DMX2000	CK287751432	SP05, SP06 PRODUCTION	5670.92.84	5671.59.64
7	Telepark 3	EMC	MF	COB	T3-E-46	2376010	DMX2000	CK287752074	SP05, SP06 PRODUCTION	5670.92.84	5671.59.64
8	Telepark 3	EMC	MF	PROD	T3-E-47	2376010	DMX2000	CK287752090	#2070 & 2071 SLAVE	5671.54.59	5671.59.64
9	Telepark 3	EMC	MF	PROD	T3-E-48	2376010	DMX2000	CK287752052	SP05, SP06 PRODUCTION	5670.92.84	5671.59.64
10	CINTECH 2	EMC	MF	TEST	E-63	2376010	DMX1000	CK287460351	MVS RND	5670.94.84	5671.59.64
11	CINTECH 2	EMC	MF	TEST	E-101	2376010	DMX1000	CK287460253	MVS TEST	5671.54.59	5671.59.64
12	CINTECH 2	EMC	MF	PROD	E-62	2376010	DMX2000	SA287750094	SP03, SP04 PRODUCTION	5670.92.84	5671.59.64
13	CINTECH 2	EMC	MF	PROD	E-69	2376010	DMX2000	CK287750545	SP03, SP04 PRODUCTION	5670.92.84	5671.59.64
14	CINTECH 2	EMC	MF	COB	E-76	2376010	DMX2000	CK287751407	#1222 & 542 SLAVE	5671.54.59	5671.59.64
15	CINTECH 2	EMC	MF	COB	E-77	2376010	DMX2000	CK287751443	#1432 & 339 SLAVE	5671.54.59	5671.59.64
16	CINTECH 2	EMC	MF	PROD	E-78	2376010	DMX2000	CK287751441	SP03, SP04 PRODUCTION	5670.92.84	5671.59.64
17	CINTECH 2	EMC	MF	PROD	E-82	2376010	DMX2000	CK287751439	SP03, SP04 PRODUCTION	5670.92.84	5671.59.64
18	CINTECH 2	EMC	MF	PROD	E-91	2376010	DMX2000	CK287752070	SP03, SP04 PRODUCTION	5671.54.59	5671.59.64
19	CINTECH 2	EMC	MF	PROD	E-92	2376010	DMX2000	CK287752071	SP03, SP04 PRODUCTION	5671.54.59	5671.59.64
20	CINTECH 2	EMC	MF	COB	E-93	2376010	DMX2000	CK287752092	#2052 & 2090 SLAVE	5671.54.59	5671.59.64



SETUP OF GATEKEEPER DEVICES

Last device address of each CU is reserved as a Gatekeeper device, and status is set as offlined.

LPARS/SYSPLEX	Gatekeeper Device Addr	Device Volser
SP03/SP04	C09F	GKC09F
	C29F	GKC29F
	C69F	GKC69F
	C19F	GKC19F
	C39F	GKC39F
	C59F	GKC59F
	C79F	GKC79F
	C89F	GKC89F
	CA9F	GKCA9F
	CC9F	GKCC9F
	CE9F	GKCE9F
	C99F	GKC99F
	CB9F	GKCB9F
	919F	GK919F
	939F	GK939F
	959F	GK959F
	979F	GK979F
	999F	GK999F
	9B9F	GK9B9F
	9D9F	GK9D9F
	9F9F	GK9F9F
	906F	GK906F
	926F	GK926F
	946F	GK946F
	966F	GK966F
	986F	GK986F
	9A6F	GK9A6F
SPJ1/SPJ2	CF9F	GKCF9F
	979F	GK979F
SP05/SP06	C09F	GKC09F
	C29F	GKC29F
	C49F	GKC49F
	C89F	GKC89F
	C19F	GKC19F
	C39F	GKC39F
	C59F	GKC59F
	C79F	GKC79F



	969F	GK969F
	989F	GK989F
	9A9F	GK9A9F
	9B9F	GK9B9F
	C99F	GKC99F
	CB9F	GKCB9F
	CD9F	GKCD9F
	CF9F	GKCF9F
	939F	GK939F
	959F	GK959F
	979F	GK979F
	999F	GK999F
	909F	GK909F
	919F	GK919F
	929F	GK929F
	949F	GK949F
	C66F	GKC66F
	CA6F	GKCA6F
	CC6F	GKCC6F
	CE6F	GKCE6F
	9C6F	GK9C6F
	9D6F	GK9D6F

Software Configuration

PRODUCT UPGRADES

EMC Software upgrades to the following version and PTF maintenance level to support SRDF/A:
ResourcePak Base V5.5 - PTF SF55054
TimeFinder Base v5.4 - PTF ST54033
TimeFinder/SNAP v5.5 - PTF SN55026
SRDF HC v5.3 - PTF SR53052
Consistency Group v6.2 PTF SC62015

Overview of Setup

HARDWARE AND SOFTWARE PRE-REQUISITE FOR SRDF/A

Refer to APPENDIX – A for the activities completed to meet the Hardware and Software pre-requisite to support SRDF/A:



System Setup

1. System PROCLIB

- SYS1.APPC.PROCLIB(EMCSCF5)
- SYS1.APPC.PROCLIB(EMCINIT5)

2. Update PROGxx

- APF Authorized SYS1.SSCF.LINKLIB library.

3. Update SCFINIxx and EMCCMDxx in SPDC.BSP.EMC.PARM

a. SCFIxx

```
SCF.CSC.GATEKEEPER.LIST=xxxF where xxxf=gatekeeper device address
SCF.MSC.VERBOSE=YES
SCF.MSC.DEBUG=NO
SCF.MSC.SAI.DEBUG=NO
SCF.MSC.ENABLE=YES
SCF.MSC.ADCOPY.ONDROP=YES
```

b. EMCCMDxx

```
SUBSYSTEM_NAME=EMCx
COMMAND_PREFIX=A5
MSC_GROUP_NAME=SPxxMSC1
MSC_INCLUDE_SESSION=C66F, (13)
MSC_INCLUDE_SESSION=909F, (14)
MSC_WEIGHT_FACTOR=n
```

4. Setup EMCSCF5 and EMCINIT5 with Srvclass of STCMED

5. Start EMCSCF5 with 'SUB=MSTR'

6. Start EMCINIT5

Replication Setup from Singapore to Hong Kong

The following steps are taken to setup the replication from Singapore to Hong Kong (e.g for SP05/SP06):

1. Create RF group for the new Q2 subsystem and ADCOPY group

```
SXDC.BSP.SYDH0.SRDFA.SEP9.JCL(CRERDFGP)
Update EMCCMDEF (for SP06) - MSC_INCLUDE_SESSION=C69F(xx)
Update EMCCMDEE (for SP05) - MSC_INCLUDE_SESSION=C69F(xx)
```

```
//CRERDFGP JOB (ACCT#), 'CREATEGRP', CLASS=I, MSGCLASS=X, NOTIFY=&SYSUID
```



```

//*****
//* CREATE GROUP FOR TP CK290102197 --> HK CK290102344
//*****
//S1      EXEC PGM=EMCSRDF
//STEPLIB DD DISP=SHR,DSN=SYS1.SSCF5.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
*SC RDFGRP,C600,13,ADD(NO-AUTO-RCVRY), -
LDIR(27,28,29,2A),RDIR(37,38,39,3A),LABEL(SRDFA13), -
RSER(000290102344),RGRP(13)
//

```

2. Disable MSC

```
F EMCSCF5, MSC, DISABLE
```

3. Query volume and 'RDF Suspend' the current operating disks

```
SXDC.BSP.SYDH0.SRDFA.SEP9.JCL(QRYVOL1)
SXDC.BSP.SYDH0.SRDFA.SEP9.JCL(RDFSUSP1)
```

```

//QRYVOL1 JOB (ACCT#), 'QRYSRDFA', CLASS=I, MSGCLASS=W, NOTIFY=&SYSUID
//*
//* QUERY VOLUMES OF EXISTING OPERATING DISK FOR DELETEDPAIR/ADCOPY
//*
//STEP1 EXEC PGM=EMCSRDF
//STEPLIB DD DISP=SHR,DSN=SYS1.SSCF5.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
*SQ VOL,9090
*SQ VOL,9098

```

```

//RDFSUSP1 OB (ACCT#), 'RDFSUSP', CLASS=I, MSGCLASS=X, NOTIFY=&SYSUID
//*
//* RDF SUSPEND of existing system volumes
//* *SC VOL, LCL(GATEKEEPER, RDFGRP), RDF-SUSP, R1 SYM ADDR
//OFFLINE EXEC PGM=EMCSRDF
//STEPLIB DD DISP=SHR,DSN=SYS1.SSCF5.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
*SC VOL, LCL(9499,14), RDF-SUSP, 279
*SC VOL, LCL(9090,14), RDF-SUSP, 090
*SC VOL, LCL(9098,14), RDF-SUSP, 098

```

4. 'Delete Pair' the current operating disks

```
SXDC.BSP.SYDH0.SRDFA.SEP9.JCL(DELPAIR1)
```

```

//DELPAIR1 JOB (ACCT#), 'DELPAIR', CLASS=I, MSGCLASS=X, NOTIFY=&SYSUID
//*****
//* DELETEDPAIR(FORCE) FROM CURRENT RDF GROUP
//* *SC VOL, LCL(GATEKEEPER, RDFGRP), DELETEDPAIR(FORCE), R1 SYM ADDR
//*
//* NOTE: IF PROBLEM ENCOUNTERED IN A PARTICULAR DELPAIR,
//*       MODIFY JOB DELPAIR2 FOR THE PARTICULAR VOLUME

```



```
//*****
//S1      EXEC PGM=EMCSRDF
//STEPLIB DD DISP=SHR,DSN=SYS1.SSCF5.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
*SC VOL,LCL(9499,14),DELETEPAIR(FORCE),279
```

5. 'Create Pair' for all volumes

```
SXDC.BSP.SYDHO.SRDFA.SEP9.JCL(CREP2197) - DMX2197 (RA - 13)
SXDC.BSP.SYDHO.SRDFA.SEP9.JCL(CREP2074) - DMX2074 (RA - 14)
SXDC.BSP.SYDHO.SRDFA.SEP9.JCL(CREP2052) - DMX2052 (RA - 15)
SXDC.BSP.SYDHO.SRDFA.SEP9.JCL(CREP0339) - DMX0339 (RA - 16)
SXDC.BSP.SYDHO.SRDFA.SEP9.JCL(CREP1432) - DMX1432 (RA - 17)
SXDC.BSP.SYDHO.SRDFA.SEP9.JCL(CREP1222) - DMX1222 (RA - 18)
SXDC.BSP.SYDHO.SRDFA.SEP9.JCL(CREP0542) - DMX0542 (RA - 19)
```

```
//CREP2197 JOB (ACCT#),'CREPAIR',CLASS=I,MSGCLASS=X,NOTIFY=&SYSUID
//*****
//* CREATE PAIR - TP CK290102197 --> HK CK290102344
//*           - EXCLUDE LAST 3 MOD-3 DEVICES
//* *SC VOL,LCL(9595,08),CREATEPAIR(ADCOPY_DISK),1D5,215
//*
//* NOTE: GATEKEEPER DEVICES AT XX6F
//*****
//S1      EXEC PGM=EMCSRDF
//STEPLIB DD DISP=SHR,DSN=SYS1.SSCF5.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
*SC VOL,LCL(C66F,13),CREATEPAIR(ADCOPY_DISK),040-0AB,040
```

6. 'RDF Suspend' the modified operating disks

```
SXDC.BSP.SYDHO.SRDFA.SEP9.JCL(QRYVOL2)
SXDC.BSP.SYDHO.SRDFA.SEP9.JCL(RDFSUSP2)

//QRYVOL2 JOB (ACCT#),'QRYSRDFA',CLASS=I,MSGCLASS=X,NOTIFY=&SYSUID
//*
//* QUERY VOLUMES FOR DELETEPAIR/ADCOPY
//*
//STEP1 EXEC PGM=EMCSRDF
//STEPLIB DD DISP=SHR,DSN=SYS1.SSCF5.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
*SQ VOL,9499

//RDFSUSP2 JOB (ACCT#),'RDFSUSP',CLASS=I,MSGCLASS=X,NOTIFY=&SYSUID
//*
//* RDF SUSPEND of existing system volumes
//* *SC VOL,LCL(GATEKEEPER,RDFGRP),RDF-SUSP,R1 SYM ADDR
//OFFLINE EXEC PGM=EMCSRDF
//STEPLIB DD DISP=SHR,DSN=SYS1.SSCF5.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
*SC VOL,LCL(9690,18),RDF-SUSP,090
```



7. 'Delete Pair' the modified operating disks

SXDC.BSP.SYDH0.SRDFA.SEP9.JCL(DELPAIRF)

```
//DELPAIRF JOB (ACCT#), 'DELPAIR', CLASS=I, MSGCLASS=X, NOTIFY=&SYSUID
//*****
//*   DELETEPAIR WITH FORCE
//*   *SC VOL, LCL(GATEKEEPER, RDFGRP), DELETEPAIR, R1 SYM ADDR
//*****
//S1      EXEC PGM=EMCSRDF
//STEPLIB DD DISP=SHR, DSN=SYS1.SSCF5.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
*SC VOL, LCL(9690,18), DELETEPAIR(FORCE), 090
```

8. Remove modified operating disks from existing RF group and placed them into the new RF ADCOPY group (1F)

SXDC.BSP.SYDH0.SRDFA.SEP9.JCL(CREAPAIR)

```
//CREPAIR JOB (ACCT#), 'CREPAIR', CLASS=I, MSGCLASS=W, NOTIFY=&SYSUID
//*****
//*   CREATEPAIR TO NEW SYSTEM RDF GROUP - 1F
//*
//*****
//S1      EXEC PGM=EMCSRDF
//STEPLIB DD DISP=SHR, DSN=SYS1.SSCF5.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSIN   DD *
*SC VOL, LCL(9690,1F), CREATEPAIR(ADCOPY_DISK), 090, 0D0
*SC VOL, LCL(9695,1F), CREATEPAIR(ADCOPY_DISK), 095, 0D5
```

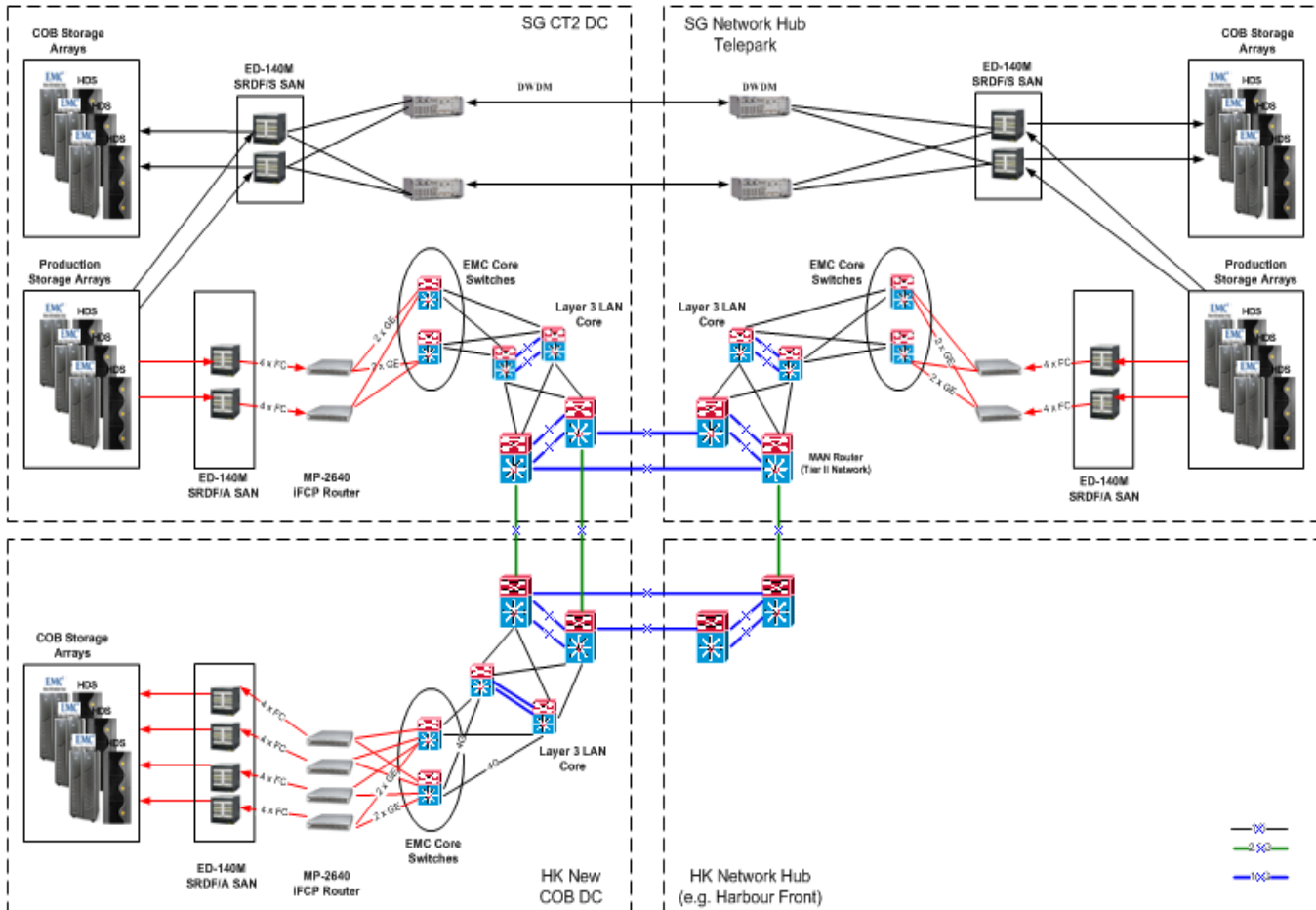
9. Start replication to HK in ADCOPY mode



A.2 EMC STORAGE INFRASTRUCTURE - MIDRANGE

Hardware Configuration

Diagram of Replication of Storage Frames between Singapore and Hongkong





Hong Kong DMX Frames

Storage Frame	Location	Model	Microcode Level	Cache Size	Total No. of Disk
290101048	Hong Kong	DMX3-24	5771	81920	520 x 73GB
290101102	Hong Kong	DMX3-24	5771	81920	457 x 73GB
290101144	Hong Kong	DMX3-24	5771	57344	433 x 73GB
290101205	Hong Kong	DMX3-24	5771	65536	378 x 73GB
290101320	Hong Kong	DMX3-24	5771	40960	192 x 146GB
290101389	Hong Kong	DMX3-24	5771	81920	564 x 73GB
290101429	Hong Kong	DMX3-24	5771	65536	362 x 73GB
290101456	Hong Kong	DMX3-24	5771	81920	457 x 73GB
290101517	Hong Kong	DMX3-24	5771	40960	188x 73GB, 68 x 146GB
290101587	Hong Kong	DMX3-24	5771	81920	480 x 146GB
290101739	Hong Kong	DMX3-24	5771	81920	855 x 73GB
290102340	Hong Kong	DMX3-24	5771	98304	617 x 146GB

Singapore DMX Frames

Storage Frame	Location	Model	Microcode Level	Cache Size	Total No. of Disk
287400320	Singapore	DMX1000P	5671	28672	114x73GB
287400328	Singapore	DMX1000P	5671	16384	114x73GB
287460794	Singapore	1000S-M2	5671	32768	74x146GB
287460856	Singapore	1000S-M2	5671	16384	64x73GB, 74x146GB
287750367	Singapore	DMX2000S	5671	28672	242x73GB
287750418	Singapore	DMX2000S	5671	57344	242x73GB
287750820	Singapore	2000S-M2	5671	49152	234x73GB
287750822	Singapore	2000S-M2	5671	24576	234x73GB
287751168	Singapore	2000S-M2	5671	49152	274x73GB
287751169	Singapore	2000S-M2	5671	28672	274x73GB
287751449	Singapore	2000S-M2	5671	36864	246x146GB
287751450	Singapore	2000S-M2	5671	36864	182x146
287751452	Singapore	2000S-M2	5671	65536	246x146GB
287752087	Singapore	2000S-M2	5671	28672	146x146GB
287752095	Singapore	2000S-M2	5671	28672	146x146GB
287890647	Singapore	3000-M2	5671	73728	362x73GB
287890655	Singapore	3000-M2	5671	73728	362x73GB
287890702	Singapore	3000-M2	5671	73728	490x73GB
287891012	Singapore	3000-M2	5671	73728	290x73GB
287891013	Singapore	3000-M2	5671	73728	290x73GB
290101153	Singapore	DMX3-24	5771	49152	274x146GB
290101923	Singapore	DMX3-24	5771	49152	344x146GB
290102246	Singapore	DMX3-24	5771	98304	448x146GB
290102337	Singapore	DMX3-24	5771	81920	444x146GB

**DMX Frame Pairing Details:**

"MR Config.xls"

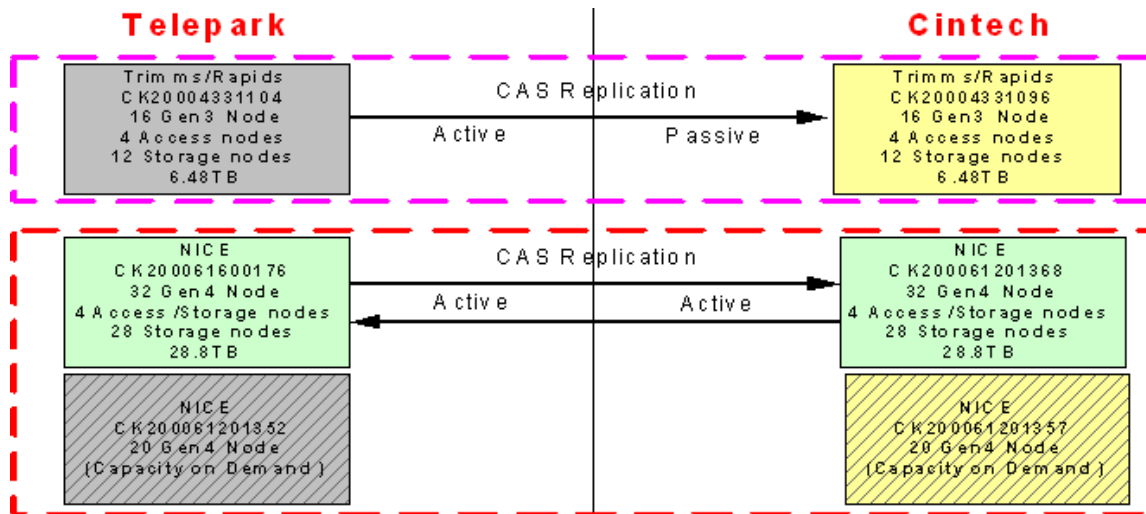
Singapore Centera Frames

Storage Frame	Environment/Apps	Location	Model	Microcode Level	Total No. of Disk
CK20004331104	PROD / TRIMS	Singapore	Centera Gen 3	3.0.1-1048-665-12506(3.0SP1)	16 Node
Ck200064700682	PROD / TRIMS	Singapore	Centera Gen 4	3.0.1-1048-665-12506(3.0SP1)	8 Node
CK20004331096	COB / TRIMS	Singapore	Centera Gen 3	3.0.1-1048-665-12506(3.0SP1)	16 Node
CK200061201368	PROD / NICE	Singapore	Centera Gen 4	3.0.1-1048-665-12506(3.0SP1)	80 Node
CK200061600176	COB / NICE	Singapore	Centera Gen 4	3.0.1-1048-665-12506(3.0SP1p1)	48 Node

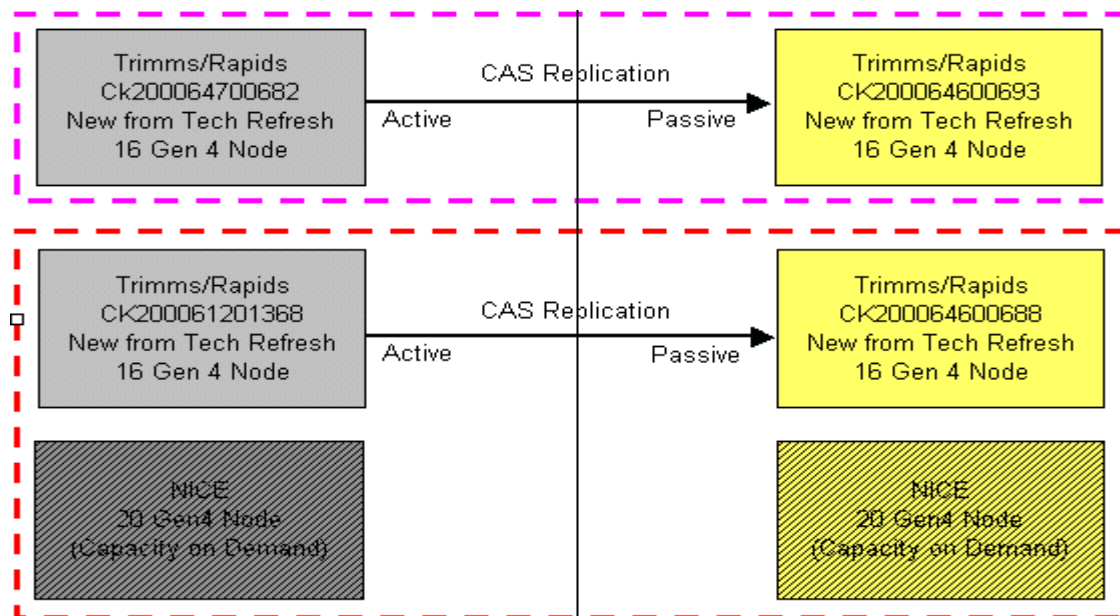
Hong Kong Centera Frames

Storage Frame	Environment/Apps	Location	Model	Microcode Level	Total No. of Node
CK200064600693	COB / TRIMS	Hong Kong	Centera Gen 4	3.0.2-1296-702-13757	8 Node
CK200064600688	COB / NICE	Hong Kong	Centera Gen 4	3.0.1-1048-665-12506	80 Node

Centera Setup prior to HK COB.



Centera Setup after HK COB.



Overview of the Centera Replication and Setup:

TRIMS/RAPIDS:

- 1) Trims/Rapids is running on Gen 3 node at both sites, Telepark and Cintech.
- 2) A new Gen4 Tech Refresh for Trims/Rapids was brought in at Cintech wherein replication/CAS copy was enabled between Gen 3 COB and Gen4 COB Tech refresh frame. Existing replication between Gen3 PRD and Gen3 COB is retained.
- 3) Gen3 COB was removed from the configuration. Gen3 PRD replication was directed to Gen4 COB and replication (active-passive mode)/CAS copy was enabled between Gen4 COB at Cintech and Gen4 COB at HK.
- 4) Cutover to Gen4 PRD (formerly Gen4 COB at CT2) and decommissioning of Gen3 PRD to follow.

NICE:

IMPLEMENTATION



- 1) NICE is running on Gen4 nodes on both sites, Production frame Telepark and COB frame at Cintech
- 2) Switching of roles between the two Gen4 was done. Now, PRD is at Cintech and COB at Telepark.
- 3) Final CAS copy between Gen4 COB at TPK and Gen4 COB at HK still on going.
- 4) Replication was enabled between Gen4 COB and the Gen4 COB at HK.

NOTE:

OnDemand/ROD Centera Frame was not included in the COB as ROD has Poland Data in it.

Hardware Mapping

DMX R1, R2 AND R2-BCV Device Mapping



"R1_R2_BCV_Frame
List.xls"

R2 and R2-BCV Device Mapping per Application/Platform

GWM – SUN & VMS

- Total of eighteen (18) SUN Production/COB servers



GWM.zip

GCG - AIX, SUN, & HP

- Total of seven (7) AIX Production/COB servers
- Total of sixteen (16) SUN Production/COB servers
- Total of eighteen (18) HP Production/COB servers.



GCG.zip

GCG – Stratus

- Total of two (2) Stratus Production/COB servers



Stratus.zip

CMB – AIX, SUN, HP & VMS

- Total of two (2) AIX Production/COB servers
- Total of eighteen (19) SUN Production/COB servers

IMPLEMENTATION



CMB.zip



RDF GROUP NAMING CONVENTION

Platform	FA Pair	RDF Group(Label) TPK Prd	RDF Group (Label)CT2 Prd
SUN	4	8 (sunrdfa)	15(csunrdfa)
HP	4	9(hprdfa)	16(chprdfa)
AIX	1	10(aixrdfa)	17(caixrdfa)
TRU64	1	11(tru64rdfa)	18(ctru64rdfa)
VMS	Reserve	12(vmsrdfa)	19(cvmsrdfa)
Stratus	1	13(strrdfa)	20(cstrrdfa)
WIN	Reserve	14	21

Enterprise Switch/Director Mapping



"Switch
Configurations.zip"



"(McData 2640)
Storage mapping (21)

SRDF/A communication infrastructure configuration:

A dedicated SAN fabric was configured for implementing the SRDF/A replication from Singapore sites to HK across a IP Network. The SRDF/A SAN consisted of the following components.

Cintech

2XED140M Connectrix directors for RF connectivity
2XMP2640 switches (for IP connectivity) of the DMX systems through the Fibre channel switches

Telepark:

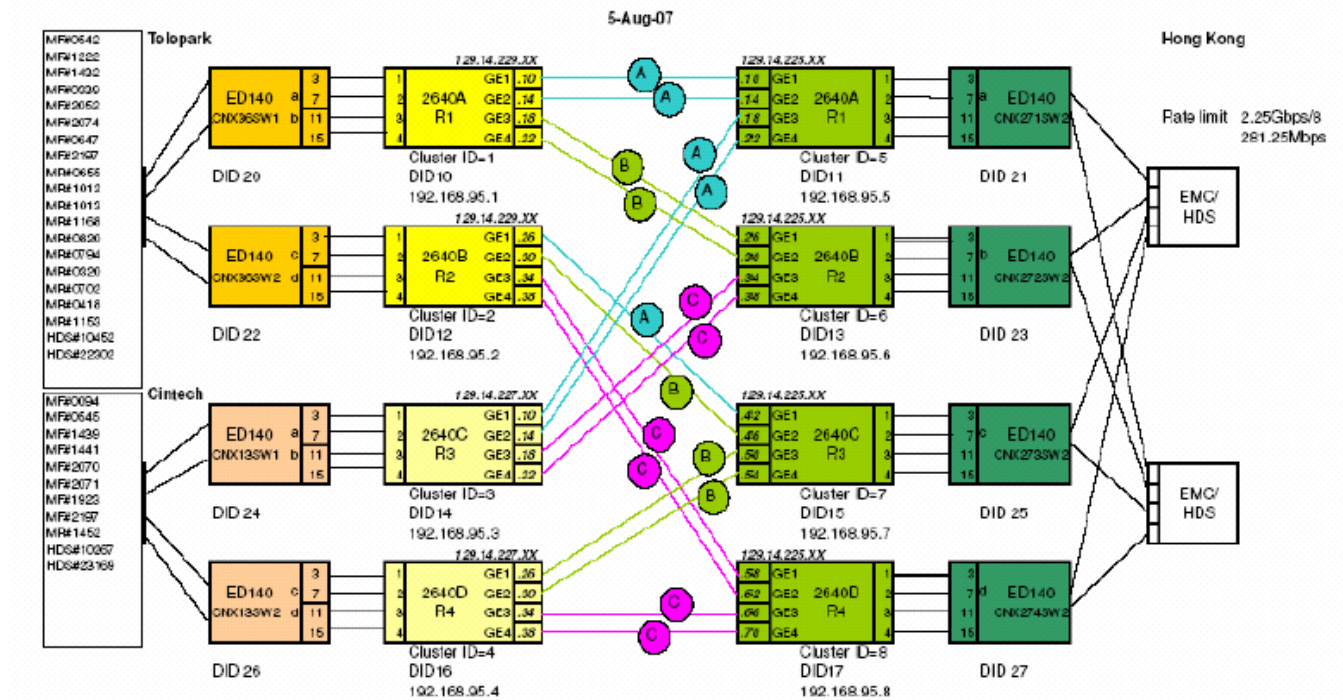
2 X ED140M Connectrix directors
2 X MP2640 switches

HongKong

2XED140M Connectrix directors for RF connectivity
4XMP2640 switches (for IP connectivity) of the DMX systems through the Fibre channel switches



MP2460 Router Mapping





Overview of Setup

Replication Setup from Singapore to Hong Kong

The following steps are taken to setup the replication from Singapore to Hong Kong:

1. Create dynamic RDF grp:

```
symrdf addgrp -label unixboot -rdfig 5 -sid 320 -dir 4c,13c -remote_rdfg 5 -remote_sid 1517 -remote_dir 7d,8d
```

2. Create pair with invalidate option:

```
symrdf createpair -f bootdevices -sid 320 -rdfig 5 -type rdf1 -invalidate r2 -g bootrdg_320
```

3. Set the mode to Adaptive copy mode:

```
symrdf -g bootrdg_320 -rdfig 5 set mode acp_disk
```

4. Set the mode to Async mode:

After invalidate tracks are <30000, then change mode `symrdf -sid 320 -f alldevices_in_RDF_grp -rdfig 5 set mode async`
`symrdf -sid 320 alldevices_in_RDF_grp -rdfig 5 enable`



Software Configuration

PRODUCT UPGRADES

Solutions Enabler Upgrade details (existing/upgraded).

Previous Version : 6.0.3
Current Version : 6.3.1.1

Servers upgraded:

Prd:

ssunsmm01 (tpk)
ssunsmm02(cintech)
ssunacs2
ssunacs4

UAT

ssunu45
ssunc4d

HK PRD

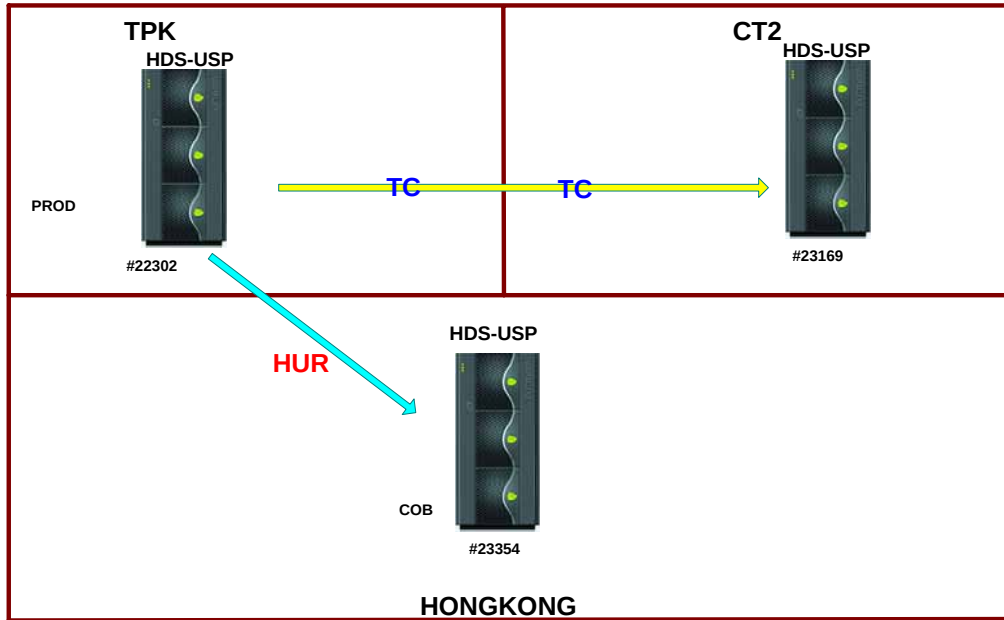
hsunsmm02
hsunacs04



B.1. HDS DISK SUBSYSTEM - MAINFRAME

Hardware Configuration

Singapore Truecopy and Singapore-Hongkong HUR Set-up:



Singapore (Telepark - S/N #22302)			Singapore - TC (Cintech - S/N #23169)						Hongkong - UR (COB - S/N #23354)					
Primary			Secondary			Shadow Image (SI)			Secondary			Shadow Image (SI)		
Dev Range	CU	SSID	Dev Range	CU	SSID	Dev Range	CU	SSID	Dev Range	CU	SSID	Dev Range	CU	SSID
D000-D06F	0	D090	8000-806F	0	8180	8C00-8C6F	1	8181	8000-806F	0	8070	8C00-8C6F	1	8071
D100-D16F	1	D091	8100-816F	2	8182	8D00-8D6F	3	8183	8100-816F	2	8072	8D00-8D6F	3	8073
D200-D26B D26F	2	D092	8A00-8A6B 8A6F	4	8184	8E00-8E6B 8E6F	5	8185	8A00-8A6B 8A6F	4	8074	8E00-8E6B 8E6F	5	8075
D302-D36B D36F	3	D093	8B02-8B6B 8B6F	6	8186	8F02-8F6B 8F6F	7	8187	8B02-8B6B 8B6F	6	8076	8F02-8F6B 8F6F	7	8077
Command Device			Command Device						Command Device					
0D00	3	D095	0D00	9	8189				0D00	A	807A			



Software Configuration

System Setup

1. System PROCLIB
 - SYS1.BCM.HDSYPRCT(PDCBCENV)
 - SYS1.BCM.HDSYPRCT(PDCBCPRC)
2. SVC
 - Defined SVC=210 in IEASVCxx (approved by MVS).
3. LPA
 - Concatenated HDSYPLAT (SYS1.BCM.HDSYLPAT) to LPALSTxx.
4. TSO PARMLIB
 - Added YKCONMSG to the AUTHCMD section of the IKJTS0xx parmlib
5. ISPF
 - Concatenated SYS1.BCM.HDSYEXET in SYSEXEC.
 - Concatenated SYS1.BCM.HDSYPNLT in ISPPLIB.
 - Concatenated SYS1.BCM.HDSYMSGT in ISPMLIB.
 - Concatenated SYS1.BCM.HDSYTABT in ISPTLIB.
 - Added "BC - HDS BCM" option in the ISPF Primary Menu Selection.
6. COMMNDxx
 - Added command to start proc PDCBCENV upon IPL.
 - Added command to start proc PDCBCPRC upon IPL.
7. PROGxx
 - APF Authorized SYS1.BCM.HDSYLNKT load library.
 - Added SYS1.BCM.HDSYLNKT load library to LINKLST.

BCM Setup

1. Route List Name
 - CIT2SGDR - Singapore
 - CIT2HKDR - Hongkong
2. Copy Group Name- Hongkong
 - CIT2.GRP1.HUR - Universal Replicator (UR)
 - CIT2.GRP1.SI.HK - Shadow Image (SI)
3. Copy Group Consistency Group (C/T) ID = 00
4. Device Address Domain (DAD)
 - Primary = SGCIT2PR
 - Secondary = SGCIT2HK

JCLs for COB Drill Procedure (SCIGSY.BCM.JCL)

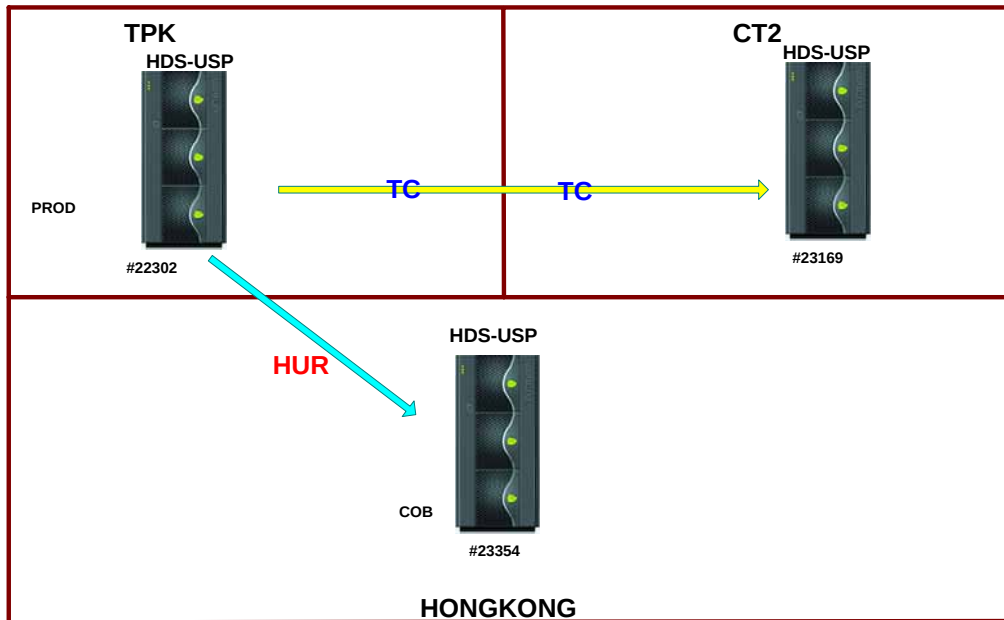
REXX script member (SCIGSY.STGADMIN.SRC)



B.2. HDS DISK SUBSYSTEM - MIDRANGE

Hardware Configuration

Singapore Truecopy and Singapore-Hong Kong HUR Set-up:



Hardware Configuration

Singapore HDS Frames

DKC Serial Number	HDS Model	Application Role / Description
10452	SUN SE9990	Wintel Production in Telepark
10267	SUN SE9990	Wintel TC-COB Frame in Cintech

Hong Kong HDS Frames

DKC Serial Number	HDS Model	Application Role / Description
23365	HDS USP600	Wintel HUR-COB Frame in HongKong



Hardware Mapping

Production/COB devices mapping to Host servers below.



"TagmaStor
Configuration 10452"

Replication Setup and Configuration Steps for HDS between Singapore and Hong Kong

Synchronize the ShadowImage DR Consistency Group(s) for the selected server(s) or for all servers using horcm1.conf and horcm2.conf server groups defined. . Wait for synchronization to complete.

Login to the CCI Server in Hong Kong and follow the following step-by-step procedure as seen in the screen below. Invoke ps-ef command to confirm whether horcm instances are running or not.

```
# pwd
/export/home/sv41914
# ps -ef | grep hor
root 16637 16538  0 17:08:01 pts/2      0:00 grep hor
# horcmstart.sh 1 2
starting HORCM inst 1
HORCM inst 1 starts successfully.
starting HORCM inst 2
HORCM inst 2 starts successfully.
#
```

Set necessary Shadow Image Parameters as shown below as HORCMINST=1 and HORCC_MRCF=1

```
# pwd
/export/home/sv41914
# ps -ef | grep hor
root 16637 16538  0 17:08:01 pts/2      0:00 grep hor
# horcmstart.sh 1 2
starting HORCM inst 1
HORCM inst 1 starts successfully.
starting HORCM inst 2
HORCM inst 2 starts successfully.
# HORCMINST=1
# export HORCMINST
# HORCC_MRCF=1
# export HORCC_MRCF
#
```

Check the Shadow Image Pair Status as below. In the screen below you can notice that Pair is suspended showing as "PSUS" and "SSUS" . also notice the server Group name is called as "LOCALSI"



```
# pairedisplay -g LOCALSI -fcx
Group   PairVol(L/R) (Port#,TID, LU-M) ,Seq#,LDEV#.P/S,Status,  %,P-LDEV# M
LOCALSI disk001(L) (CL1-A-4, 0, 0-0 )23365 70.P-VOL PSUS, 98 170 W
LOCALSI disk001(R) (CL1-A-6, 0, 0-0 )23365 170.S-VOL SSUS, 98 70 W
LOCALSI disk002(L) (CL1-A-4, 0, 1-0 )23365 71.P-VOL PSUS, 97 171 W
LOCALSI disk002(R) (CL1-A-6, 0, 1-0 )23365 171.S-VOL SSUS, 97 71 W
LOCALSI disk003(L) (CL1-A-7, 0, 2-0 )23365 28.P-VOL PSUS, 100 128 W
```

Suspend the ShadowImage DR Consistency Group(s) for the selected server(s). in the screen below you can notice server group is

WIGCGSI and pairs are in suspended mode.

```
# pairedisplay -g WIGCGSI -fcx
Group   PairVol(L/R) (Port#,TID, LU-M) ,Seq#,LDEV#.P/S,Status,  %,P-LDEV# M
WIGCGSI disk023(L) (CL5-A-4, 2, 0-0 )23365 1d.P-VOL PSUS, 61 11d W
WIGCGSI disk023(R) (CL5-A-1, 2, 0-0 )23365 11d.S-VOL SSUS, 61 1d W
WIGCGSI disk024(L) (CL5-A-4, 2, 1-0 )23365 a.P-VOL PSUS, 89 10a W
WIGCGSI disk024(R) (CL5-A-1, 2, 1-0 )23365 10a.S-VOL SSUS, 89 a W
WIGCGSI disk047(L) (CL3-B-5, 5, 1-0 )23365 41.P-VOL PSUS, 98 141 W
```

if the pairs needs to be resynced , invoke the command pairresync -g <server group name>

```
WIGCGSI          129.14.10.5      horcm2
# pairresync -g
```

After the pairs are resynced successfully, invoke pairsplit as below

pairsplit -g LOCALSI or pairsplit -g WIGCGSI

```
LOCALSI          129.14.10.5      horcm2
WIGCGSI          129.14.10.5      horcm2
# pairsplit -g
```

then invoke pairedisplay command to check the status and confirm PAIRS are suspended.

Ensure that the Universal Replicator DR LUNs are not mounted and not presented to the COB Servers

Ensure that Shadow Image Luns are zoned and presented to the COB server as per the requirements. (Servers to see only Shadow Image Luns)

After the above step COB server(s) should be rebooted.

Verify or validate the ShadowImage volumes in the COB server(s) with respective drive letters and Volume Label as production. This can be accomplished by rebooting the server in the step 7.

Bring up the Application / Database and Perform the COB drill or testing

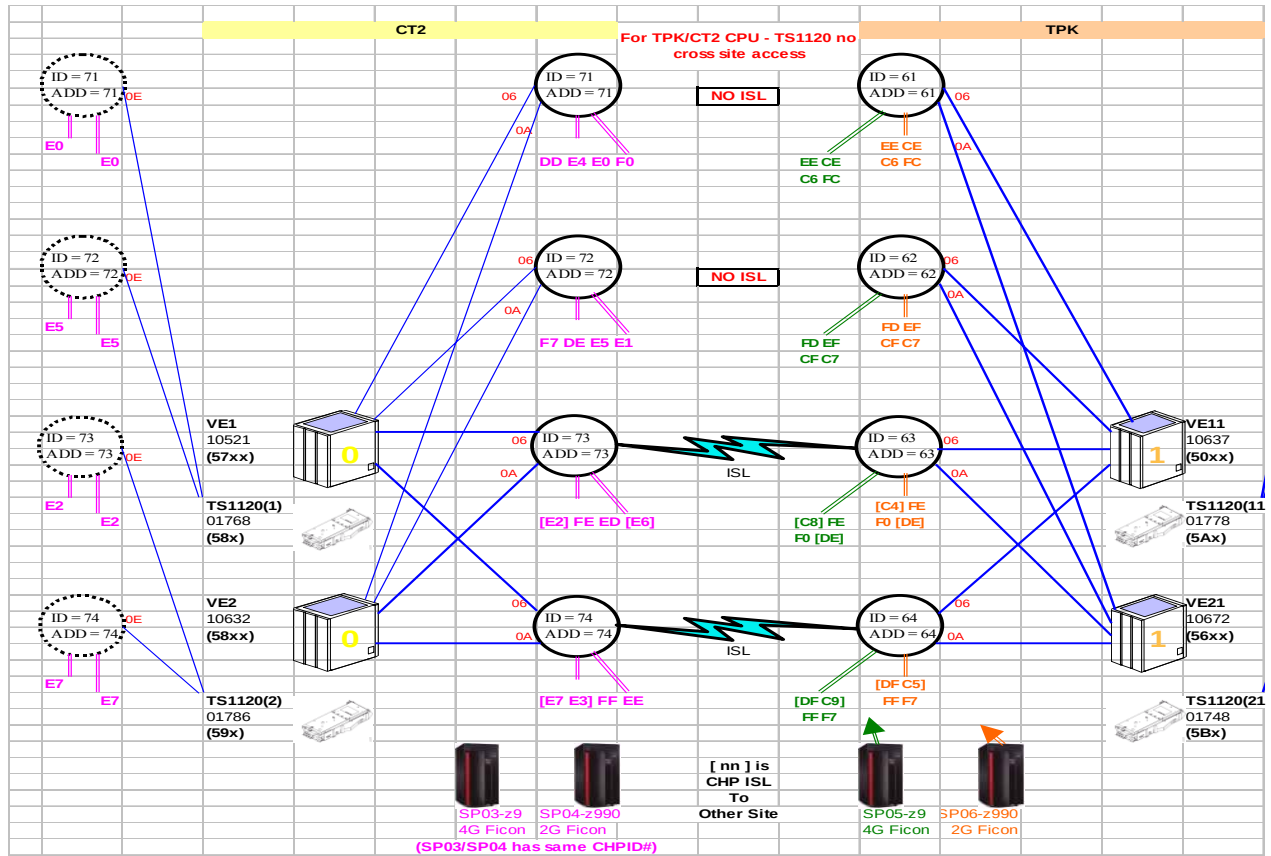
Software Configuration



C.1. IBM TAPE BACKUP INFRASTRUCTURE

Hardware Configuration

IBM VE Singapore Set-up:



IMPLEMENTATION



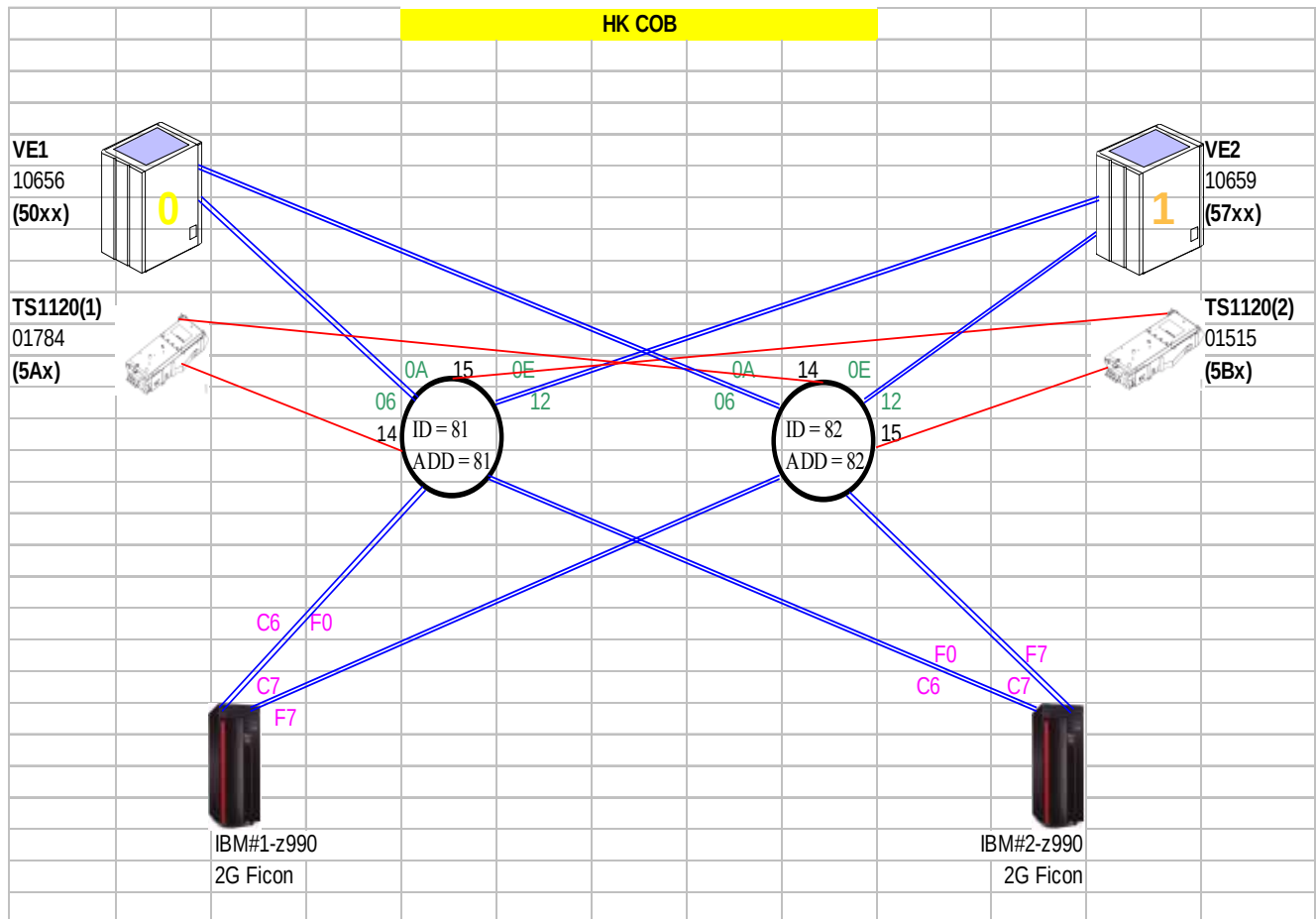
In order to provide configuration flexibility and also allow the inactive LPARs to access the VEs and logical drives, IBM proposed to define 2 logical paths per LCU.

Attached is the details of the logical path definition for Cintech and Telepark IBM VEs.



"Logical Drive-Path
Assignment 2path 20

IBM VE Set-up in Hongkong





Software Configuration

Overview of The Setup

CIT1 and CIT2 are treated as a separate standalone setup although it's in the sysplex of ST04/ST05 and SP05/SP06 respectively.

Below were the assumptions used to cater for the above requirements

- Each lpar/sysplex will be assigned a unique category and volser range.
- During COB drill in Hong Kong a different unique category will be used. COB drill IPL will be via a different LOADxx member. The different category will also serve as a mean to prevent scratch mounting production logical volume in the drill environment. Currently is not an issue as the HK Tape Library is not connected to Singapore Tape Library.
- A different unique volser range will be assigned for the COB drill setup.
- The COB drill environment will be using the same SYS1.VOLCAT.VGENERAL to avoid the need to perform the tape library definition after COB drill IPL. As specific VOLCAT is used in the prime site environment, there will not be any volume definition in the VGENERAL VOLCAT.
- In actual COB in Singapore, as the setup is mirrored over, the same prime setup can be used.
- To cater for Hong Kong COB drill and actual COB, the Hong Kong setup will mirror the Singapore COB drill and prime setup. The Hong Kong setup will use a different logical volser range.

Tape Backup Infrastructure Naming Convention & Resources

Library Manager Category

Category	Usage
1LLx	Production Lpars/Sysplex (Prime)
CLLx	Production Lpars/Sysplex (COB Drill)

> where "LL" is the Citibank plex numbering standard.

Citibank Category Setup (DEVSUPxx, defined in SYS1.APPC.PARMLIB)

LPARS/SYSPLEX	Prime Category	COB Drill Category
SP03/SP04	104x	C04x
SP05/SP06	105x	C05x
CIT2	1E2x	CE2x
SPJ1/SPJ2	107x	C07x

Library Naming Convention

LLPNN

- Where
- LL is the location.
 - P is the type of library (eg. virtual/native/composite).
 - nn is the numbering (without "0" prefix).

With the above convention, all the lpar/sysplex will be using the same library name that refers to that same physical library/native drive.

LL Option (For VE and Native)

IMPLEMENTATION



LL	Location
CT	Cintech 2
TP	Telepark
H1	HK Location 1
H2	HK Location 2

Note: H1 and H2 in Hong Kong are currently referring to the same location.

LL Option (For Composite)

LL	Location
SG	Composite Library in SG
HK	Composite Library in HK

Note: Library name cannot start with "V".

P Option

P	Usage
G	Virtual Engine (in grid)
S	Virtual Engine (not in grid) * For future use
E	Native Library with Encryption
C	Composite Library

NN Option

nn is numbering sequence without “0” prefix.

IBM Libraries

VE Composite Library SG#1	SGC1 (38500)
VE Library #1 at TPK	TPG1 (10637)
VE Library #1 at CT2	CTG1 (10521)
VE Composite Library SG#2	SGC2 (38510)
VE Library #2 at TPK	TPG2 (10672)
VE Library #2 at CT2	CTG2 (10632)
TS1120 Library #1 at TPK	TPE1 (01778)
TS1120 Library #2 at TPK	TPE2 (01748)
	CTE1 (01768) **
TS1120 Library #1 at CT2	
TS1120 Library #2 at CT2	CTE2 (01786) **
VE Composite Library HK#1	HKC1 (10650)
VE Library #1 at HK	H1G1 (10656)
VE Library #2 at HK	H2G1 (10659)
TS1120 Library #1 at HK	HKE1 **
TS1120 Library #2 at HK	HKE2 **

Note: “” – these are for the Native Tape which will be implemented after the EKM set-up**

Stacked Tape Naming

LANNNN

- Where
- L is the location (C=Cintech, T=Telepark, H=Hong Kong)
 - A any alpha assigned to specific library.
 - nnnn is the numbering.

LANNNN	Usage
CA0000-CA0999 CW0000-CW0999	VE1 Cintech 700GB
CB0000-CB0299 CX0000-CX0299	VE1 Cintech 100GB
CC0000-CC0999 CY0000-CY0999	VE2 Cintech 700GB

IMPLEMENTATION



CD0000-CD0299 CZ0000-CZ0999	VE2 Cintech 100GB
TA0000-TA0999 TW0000-TW0999	VE1 Telepark 700GB
TB0000-TB0299 TX0000-TX0299	VE1 Telepark 100GB
TC0000-TC0999 TY0000-TY0999	VE2 Telepark 700GB
TD0000-TD0299 TZ0000-TZ0299	VE2 Telepark 100GB
HA0000-HA0199	Hong Kong

Stacked Tape Color Coding standard

Color	Location
RED	Cintech
LIGHT BLUE	Telepark
LIGHT GREEN	Hong Kong

LPARS	SP03	SP04	SP05	SP06	CIT2	SPJ1	SPJ2
plex Name	SPPLXCT		SPPLEX			SPJPPLEX	
Location	CT2		TPK			CT2	
New Volser Range (VE)	A00000-A99999 B00000-B99999 W00000-W99999 (COB)		Y00000-Y89999 N00000-N99999 Y90000-Y99999 (COB) M00000-M99999 ^(d)		P00000-P99999 Q00000-Q99999 Z00000-Z99999 (COB)		O00000-O99999 ^(e) E00000-E99999 X00000-X99999 (COB)
New Volser Range (Native)	T13000-T13999 U13000-U13999 (COB)		T15000-T15999 U15000-U15999 (COB)		T12000-T12000 U12000-U12000 (COB)		T11000-T11999 U11000-U11999 (COB)
Volcat Setup ^(f)	sys1.volcat.vgeneral sys1.volcat.va sys1.volcat.vb sys1.volcat.vw (cob)		sys1.volcat.vgeneral sys1.volcat.vm sys1.volcat.vn sys1.volcat.vy (cob)		sys1.volcat.vgeneral sys1.volcat.vp sys1.volcat.vq sys1.volcat.vz (cob)		sys1.volcat.vgeneral sys1.volcat.vd sys1.volcat.ve sys1.volcat.vx (cob)

a. Using "T" and "U" range. "T" for Singapore and "U" for Hong Kong
b. The production pool will expand downward if needed to T2xxxx, T3xxxx and the RND pool expand upward to T7xxxx, T6xxxx....
c. All HK tapes will be "U" including HS01
d. Mxxxxx will be the COB range after the SSMF0601 roll-out. Temporarily, Y90000-Y999999 will be the COB range. This is due to the RACF user exit protecting the use of Mxxxxx range for any DASD/TAPE volser range aside from sysres pack.
e. Initially Dxxxxx was assigned but due to possible conflict with DASD volser range, Oxxxxx was assigned for SPJ1/J2.
f. Volume catalogs are defined in master catalog volume – S%%CT1. It uses the default HLQ for Volume Catalog which is SYS1.VOLCAT.V*.

```
//STEP1      EXEC   PGM=IDCAMS
//SYSPRINT DD     SYSOUT=A
//SYSIN      DD     *
              DEFINE USERCATALOG                -
                  (NAME(hlq.VOLCAT.VGENERAL) -
                  VOLCATALOG                     -
                  VOLUME(xxxxxxx)                -
                  CYLINDERS(15,5)) -
                  CATALOG(master_catalog)
```

The system uses "SYS1" as the default high-level qualifier (hlq). To use other high-level qualifier the LOADxx member need to be updated. Include the SYSCAT entry and specify the high-level qualifier at column 64 to 71.
Note: Citibank will be using "SYS1" as the high-level qualifier.

*-+--1--+--2--+--3--+--4--+--5--+--6--+--7-

SYSCAT

SYS1

The `SYS1.VOLCAT.VGENERAL` need to be defined for each sysplex/lpar.



Example of How to Define Specific Volume Catalogs

The following example shows how to define a specific volume catalog, hlq.VOLCAT.VW. The catalog contains all the volume entries for tape volumes with the first character of W in the volume serial number.

```
//STEP1      EXEC   PGM=IDCAMS
//SYSPRINT DD      SYSOUT=A
//SYSIN       DD      *
              DEFINE USERCATALOG -
                  (NAME(hlq.VOLCAT.VW) -
                   VOLCATALOG -
                   VOLUME(xxxxxx) -
                   CYLINDERS(5,5)) -
                  CATALOG(master_catalog)
```

Each volume range has a specific volcat. The end-character of the volcat depends on the first character of the volume range used. Example : SP03/04 range is Axxxxx/Bxxxxxx, the specific volcat is SYS1.VOLCAT.VA & SYS1.VOLCAT.VB, respectively. The equivalent COB drill specific volcat is also defined.

Virtual Drives Address

Below is the virtual drives assigned per Sysplex. Every sysplex has its own corresponding remote logical drives. Remote logical drives are only invoked when the local drives are not available and it can be due to microcode upgrade or hardware failure, etc. Hence, usage is not for normal operation but as a fallback. This new list of logical drives was based on the 2-logical path assignment per drive:

Sysples/Lpar	Virtual Drives Address	#	Location	Usage
SP03/SP04	5700-570B	48	CT2	Normal operation
	5710-571B			
	5720-572B			
	5730-573B			
	5000-500B	48	TPK	Fallback
	5010-501B			
	5020-502B			
	5030-503B			
SP05/SP06/CIT2	5800-580B	48	CT2	Normal operation
	5810-581B			
	5820-582B			
	5830-583B			
	5600-560B	48	TPK	Fallback
	5610-561B			
	5620-562B			
	5630-563B			
	5080-50BF	64	TPK	Normal operation
	57A0-57BF	32	CT2	Fallback
	5680-56BF	64	TPK	Normal operation
	58A0-58BF	32	CT2	Fallback

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SPJ1/SPJ2	5740-574B 5750-575B 5760-576B 5770-577B	48	CT2	Normal operation
	5040-504B 5050-505B	24	TPK	Fallback
	5840-584B 5850-585B 5860-586B 5870-587B	48	CT2	Normal operation
	5640-564B 5650-565B	24	TPK	Fallback
ST04/ST05/CIT1	574C-574F 575C-575F 576C-576F 577C-577F	16	CT2	Normal operation
	504C-504F 505C-505F	8	TPK	Fallback
	584C-584F 585C-585F 586C-586F 587C-587F	16	CT2	Normal operation
	564C-564F 565C-565F	8	TPK	Fallback
ST06/ST07	50C0-50C3 50D0-50D3 50E0-50E3 50F0-50F3	16	TPK	Normal operation
	57C0-57C3 57D0-57D3 57E0-57E3 57F0-57F3	16	CT2	Fallback
	56C0-56C3 56D0-56D3 56E0-56E3 56F0-56F3	16	TPK	Normal operation
	58C0-58C3 58D0-58D3 58E0-58E3 58F0-58F3	16	CT2	Fallback



STJ1/STJ2	570C-570F 571C-571F 572C-572F 573C-573F	16	CT2	Normal operation
	500C-500F 501C-501F 502C-502F 503C-503F	16	TPK	Fallback
	580C-580F 581C-581F 582C-582F 583C-583F	16	CT2	Normal operation
	560C-560F 561C-561F 562C-562F 563C-563F	16	TPK	Fallback
SS08/SS09	50C4 50D4 50E4 50F4	4	TPK	Normal operation
	57C4 57D4 57E4 57F4	4	CT2	Fallback
	56C4 56D4 56E4 56F4	4	TPK	Normal operation
	58C4 58D4 58E4 58F4	4	CT2	Fallback

DFSMS Configuration

Define the tape libraries

You need to define your tape library to add the library record to the TCDB and the library definition to the specified SCDS. Choose Option 3 (DEFINE) on the ISMF Tape Library Application Selection panel to display the ISMF Tape Library Define panel.

Define the distributed libraries and composite libraries in both Singapore and Hong Kong location. The Hong Kong library will be set to “Offline” initially.

The following information is needed.

Library Name: < Refer to IBM Libraries stated above >

Library ID: < Refer to IBM Libraries stated above >

Default Data Class: < Refer to “Citibank SMS” >

Default Use Attribute: Scratch

Eject Attribute: Purge

Media Threshold: 500



Example on How To Define a Tape Library

ISMF provides a library management function to allow the storage administrator to use a series of panels to easily define the tape libraries needed for their installation.

To define a tape library, the storage administrator select Option 10, LIBRARY MANAGEMENT, from the ISMF Primary Option Menu (as shown in Figure 1) to start the library management dialog.

```
ISMF PRIMARY OPTION MENU
Enter Selection or Command ===>

Select one of the following options and press Enter:

0 ISMF Profile
1 Data Set
2 Volume
3 Management Class          - Specify Data Set Backup and Migration Criteria
4 Data Class
5 Storage Class
6 Storage Group             - Specify Volume Names and Free Space Thresholds
7 Automatic Class Selection - Specify ACS Routines and Test Criteria
8 Control Data Set          - Specify System Names and Default Criteria
9 Aggregate Group           - Specify Data Set Recovery Parameters
10 Library Management        - Specify Library and Drive Configurations
C Data Collection            - Process Data Collection Function
L List
R Removable Media manager    - Perform Functions Against Removable Media
X Exit
Use HELP Command for Help; Use END Command or X to Exit
```

Figure 1. ISMF Primary Option Menu Panel



When you select Option 10, Library Management, the Library Management Selection Menu is displayed, as shown in Figure 2.

LIBRARY MANAGEMENT SELECTION MENU	
Enter Selection or Command ==> _	
1 Optical Library	- Optical Library Configuration
2 Optical Drive	- Optical Drive Configuration
3 Tape Library	- Tape Library Configuration
Use HELP Command for Help; Use END Command to Exit.	

Figure 2. Library Management Selection Menu Panel

Select Option 3, Tape Library, and hit ENTER displays the Tape Library Application Selection panel (see Figure 3).

Note: For example purposes, a CDS name of SMS.ACS.SRC, and library name of SGC1 is used in the panels in this appendix.

TAPE LIBRARY APPLICATION SELECTION	
Command ==> _	
To Perform Library Operations, Specify:	
CDS Name	'SMS.ACS.SRC'
	(1 to 44 character data set name or 'ACTIVE')
Library Name ..	SGC1 (For Tape Library List, fully or Partially Specified or * for all)
Select one of the following options:	
3 1. LIST	- Generate a list of Libraries
2. DISPLAY	- Display a Library
3. DEFINE	- Define a Library
4. ALTER	- Alter a Library
If List option is chosen,	
Enter "/" to selection option	_ Respecify View Criteria
	_ Respecify Sort Criteria
Use ENTER Command to Perform Selection;	
Use HELP Command for Help; Use END Command to Exit.	

Figure 3. Tape Library Application Selection Panel

To begin the library definition process:

1. Enter a CDS NAME.
2. Enter a LIBRARY NAME.
3. Select option 3, DEFINE.

Notes:

1. The letter V is reserved exclusively as the first character in a VOLCAT volume serial number. It readily identifies the volume serial number as belonging to a VOLCAT. To avoid confusion with the VOLCAT naming conventions, the letter V is restricted from being used as the first character of a tape library name. Any other character is valid.
2. After the first library definition, ISMF primes CDS NAME and LIBRARY NAME with the last used reference values on the Tape Library Application Selection panel. The default CDS NAME is the single-quoted word 'ACTIVE', which represents the currently active configuration.

Choosing Option 3, DEFINE, displays the TAPE LIBRARY DEFINE panel with all the input fields set to blank. You can enter a definition for SGC1, as shown in the sample Figure 4.



TAPE LIBRARY DEFINE		Page 1 of 2
Command ==>_		
SCDS Name . : SYS2.SMS.SCDs		
Library Name : SGC1		
Description ==> VE Composite Library 1		
====>		
Library ID	60511	(00000 to FFFFF)
Console Name		
Entry Default Data Class	SGC1	
Entry Default Use Attribute . . .	S	(P=PRIVATE or S=SCRATCH)
Eject Default	P	(P=PURGE or K=KEEP)
Media Type: Scratch Threshold		
Media1 0	Media3 0	(0 to 999999)
Media2 100	Media4 0	(0 to 999999)
Use DOWN Command to View Next Panel;		

Figure 4. Tape Library Define Panel (Page 1 of 2)

SCDS NAME and LIBRARY NAME are output fields that contain the SCDS and library name you specified in the Tape Library Management Application Selection panel.

Specify the following information for the tape library definition in the tape configuration database and in the current source control data set.

DESCRIPTION

A 120-byte field used for entering a description of the library definition. There are no restrictions on its content.

LIBRARY ID

Specifies the hardware ID associated with the tape library being defined. A valid value is entered as five hexadecimal digits. This is the value returned by the 3490 control unit in response to a Read Device Characteristics command; it is defined by the customer engineer at the time of the library installation.

CONSOLE NAME

Specifies the name of the MVS console associated with the tape library being defined. The console name provides precise routing of console messages pertaining to a specific library. When the console name is not specified on the Tape Library Define panel, console name routing support is not provided. The console name is passed to the installation-wide exits for their use. To use console name message routing, the console name defined on this panel must also be defined in the CONSOLxx member of the PARMLIB (see topic 3.5.2 for more information on this PARMLIB member). A valid value is entered as two to eight characters. Valid characters are alphanumeric, #, @, or \$; the first character must be nonnumeric.

ENTRY DEFAULT DATA CLASS

Specifies the data class to be used to determine the interchange attributes for private volumes entered into the tape library. No other attributes of the data class are used. You can use the cartridge entry installation exit (CBRUXENT) to assign appropriate interchange values that override the default data class specifications.



ENTRY DEFAULT USE ATTRIBUTE

Specifies the default volume use attribute for the cartridges entered into the library being defined.

P	Indicates PRIVATE for the entry default use attribute. These tape cartridges can be used to satisfy specific volume requests.
S	Indicates SCRATCH for the entry default use attribute. These tape cartridges can be used to satisfy nonspecific volume requests.

EJECT DEFAULT

Specifies the default action for the TCDB volume record when a tape cartridge is ejected from the library.

P	Indicates PURGE for the eject default parameter. The volume record is deleted from the TCDB.
K	Indicates KEEP for the eject default parameter. The volume record is kept in the TCDB.

Note: No matter which disposition is specified, the volume record in the library manager inventory is deleted upon cartridge ejection.

SCRATCH THRESHOLD

Specify the minimum acceptable number of scratch volumes for each media type in the library being defined. The following are recognized media types:

MEDIA1	IBM Cartridge System Tape. The number must be in the range of 0 to 999999. The default value of this parameter is 0.
MEDIA2	IBM Enhanced Capacity Cartridge System Tape. The number must be in the range of 0 to 999999. The default value of this parameter is 0.
MEDIA3	IBM High Performance Cartridge Tape. The number must be in the range of 0 to 999999. The default value of this parameter is 0.
MEDIA4	Reserved for future media.

When the number of scratch volumes in the library falls below the scratch volume threshold for that media type, operator action message CBR3660A is issued requesting that scratch volumes of the required media type be entered into the library. When the number of scratch volumes exceeds twice the scratch volume threshold for that media type, the message is deleted.

Attention: It is recommended that a scratch threshold be set for all media types used within a tape library. If a media type is not being used, the default threshold value of zero, (threshold=0), should be used.

When the first define panel is complete, use the DOWN command to display the second part of the Tape Library Define panel (Figure 5). Continue with the definition for library SGC1 by completing part two of the Tape Library Define panel.



TAPE LIBRARY DEFINE	
Page 2 of 2	
Command ==>	
SCDS Name . : SYS2.SMS.SCDS	
Library Name : SGC1	
Initial Online Status (Yes, No, or Blank):	
SS08 ==> YES	SS09 ==>

Figure 5. Tape Library Define Panel (Page 2 of 2)

Note: You can exit the Tape Library Define panel at any time without saving tape library attributes by issuing the CANCEL command.

Specify the following information on this panel:

INITIAL ONLINE STATUS

Specifies whether the library being defined will be:

- Online (YES)
- Offline (NO)
- Not connected (blank)

to each system or system group in the SMS complex defined by this SCDS each time it is activated.

The definition for the tape library does not take affect until the SCDS to which it is defined is activated. Once the library is defined within the SCDS and the record for the library is updated in the TCDB, the attributes as-signed to the last defined library for the SCDS are displayed on the Tape Library Application Selection menu and the Tape Library Define panel as defaults. These values can be modified to define other libraries as needed.



Define SMS Constructs

Define all the required SMS constructs that will be used for the Tape Library. These are the Data Class, Storage Class, Management Class and Storage Group. Please refer to the “Citibank SMS” document for details.

Write and test ACS routines

Create or modify the installation's storage class, data class, and storage group ACS routines to select tape constructs for certain types of new data requests. There can be only one set of ACS routines in an active configuration.

Example of ACS routines:

Data Class ACS

The VETAPE_DSN filter list is the main list that controls the tape dataset that goes into the IBM VE.

```

/*****
/* DEFINE TAPE UNITS
/*****
FILTLIST TAPE_UNITS INCLUDE('TAPE','CART','3420','3480','3480X',
                           '3490','CSTOR','VSM','AFF=SMST')

/*****
/* DEFINE TAPE DATASET NAMES FOR IBM
/*****
/* INCLUDE ALL DSN TO BE DIVERTED TO IBM TAPE LIBRARY
/* PLEASE TAKE NOTE TO INCLUDE THE SPECIAL DSN FOR SPECIFIC SC AND SG
/* FOR TESTING ONLY SYMBD PREFIX HAS DEFINITION FOR SPECIFIC SC AND SG
/* NOTE: PLEASE UPDATE SC LIST WHEN NEW DC IS INTRODUCED HERE FOR
/*      IBM TAPE LIBRARY

FILTLIST VETAPE_DSN INCLUDE(SYMBD.VE.** ,SYGLM.VE.** ,
                           SYMBD.VE1.** ,SYARN.VE1.** ,SYGLM.VE1.** ,
                           SYMBD.VE2.** ,SYARN.VE2.** ,SYGLM.VE2.** ,
                           SYMBD.VHSM.** ,SYARN.VHSM.** ,SYGLM.VHSM.** ,
                           SYMBD.VPG0.** ,SYARN.VPG0.** ,SYGLM.VPG0.** ,
                           HSMBAKP.DMP.** ,
                           HSMMIGP.HMIGTAPE.** ,
                           HSMBAKP.BACKTAPE.** ,
                           SSDC.** )

/* ASSIGN CLASS TO IBM TAPE LIBRARIES
/*****
IF ((&UNIT = &TAPE_UNITS) OR (&ANYVOL = 'REF=ST'))
/*   (&DSN = &VETAPE_DSN)   */   THEN
DO
  SET &DATACLAS = 'DCV800'
  EXIT CODE(0)
END

```



Storage Class ACS

VETAPE_PG0 filter list is to direct tape dataset to VE PG0.

```

/*****
/* SCVPG0 - DEFINE IBM TAPE PREFERENCE GROUP 0
/* REMOVE VOLUME FROM TVC AS SOON AS COPIED TO TAPE
/*****
/* SCVPG1 - DEFINE IBM TAPE PREFERENCE GROUP 1
/* REMOVE VOLS FROM TVC BASED ON LRU ALGORITHM
/*****

/* NOTE: PLEASE UPDATE DC LIST FOR IBM TAPE LIBRARY
/* PLEASE UPDATE SG, MC LIST WHEN NEW SC IS INTRODUCED HERE FOR
/* IBM TAPE LIBRARY

FILTLIST VETAPE_PG0 INCLUDE(SYMBD.VPG0.** ,
                           SYARN.VPG0.** ,
                           SYGLM.VPG0.** ,
                           HSMBAKP.DMP.** ,
                           HSMBAKP.BACKTAPE.** ,
                           *.BSY.DB**.)

/* TEST THE DATA CLASS FOR IBM TAPE
/*****
IF (&DATACLAS = 'DCV800') THEN
  DO
    SET &STORCLAS = 'SCVPG1'
    IF (&DSN = &VETAPE_PG0) THEN
      SET &STORCLAS = 'SCVPG0'
    EXIT
  END

```

Management Class

The syncsort is in use in CIT1 and CIT2 lpar only.

```

/* DEFINE FILTLIST OF IBM TAPE SC
/*****
FILTLIST IBM_TAPE_SC INCLUDE('SCVPG0','SCVPG1')

/*****
/* DEFINE FILTLIST OF SYNC SORT PROGRAM
/*****
FILTLIST IBM_SYNC SORT INCLUDE('SORT','SYNCSORT','SYNCSMAIN','ICEMAN')

/* ASSIGN NULL MC TO IBM TAPE DATASETS
/*****
IF (&STORCLAS = &IBM_TAPE_SC) THEN
  DO
    IF (&PGM = &IBM_SYNC SORT) THEN
      SET &MGMTCLAS = 'MCVSORT'
    ELSE
      SET &MGMTCLAS = ''
    EXIT CODE(0)
  END

```



Storage Group

```

/* ASSIGN TAPE DSN TO IBM TAPE LIBRARIES */
/*****
/* NOTE: PLEASE UPDATE DC LIST FOR IBM TAPE LIBRARY */
/*****
FILTLIST IBM_TAPE_SC INCLUDE('SCVPG0','SCVPG1')
FILTLIST VE1_DSN INCLUDE(SYMBD.VE1.** ,SYGLM.VE1.** ,SYARN.VE1.** )
FILTLIST VE2_DSN INCLUDE(SYMBD.VE2.** ,SYGLM.VE2.** ,SYARN.VE2.** )
FILTLIST VE_HSM_DSN INCLUDE(SYMBD.VHSM.** ,SYGLM.VHSM.** ,SYARN.VHSM.** ,
                           HSMIMG.HMIGTAPE.** ,
                           HSMBAKP.BACKTAPE.** )
/*****
/* ASSIGN TAPE DSN TO IBM TAPE LIBRARIES */
/*****
  WHEN (&STORCLAS = &IBM_TAPE_SC)
    DO
      IF (&DSN = &VE_HSM_DSN) THEN
        DO
          SET &STORGRP = 'SGVSHSM'
          EXIT CODE(0)
        END
      IF (&MGMTCLAS = 'MCVSORT') THEN
        DO
          SET &STORGRP = 'SGVSLIB2'
          EXIT CODE(0)
        END
      IF (&DSN = &VE1_DSN) THEN
        DO
          SET &STORGRP = 'SGVSLIB1'
          EXIT CODE(0)
        END
      IF (&DSN = &VE2_DSN) THEN
        DO
          SET &STORGRP = 'SGVSLIB2'
          EXIT CODE(0)
        END
      SET &STORGRP = 'SGVSTAPE'
      EXIT CODE(0)
    END
  END

```

Validate the configuration

You cannot use tape libraries until a configuration containing all the elements described in this topic are defined and validated. Refer to DFSMS/MVS DFSMSdfp Storage Administration Reference for information about validating the configuration that you have just defined.

Activate the SMS configuration

Activate the SMS configuration that contains the library definitions.

Only one SCDS can be activated at any time. Activating another SCDS or reactivating the current SCDS while OAM is running causes OAM to restart. During this reinitialization, all libraries are set either online or offline according to the attributes defined in the activated SCDS.



Backup Setup

Not Applicable

Scheduled Jobs

Not Applicable

Monitoring

A. EMC

B. HDS

C. IBM Tape Backup Infrastructure

The following messages have been successfully implemented via Automation:

Messages to be suppressed:

- CBR3610I Volume entry processing
- CBR3620I Entry of volume ??? into library ??? failed.
- CBR3621I Enter request ignored by the cartridge
- CBR3006I Library HKC1 with Library ID 10650 unknown in I/O configuration.
- *CBR3002E Library ??? no longer usable. (Note: Where ??? is HKC1, H1G1, H2G1 only)

Messages to raise auto ticketing:

- CBR3762E Library ??? intervention required.
- CBR3786E VTS operations degraded in library ???
- *CBR3002E Library ??? no longer usable. (Note: Where ??? is for SGC1, SGC2, TPG1, TPG2, CTG1, CTG2)
- CBR3789E VTS library ??? is out of empty stacked volumes.
- CBR3660A Enter ??? scratch volumes into library ???
- CBR4105I No ??? scratch volumes available in library ???

Automation Monitoring:

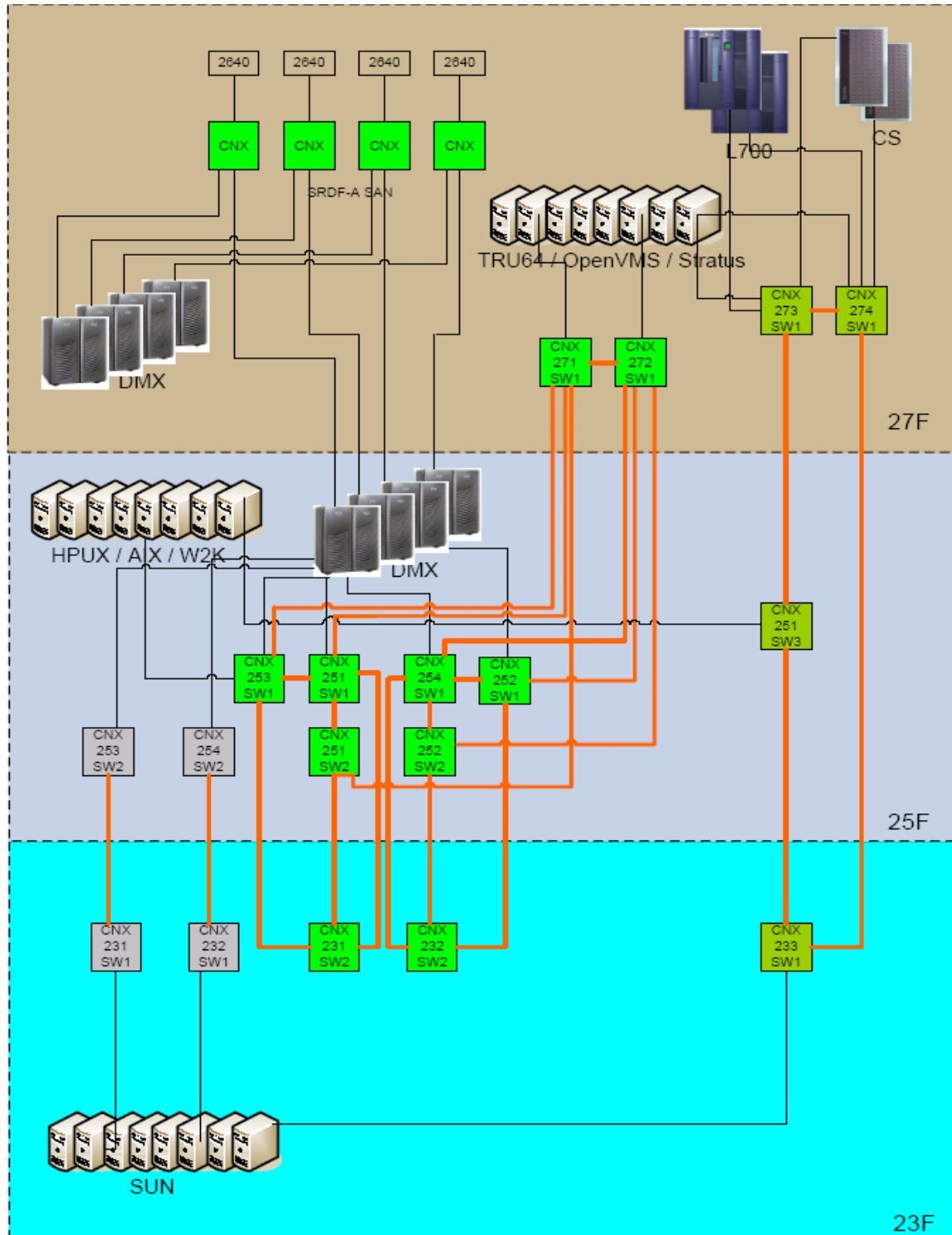
- Stacked volumes (BVIR)
- Logical volumes "D SMS,LIB(ALL),DETAIL



C.2. CENTRICSTOR BACKUP INFRASTRUCTURE

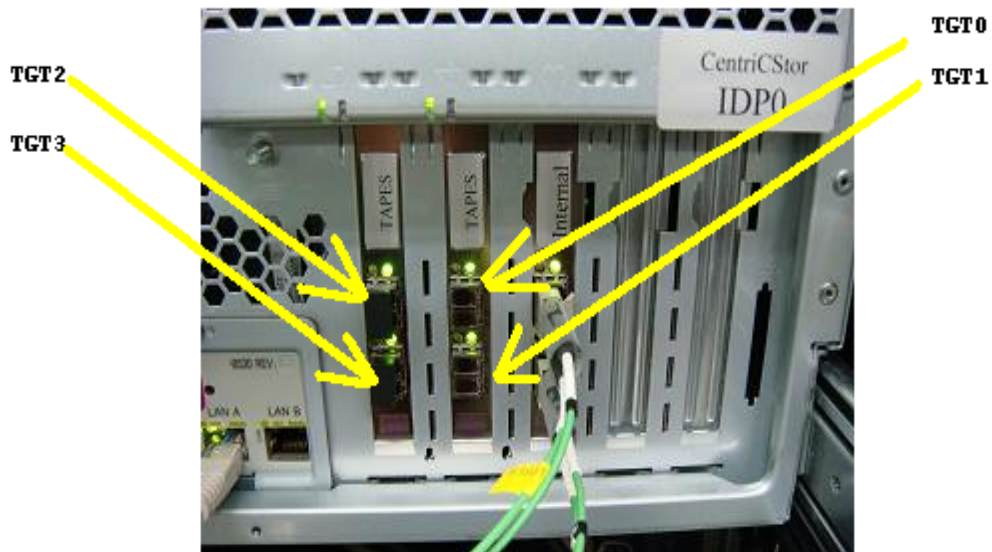
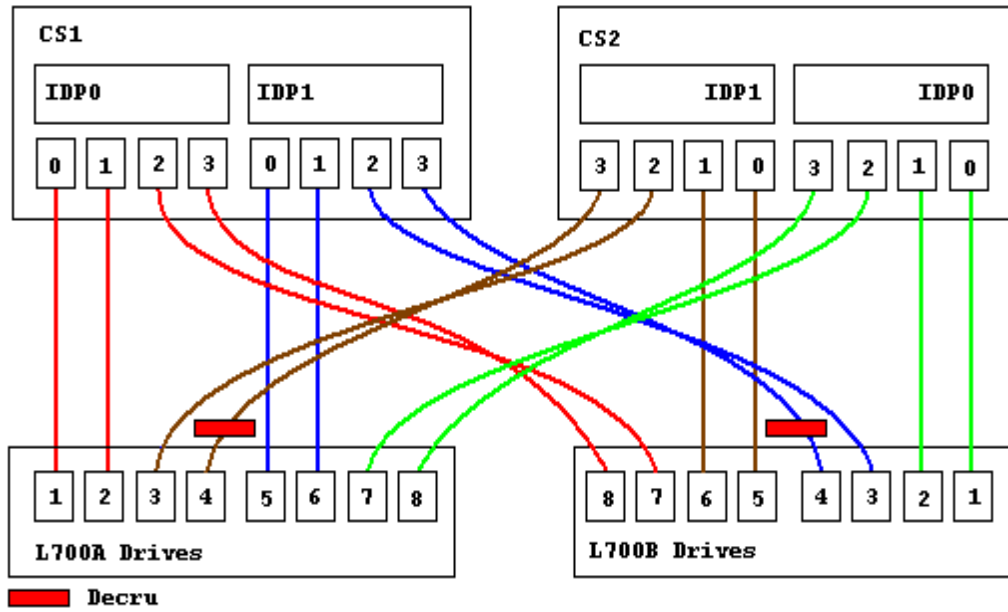
Hardware Configuration

Centricstor Hong Kong Set-up:





Connectivity Diagram below:





Library Configurations :

Prompt/Tasks	Description	Values
Configure Library Communications?		Yes
Library server database exists and will be overwritten, continue? (y or n):		Yes
Number of ACSs to be supported:	Enter the number of ACSs that will be supported at site.	2
Number of connections to ACS #n	Enter the number of connections to the ACS	1
Device or host - ACS#0, connection #0	Specify the robotic device path to first L700	/dev/mchanger1
Device or host - ACS#1, connection #0	Specify the robotic device path to first L700	/dev/mchanger0
Build/Verify library configuration?	This step builds a database image of a complete library hardware configuration.	Yes
Configure client system interfaces? (y or n):		No
Are you backing up the database to tape?	Back up the database to a tape that can be stored offsite and used, if needed, for disaster recovery of the database.	No



Additional Library Configurations

a) Enable Auto Cleaning

- acsss_config (Option no. 3) configuration program to be used to enable or disable autocleaning.
Prompt: Enable Transport Auto Clean Option (TRUE/FALSE) [TRUE]:
Variable: AUTO_CLEAN
- The set clean command is to define a cleaning cartridge because ACSLS does not define cleaning cartridges by vol_id.
set clean max_usage vol_id | volrange

b) Cap Mode

Set cap mode to automatic mode. The CAP mode controls how a CAP will be used for cartridge enters and ejects. The CAP is locked when not in use.

c) Absent Volume

A dynamic variable, it sets the number of days (0-999) to keep absent or ejected volumes in the database. Unless the volume is reenter, ACSLS automatically deletes the volume from the database when the retention period expires.

Prompt: Number of days to retain volumes that are identified as ABSENT or
EJECTED in the database. [5]:
Variable: ABSENT_VOLUME_RETENTION_PERIOD

Open System Tape Drive Assignment



"HK COB Centricstor
Sept 29 2007.xls"



Centricstor Drive Details:

L700A						
Drive Type	Drive #	ACSLS Address	Drive WWN	Platform	Server	IDP WWN
LTO2	1			CentricStor	CS1 IDP00	10:00:00:00:c9:62:43:32
LTO2	2			CentricStor	CS1 IDP01	10:00:00:00:c9:62:43:33
LTO2	3			CentricStor	CS2 IDP12	10:00:00:00:c9:62:59:f4
LTO2	4			CentricStor	CS2 IDP13 (DECRU)	10:00:00:00:c9:62:59:f5
LTO2	5			CentricStor	CS1 IDP10	10:00:00:00:c9:62:17:a0
LTO2	6			CentricStor	CS1 IDP11	10:00:00:00:c9:62:17:a1
LTO2	7			CentricStor	CS2 IDP02	10:00:00:00:c9:62:67:ba
LTO2	8			CentricStor	CS2 IDP03	10:00:00:00:c9:62:67:bb
L700B						
Drive Type	Drive #	ACSLS Address	Drive WWN	Platform	Server	IDP WWN
LTO2	1			CentricStor	CS2 IDP00	10:00:00:00:c9:62:42:90
LTO2	2			CentricStor	CS2 IDP01	10:00:00:00:c9:62:42:91
LTO2	3			CentricStor	CS1 IDP12	10:00:00:00:c9:62:17:e8
LTO2	4			CentricStor	CS1 IDP13 (DECRU)	10:00:00:00:c9:62:17:e9
LTO2	5			CentricStor	CS2 IDP10	10:00:00:00:c9:62:18:d4
LTO2	6			CentricStor	CS2 IDP11	10:00:00:00:c9:62:18:d5
LTO2	7			CentricStor	CS1 IDP02	10:00:00:00:c9:62:43:36
LTO2	8			CentricStor	CS1 IDP03	10:00:00:00:c9:62:43:37

CS1:

IDP0.T0 10:00:00:00:c9:62:43:32
 IDP0.T1 10:00:00:00:c9:62:43:33
 IDP0.T2 10:00:00:00:c9:62:43:36
 IDP0.T3 10:00:00:00:c9:62:43:37

IDP1.T0 10:00:00:00:c9:62:17:a0
 IDP1.T1 10:00:00:00:c9:62:17:a1
 IDP1.T2 10:00:00:00:c9:62:17:e8
 IDP1.T3 10:00:00:00:c9:62:17:e9

CS2:

IDP0.T0 10:00:00:00:c9:62:42:90
 IDP0.T1 10:00:00:00:c9:62:42:91
 IDP0.T2 10:00:00:00:c9:62:67:ba
 IDP0.T3 10:00:00:00:c9:62:67:bb

IDP1.T0 10:00:00:00:c9:62:18:d4
 IDP1.T1 10:00:00:00:c9:62:18:d5
 IDP1.T2 10:00:00:00:c9:62:59:f4
 IDP1.T3 10:00:00:00:c9:62:59:f5



Software Configuration

Installation

Automated Cartridge System Library Software (ACSLS) is StorageTek's server software that controls the L700 Tape Library. ACSLS accesses and manages information stored in the L700 through command processing across a network. The software includes a system administration component and interfaces to client system applications, and library management facilities such as CA BrightStor Backup Server.

ACSLS provides improvements in performance, superior robustness, and intelligent ease of operation to better manage the L700 tape library resources quickly, reliably and consistently from a single centralized location. ACSLS efficiently shares the L700 tape library resources with any application on any system (Open Systems), and is supported by almost every major backup/recovery application.

Software Version:

Product	Version
Solaris	10 Update 3 (11/06)
ACSLS	7.1

Patch Version :

Patch Number	Comments
Solaris 10 Cluster patch	SUN Solaris 10 Recommended Cluster patches
UT0701S	PUT0701S for ACSLS on Solaris. PTF applied PTF6529977S, PTF6564488S



3. VALIDATION DOCUMENTATION

A.1. EMC STORAGE INFRASTRUCTURE - MAINFRAME

Test Plan/Scripts

Test Results

TO BE FINALISED After pre-cob drill

COB Test Results

TO BE FINALISED After pre-cob drill

Operations Acceptance Test checklist



A.2. EMC STORAGE INFRASTRUCTURE - MIDRANGE

Test Plan/Scripts

HP BCV Scripts

- Attached below are the scripts done during the BCV devices allocation per HP server



HP_Devices.zip

AIX BCV Scripts

- Attached below are the scripts done during the BCV devices allocation per AIX server



AIX_Devices.zip

SUN BCV Scripts

- Attached below are the scripts done during the BCV devices allocation per ASUN server



SUN_Devices.zip

Test Results

COB Test Results

- Attached below is the server log for the GWM BCV Split that was performed last November 9, 2007.



bcvsplit_gwm_09Nov
07.log

- Attached below is the server log for the Stratus BCV Split that was performed last November 9, 2007.



"Stratus Split
09Nov07.txt"

- Attached below is the server log for the CMB and GCG BCV split that was performed last November 11, 2007



cmb_11Nov07.log



B.1. HDS DISK SUBSYSTEM - MAINFRAME

Function Tested	Program Tested	Resource	Complete Date	COMMENTS	Expected results
Initial Synch both UR & SI	YKMAKE	Storage Team	6/11/2007		Create initial copy and established pair
Query volumes status both UR & SI	YKQUERY	Storage Team	6/11/2007		List volumes pair status
Suspend volumes for both UR/SI	YKSUSPND	Storage Team	6/11/2007		Remove pair status and initiate SIMPLEX mode
Resynch volumes for both UR/SI	YKRESYN	Storage Team	6/11/2007		Established pair status and initiate DUPLEX mode

REXX member (SCIGSY.STGADMIN.SRC)

1. \$YKQUERY - displays copy pair information
2. \$YKMAKE0 - makes a copy pair by full copy & changes to DUPLEX state
3. \$YKRESYN - synch copy pair differential copy & changes to DUPLEX
4. \$YKSUSPD - suspends copy pair & changes vol status to SUSOP.

JCLs for COB Drill Procedure (SCIGSY.BCM.JCL)

1. PBCSIMKE - to make copy pair (SI)
2. PBCSIQRY - to query volumes (SI)
3. PBCSIREs - to resync copy pair (SI)
4. PBCSISUS - to suspend copy pair (SI)
5. PBCURMKE - to make copy pair (UR)
6. PBCURQRY - to query volumes (UR)
7. PBCURRES - to resync copy pair (UR)
8. PBCURSUS - to suspend copy pair (UR)

Test Results

COB Test Results

Operations Acceptance Test checklist



B.2. HDS DISK SUBSYSTEM - MIDRANGE

Test Plan/Scripts

Attached below are the HORCM files for HDS.



horcm1.conf



horcm2.conf

Test Results

Attached below is the server log for the Wintel BCV Split that was performed last November 9, 2007.



"Wintel Split
09Nov07.txt"



C. IBM TAPE BACKUP INFRASTRUCTURE

Test Plan/Scripts

Function Tested	Program Tested	JCL Name	Resource	Complete Date	COMMENTS	Expected results
Write data set	IEBGENER	Test1	ISGStorage			look for tape data set in VE
Read data set via catalog	IEBGENER		ISGStorage			look for dasd data set in PDS
Read data set via data set name/vol ser	IEBGENER SYNCSORT	Test3	ISGStorage			look for dasd data set in PDS
Allocate a multi-volume data set		Test4	ISGStorage			look for tape data set in VE
Allocate a multi-file volume	IEBGENER	Test5	ISGStorage			look for tape data set in VE should be N files on volume; Check threshold message ?
Submit multiple jobs for the same input tape	IEBGENER	Test6	ISGStorage			should run serially; output to PDS
Concatenate various input device types	IEBGENER	Test5	ISGStorage			look for dasd data set in PDS
Allocate a GDG		Defgdg	ISGStorage			Look for tape set on PDS;verify allocation worked.
Repro a data set to VE	IDCAMS	Test7	ISGStorage			look for tape data set in VE
DSS Dump a data set to VE	DFDSS DUMP	Test8	ISGStorage			look for tape data set in VE
Selective dataset restore from the dump			ISGStorage		ISMF and TMS panels	look at volumes entries by volser; by storage group
Display TCDB (ISMF) and TMS status for a volume			ISGStorage		ISMF panels/Tape Mgt System	look at volume entries - volume should be gone
Eject a virtual tape (scratch)		Test9	ISGStorage			
Eject a virtual tape (private)		Test10	ISGStorage		ISMF panels/Tape Mgt System	should not work
Resolve use of UNIT=AFF		Test11	ISGStorage			//STEP1 EXEC PGM=IEBGENER //SYSPRINT DD SYSOUT=* //SYSZZ1 DD UNIT=CART,DISP=OLD, // VOL=SER=tape_vol,DSN=tape_dsn //SYSUT1 DD * THIS IS A SAMPLE LINE //SYSUT2 DD DSN=tape_out_dsn, // UNIT=AFF=SYSZZ1,DISP=(NEW,KEEP) //SYSIN DD DUMMY
Testout usage of VOL=REF		Test12	ISGStorage			//STEP1 EXEC PGM=IEBGENER //SYSPRINT DD SYSOUT=* //SYSZZ1 DD UNIT=CART,DISP=OLD,/ VOL=SER=tape_vol,DSN=tape_dsn//SYSUT2 DD SYSOUT=* //SYSUT1 DD DSN=tape_dsn,DISP=OLD, // VOL=REF=*.SYSZZ1 //SYSIN DD DUMMY
TMS functions: cycle processing (Run TMC Clean in test mode)					Scratch at least 1 dataset	Look to see if database agrees
HSM function					Run HSM Recycle for at least 1 volume	HSM should create VE tape
TMS Verification after any tape created/read					View records in Tape Management System	
CA-1 House Keeping Jobs						
- Scratch Processing						
- Report						

IMPLEMENTATION



Test Results

COB Test Results

Operations Acceptance Test checklist



4. PRODUCTION HANDOVER DOCUMENTATION

PRODUCTION SUPPORT AGREEMENT

System Stakeholder & Contact List

Business/Dept	Person	Contact No	Email
Storage Ops			
EMC			
HDS			
IBM			

Service Level Agreement and Green Zones

No revisions to the existing SLA and Green Zones.

Escalation Path

No revisions on the current escalation path.

OPERATING PROCEDURES

A. EMC STORAGE INFRASTRUCTURE

Procedure to convert from ASYNC to ADCOPY

When there are insufficient DASD volumes to be allocated for system use, this procedure can be used to convert existing volumes (in MSC RDFgroup) from Async mode to ADCOPY mode.

1. Disable MSC - F EMCSCF5, MSC, DISABLE
2. RDF-SUSP for volumes in existing RDFGROUP
3. DELETEPAIR for volumes in existing RDFGROUP
4. CREATEPAIR with ADCOPY in system-related RDFGROUP
5. Refresh MSC - F EMCSCF5, MSC REFRESH
6. Issue Global parm refresh via 'A5 SC GLOBAL, PARM_REFRESH'

Procedure to add new frames for SRDFA to HK

This procedure is to add new frames for SRDFA from Singapore to Hong Kong.

1. Create new RDFgroup for new frames
2. CREATEPAIR with ADCOPY for all volumes in new RDFgroup



3. Update PARMS for SCF (SCFINIxx) and Host Component (EMCCMDxx)
4. Issue Global parm refresh via 'A5 SC GLOBAL,PARM_REFRESH'
5. Check for invalid tracks of volumes in new RDFgroup (ensure less than 3000 tracks/volume)
6. Activate SRDFA via 'A5 SC SRDFA,LCL(Gatekeeper,RA group),ACT'

Note: Before activating SRDF/A, please ensure number of invalid tracks for the entire box is less than 30,000 tracks or for each volume the number of invalid tracks is less than 3,000 tracks'.

7. Refresh MSC - F EMCSCF5, MSC REFRESH
8. Global parm refresh via 'A5 SC GLOBAL,PARM_REFRESH'

JCLs for COB Drill Procedure (SPDC.BSP.EMC.SRDFA.JCL)

1. SPLITECA – Remote Consistency Split (for volumes in MSC)
2. SPLITADC – Split ADCOPY Group (system-related volumes)
3. RE@TAB – Re-establish R2/BCV
4. ESTAB – Establish R2/BCV
5. QRYBCV – Query BCV
6. QRYSRDFA – Query SRDFA and MSC status
7. QRYSRDFA – Query volumes in RDF groups

PROCEDURES FOR SETTING UP COB DRILL - Midrange

Pre-COB Drill Activities

- These tasks must be performed prior to the actual date of the COB drill.

S/No	Activities	Responsible
1.	Gather all information regarding R1 devices / Host details	GDCS Storage Team
2.	Provide all inq –all outputs for all servers involved in COB	Platform SP
3.	Verify all R2 and R2 BCV are in sync, use: symmir –sid “symmid” –f “bcv scripts” query	GDCS Storage Team
4.	Verify NO defective disk containing any R2-BCV devices, use: symdisk –sid “symmid” –spare info	GDCS Storage Team
5.	Verify if SRDF/A is synchronized and consistent, use: symrdf –sid “symmid” –f “rdf scripts” –rdfig “rdfig #” verify -consistent	GDCS Storage Team
6	Verify that the BCV volumes are available/masked for every host, use: symmaskdb –sid “symmid” list assign –dev “HK host bcv devices”	GDCS Storage Team / Platform SP

**COB Drill Activities**

S/No	Activities	Responsible
7	Offline production servers	Platform SP
8	Once production servers are offline, suspend SRDF/A, use: symrdf –sid “symmid” –f “rdf scripts” –rdfg “rdfg #” suspend	GDCS Storage Team
9	Perform R2-BCV Split, use: symmir –sid “symmid” –f “bcv scripts” split	GDCS Storage Team
10	Verify all R2-BCVs are split in condition, use: symmir –sid “symmid” –f “bcv scripts” query	GDCS Storage Team
11	Inform Platform SPs that COB testing can commence	GDCS Storage Team
12	Verify all R2-BCVs are seen on the host	GDCS Storage Team / Platform SP

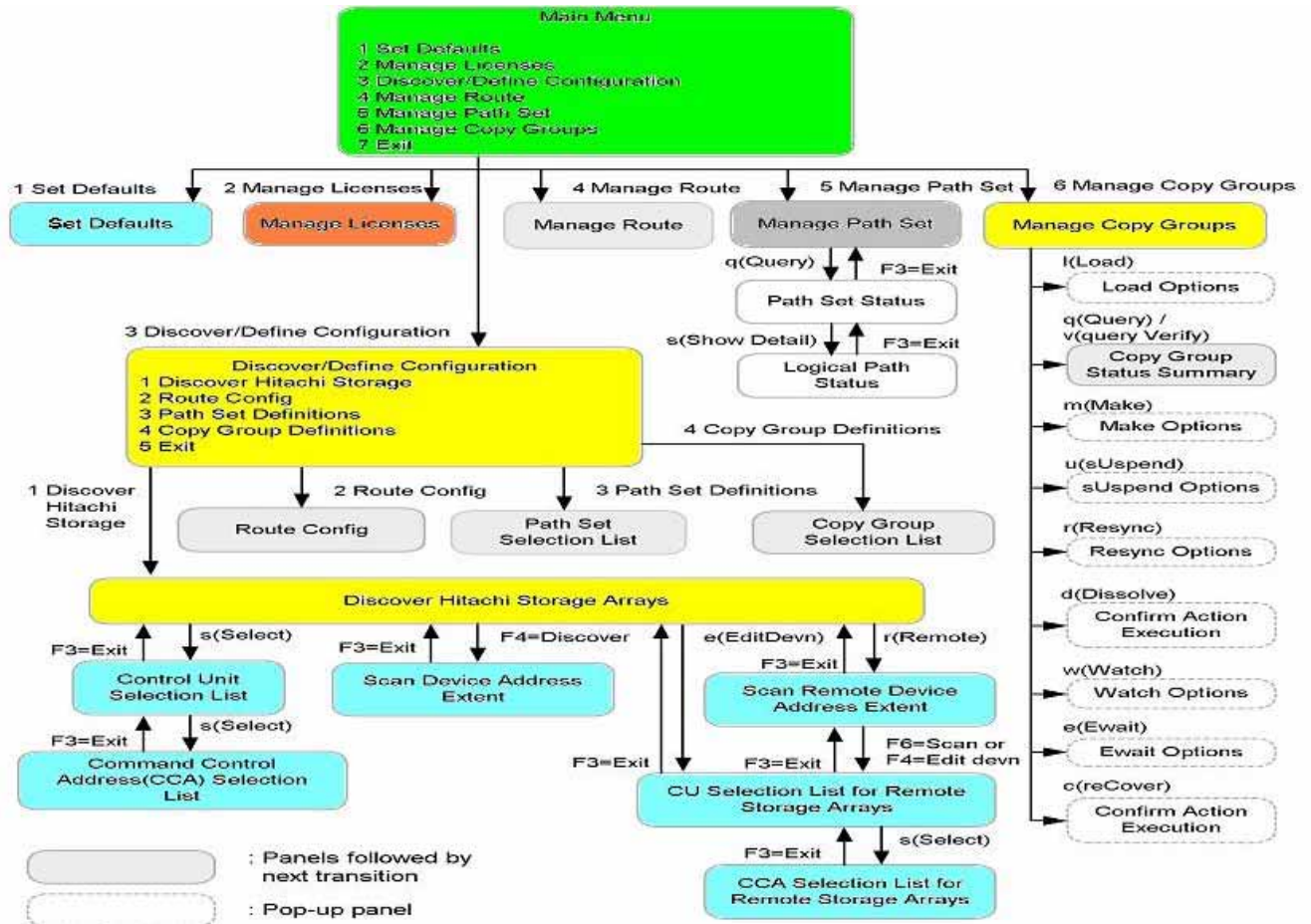
Post-COB Drill Activities (to be reviewed during pre-cob drill)

S/No	Activities	Responsible
9	Re-establish SRDF/A, use: symrdf –sid “symmid” –f “rdf scripts” –rdfg “rdfg #” establish	GDCS Storage Team
10	Re-establish R2 to R2-BCVs symmir –sid “symmid” –f “bcv scripts” establish	GDCS Storage Team



B. HDS DISK SUBSYSTEM

Attached are the BCM Menu Options and sample BCM ISPF panel that will guide Storage Admin to use the BCM software.





Sample: Set Defaults Panel

Set Defaults

2007/10/11 18:32:27

Hitachi Business Continuity Manager 5.0 -----
 Command ==>
 Specify Default Settings

More: +

Configuration File Prefix SCIGSY.BCM
 Local Device Address Domain ID . . SGCIT2PR
 Diagnostic Options
 ISPF Log Max 0
 Remote DKC Function Y
 Preset RouteListID CIT2HKDR

Defaults and Options for Background Jobs
 SEND Options USER(*)
 Timeout Hours 0
 Timeout Minutes 30
 Job Name Prefix SYETC
 JCL JOB Statement:
 //JOBNAME JOB (ACCT#), 'BCM REPLICATOR', CLASS=A, MSGCLASS=S,

Sample: Copy Group Status Summary

Copy Group Status Summary

2007/10/11 18:36:13

Hitachi Business Continuity Manager 5.0 -----
 Command ==>

Copy Group ID: CIT2.GRP1.HUR
 Primary Device Addr. Domain: SGCIT2PR
 Secondary Device Addr. Domain: SGCIT2HK

Copy Progress
 Current Time: 20071011 18:36:13
 Approx. Matching %: 100%
 Reversed Pairs %: 0%

Pair Status Counts				
Duplex:	440		Simplex:	0
Pending:	0		Reverse Resync:	0
Suspend:	0		Suspend by CU:	0
V-Split:	0		In Transition:	0
Swapping:	0		Invalid State:	0
			No Delta:	0

F1=Help F3=Exit F4=Refresh F5=Arrays F6=Pairs



JCLs for COB Drill Procedure (SCIGSY.BCM.JCL)

1. PBCSIMKE - to make copy pair (SI)
2. PBCSIQRY - to query volumes (SI)
3. PBCSIRES - to resync copy pair (SI)
4. PBCSISUS - to suspend copy pair (SI)
5. PBCURMKE - to make copy pair (UR)
6. PBCURQRY - to query volumes (UR)
7. PBCURRES - to resync copy pair (UR)
8. PBCURSUS - to suspend copy pair (UR)

REXX member (SCIGSY.STGADMIN.SRC)

1. \$YKQUERY - displays copy pair information
2. \$YKMAKE0 - makes a copy pair by full copy & changes to DUPLEX state
3. \$YKRESYN - synch copy pair differential copy & changes to DUPLEX
4. \$YKSUSPD - suspends copy pair & changes vol status to SUSOP.

PROCEDURES FOR SETTING UP COB DRILL - Midrange

Pre-COB Drill Activities

- These tasks must be performed prior to the actual date of the COB drill.

S/No	Activities	Responsible
1.	Gather all information regarding P-Vol devices / Host details	GDCS Storage Team
2.	Provide all inq –all outputs for all servers involved in COB	Platform SP
3.	Verify all S-Vol and SI are in sync, use: pairedisplay –g “device group” –fcx	GDCS Storage Team
4.	Verify NO defective disk containing any SI devices	GDCS Storage Team
5.	Verify if HUR is synchronized and consistent, use: pairedisplay –g “device group” –fcx All primary disk should be in PSUS state and secondary should be SSUS	GDCS Storage Team
6	Verify that the SI volumes are available/masked for every host, use: Verify using Storage Navigator	GDCS Storage Team / Platform SP

COB Drill Activities

S/No	Activities	Responsible
7	Offline production servers	Platform SP
8	Perform SI Split, use: pairsplit –g “device group” split	GDCS Storage Team

IMPLEMENTATION



9	Verify all SIs are split in condition, use: pairdisplay -g "device group" -fcx	GDCS Storage Team
10	Inform Platform SPs that COB testing can commence	GDCS Storage Team
11	Verify all SIs are seen on the host	GDCS Storage Team / Platform SP

Post-COB Drill Activities (to be reviewed during pre-cob drill)

S/No	Activities	Responsible
12	Re-establish HUR, use: pairresync -g "device group" establish	GDCS Storage Team
13	Re-establish S-Vol to SIs pairresync -g "device group" establish	GDCS Storage Team



C. IBM TAPE BACKUP INFRASTRUCTURE

Defining Stacked Volume Range and Pool

Define Stacked Volume Range and Pool via Tape Library Manager

Select “Administer Library Manager” → “Modify Volser Range”.

Enterprise Automated Tape Library Specialist - Internet Explorer 6

Address: http://tpkve111ma.apac.nsrroot.net/srvrroot/en/en-us/wsindex.htm

IBM TotalStorage™ Enterprise Automated Tape Library Specialist

Work Items: Welcome page, Monitor library manager, Administer library manager, Search database, Modify volser ranges, Manage operator interventions, Request inventory upload, Monitor logical library, Monitor VTS 1, Administer VTS 1, Manage security, Service library manager, Manage Virtualization Engine 1, Monitor 3584 Tape Library

Modify Volser Ranges

This page displays current defined volser ranges for all stacked volumes. To add, modify, delete or query the contents of a range, click its select button and then press the appropriate action button. You can also locate a range for a volser by entering the volser in the From field and click the Find Volser button.

From: TA0000 To: TA0199 Library Sequence Number: 10637 Partition: VTS 1 Media Type: JB - ETCL Home Pool: 7

Add/Modify Delete Total Volsers in Range

Find Volser Refresh

Select	From	To	Library Sequence Number	Partition	Media Type	Home Pool
☒	TA0000	TA0199	10637	VTS 1	JB - ETCL	7
☐	TB0000	TB0199	10637	VTS 1	JJ - EETC	4
☐	TW0000	TW0099	10637	VTS 1	JB - ETCL	5
☐	TX0000	TX0099	10637	VTS 1	JJ - EETC	2

Status: No operation in progress.

History:

Stacked Volume	Usage	Capacity	Pool
CAXxxx & CCxxx	CT2 Production General Usage	700G	7
TAXxxx & TCxxx	TPK Production General Usage	700G	7
CBxxx & CDxxx	CT2 Production HSM	100G	4
TBxxx & TDxxx	TPK Production HSM	100G	4
CWxxx & CYxxx	CT2 RND/UAT General Usage	700G	5
TWxxx & TYxxx	TPK RND/UAT General Usage	700G	5
CXxxx & CZxxx	CT2 RND/UAT HSM	100G	2
TXxxx & TZxxx	TK RND/UAT HSM	100G	2
HAXxxx	HK COB	700G	0



Ejecting Stack Volumes from IBM VE

If there is a need to eject stacked volume due to media error on the stacked volume, the following procedures can be used.

Login through the web interface of the Library Manager (LMA) where the stacked volume physically resides. Please refer to 1.1 for the correct library manager of the distributed library to access.

From the Library manager, select “Administer VTS1” and “Move/Eject Stacked Volume”.



To eject stacked volume that still contains logical volumes, select “Eject...Range of Stacked Volumes”.



The screenshot shows the IBM TotalStorage Enterprise Automated Tape Library Specialist interface. The main window is titled 'VTS 1 Eject a Range of Stacked Volumes'. It contains a left-hand navigation pane with various options like 'Monitor library manager', 'Administer library manager', etc. The main content area has a 'Return to Move/Eject Stacked Volumes' link, a section for 'Enter a range of volsers' with 'From' and 'To' input fields, and an 'Existing Ranges' dropdown menu. Below this is a 'Media Type' dropdown set to 'JA/JB/JJ'. There are radio buttons for 'Eject Type' with options 'Deferred Eject' and 'Priority Eject', and a checkbox for 'Honor inhibit reclaim schedule'. At the bottom, there are 'Refresh' and 'Submit' buttons. A 'Status' section shows 'No operation in progress.' and a 'History' table with columns for Timestamp, User ID, Status, Action, and VTS Number.

Timestamp	User ID	Status	Action	VTS Number
09/06/06 19:24:01	webadmin	Complete	EjectRange	1
09/06/06 19:23:59	webadmin	Started	EjectRange	1

Specify the range of stacked volume range and media type and press “SUBMIT” to eject the stacked volume.

Ejecting the stacked volume will take some time, depending on the amount of logical volumes still in the stacked volume. Stacked volume can only be ejected from the library when it's empty. Therefore all logical volumes in the stacked volume will be transferred to a different stacked volume before the stacked volume is ejected.

The ejected stacked volume will be available for removal from the library I/O station.

Adding Logical Volumes To IBM VE

To add additional logical volume to VE, please do/check the following.

- Define the logical volume range to CA-1 TMC
- Define the logical volume range as scratch pool to CA-1 (TMONSCxx)
- Insert Logical Volume via TS7740 Management Interface (make sure you are sign-on to the correct VE as there are 2 libraries)
- Select “Operation” → “Insert Logical Volumes”
- Provide “Starting Volser”, “Quantity”/“Ending Volser”, select “Enhanced Capacity Cartridge System Tape (800 MB)”
- Press “Insert” to perform the function



IBM Virtualization Engine TS7740 - Internet Explorer 6

File Edit View Favorites Tools Help

Address http://tpkve11vr.apac.nsroot.net/Console

Virtualization Engine TS7740

My Work

- Virtualization Engine Grid Summary
- Health & Monitoring
- Jobs & Processes
- Performance & Statistics
- Operations
 - Insert Logical Volumes**
 - Delete Logical Volumes
 - Standalone Mount Logical Volume
- Configuration
- User Management
- Service & Troubleshooting

Insert Logical Volumes

Refresh Last refresh: Wednesday, August 8, 2007 12:25:55 PM UTC

Current availability across entire grid:

Currently Inserted:	200
Maximum Allowed:	500,000
Available Slots:	499,800

Insert a new logical volume range:

*Starting volser: k900000 *Quantity: 5

☐ Ending volser

Initially owned by: "Cluster" (#10637)

Cartridge emulation type:

☐ Cartridge System Tape (400 MB)

☒ Enhanced Capacity Cartridge System Tape (800 MB)

Insert

External Links

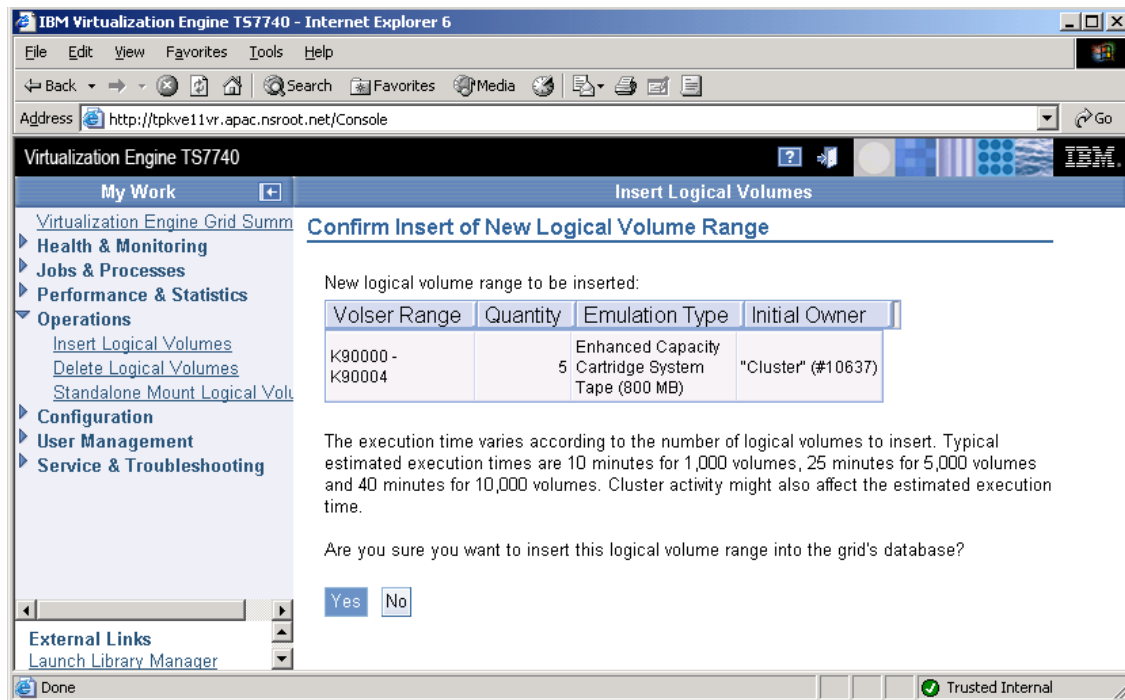
- Launch Library Manager
- Specialist

Done Trusted Internal

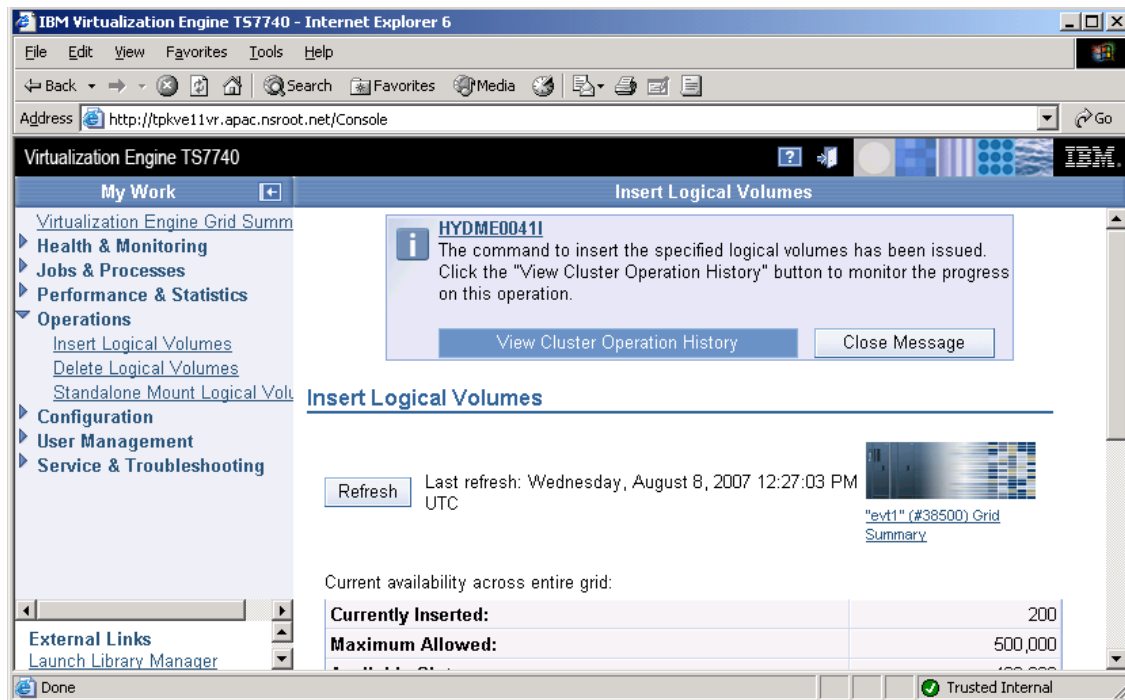
IMPLEMENTATION



- Verify the logical volume range and capacity and confirm the insert



- Monitor the logical volume insert via the "View Cluster Operation History"



IMPLEMENTATION



- If the Logical Volume insert is still in progress it will be shown under “Current Running Tasks”. Wait for task to complete.

IBM Virtualization Engine TS7740 - Internet Explorer 6

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print

Address http://tpkve11vr.apac.nsroot.net/Console Go

Virtualization Engine TS7740

My Work Cluster Operation History

Virtualization Engine Grid Summary

Health & Monitoring

Jobs & Processes

Performance & Statistics

Operations

Insert Logical Volumes

Delete Logical Volumes

Standalone Mount Logical Volumes

Configuration

User Management

Service & Troubleshooting

External Links

Launch Library Manager

Specialist

Done

Cluster Operation History

"Cluster" (#10637) Cluster: Cluster Operation History

Refresh Last refresh: Wednesday, August 8, 2007 12:27:33 PM UTC

Currently accessing cluster: "Cluster" (#10637)

Current running tasks:

Task	ID	Start Time	Duration	Initiating User	Current Step
Insert logical volumes	127	Wednesday, August 8, 2007 12:27:08 PM UTC	0 hours, 0 minutes, 26 seconds	admin	9 of 13

Page 1 of 1 Total: 1 Displayed: 1

Completed/Failed tasks (Last Month):

Task	ID	Start Time	End Time	Duration	Initiating User	Result
Insert logical volumes	126	Tuesday, August 7, 2007 11:23:54 AM UTC	Tuesday, August 7, 2007 11:24:42 AM UTC	0 hours, 0 minutes, 48 seconds	admin	Complete

Trusted Internal

IMPLEMENTATION



- At completion, check Insert Logical Volume result in “Completed/Failed Tasks”.
- Click on the hyperlink under the “Result” column to see the detail completion status.

Virtualization Engine TS7740

My Work

- Virtualization Engine Grid Summary
- Health & Monitoring
- Jobs & Processes
- Performance & Statistics
- Operations
 - [Insert Logical Volumes](#)
 - [Delete Logical Volumes](#)
 - [Standalone Mount Logical Volume](#)
- Configuration
- User Management
- Service & Troubleshooting

External Links

- [Launch Library Manager](#)

Cluster Operation History

Task ID Start Time Duration Initiating User Current Step

Page 1 of 1 Total: 1 Displayed: 1

Completed/Failed tasks (Last Month):

Task	ID	Start Time	End Time	Duration	Initiating User	Result
Insert logical volumes	126	Tuesday, August 7, 2007 11:23:54 AM UTC	Tuesday, August 7, 2007 11:24:42 AM UTC	0 hours, 0 minutes, 48 seconds	admin	Completed
Insert logical volumes	125	Monday, August 6, 2007 3:07:11 PM UTC	Monday, August 6, 2007 3:08:02 PM UTC	0 hours, 0 minutes, 51 seconds	admin	Completed
Insert logical volumes	124	Monday, August 6, 2007 2:59:02 PM UTC	Monday, August 6, 2007 2:59:52 PM UTC	0 hours, 0 minutes, 50 seconds	admin	Successful

Trusted Internal

- Sample screen below shows “Insert Logical Volume” completed successfully

Virtualization Engine TS7740

My Work

- Virtualization Engine Grid Summary
- Health & Monitoring
- Jobs & Processes
- Performance & Statistics
- Operations
 - [Insert Logical Volumes](#)
 - [Delete Logical Volumes](#)
 - [Standalone Mount Logical Volume](#)
- Configuration
- User Management
- Service & Troubleshooting

External Links

- [Launch Library Manager](#)
- [Specialist](#)

Cluster Operation History

Task	Insert logical volumes
ID	126
Start Time	Tuesday, August 7, 2007 11:23:54 AM UTC
End Time	Tuesday, August 7, 2007 11:24:42 AM UTC
Duration	0 hours, 0 minutes, 48 seconds
Initiating User	admin
Result	Completed

Task details:

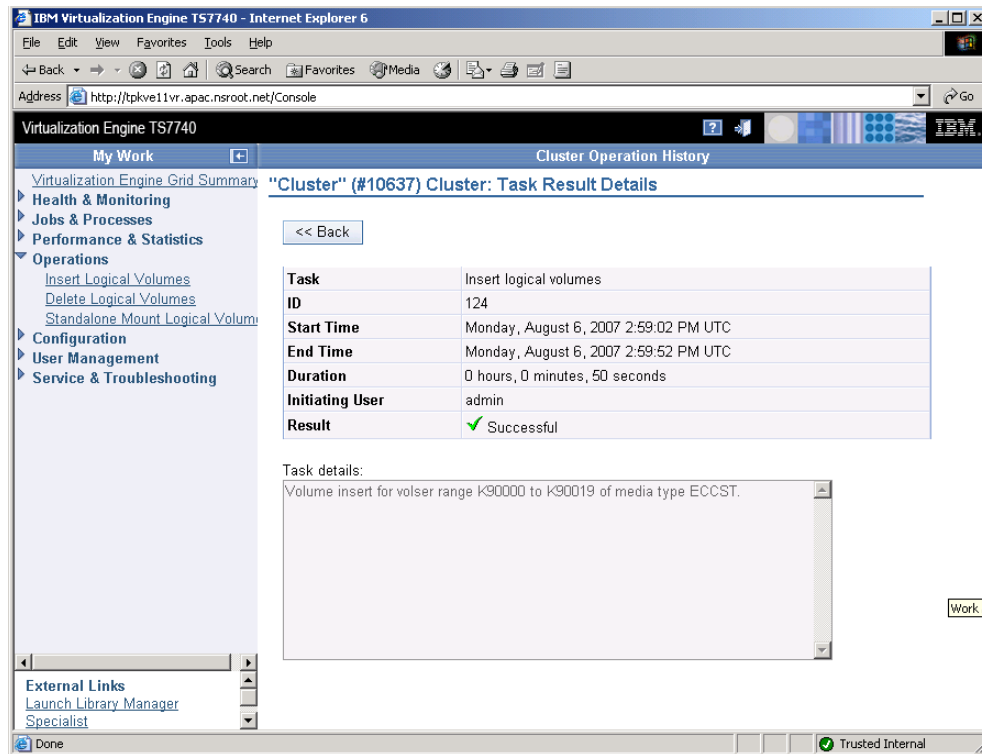
Volume insert for volser range K90000 to K90099 of media type ECCST.

Additional task information:

Insert complete for volser range K90000 to K90099. 100 volumes already existed in this range prior to the insert.

Done

Trusted Internal



- Verify the defined “Logical Volume” is accepted by the lpar. Check the OAM listing.
- If the sysplex/lpar accepts the “Logical Volume”, you will see the following message in OAM.

```
CBR3610I Volume entry processing. 994
The following volumes were entered into library SGC1.
K90020 K90021 K90022 K90023 K90024 K90025 K90026 K90027
K90028 K90029 K90030 K90031 K90032 K90033 K90034 K90035
K90036 K90037 K90038 K90039 K90040 K90041 K90042 K90043
K90044 K90045 K90046 K90047 K90048 K90049 K90050 K90051
K90052 K90053 K90054 K90055 K90056 K90057 K90058 K90059
K90060 K90061 K90062 K90063 K90064 K90065 K90066 K90067
```

- If the sysplex/lpar rejects the “Logical Volume”, you will see the following message in OAM. This message is acceptable in sysplex/lpar where it does not own the logical volume.

```
CBR3620I Entry of volume S00000 into library SGC2 failed. CBR3621I Enter request
ignored by the cartridge entry installation exit (CBRUXENT).
```

IMPLEMENTATION



For situation where there is a problem checking-in the logical volume for the lpar, do verify the following:

- The logical volume range is define to CA-1 TMC
- The logical volume range in CA-1 TMC is not in “DELETE” status
- There is no outstanding CA-1 activities that prevent any update on CA-1 TMC.
Eg. TMC backup. (IEFTMS9 TMC BACKUP REQUIRED, AUDIT FILE UTILIZATION IS CURRENTLY 84%)
- Verify the entry exit (CBRUXENT) is ENABLED, with the command “D SMS,OAM”.

TAPE	TOT	ONL	TOT	TOT	TOT	TOT	TOT	ONL	AVL	TOTAL
	LIB	LIB	AL	VL	VCL	ML	DRV	DRV	DRV	SCRATCH
	2	2	0	0	2	0	1024	8	8	1504

There are also 4 VTS distributed libraries defined.

CBRUXCUA processing ENABLED.

CBRUXEJC processing ENABLED.

CBRUXENT processing ENABLED.

CBRUXVNL processing ENABLED.

If the exit is in DISABLED status, enable it with the command

LIBRARY RESET, CBRUXENT



Checking Logical Scratch Volume Utilization

To check the logical scratch volume utilization, issue the following command at the Z/OS console. The library name will be the composite library name.

```
D SMS,LIB(SGC1),DETAIL
D SMS,LIB(SGC2),DETAIL
```

You will see a response as follows for each of the composite library:

```
D SMS,LIB(SGC1),DETAIL
F OAM,D,LIB,SGC1,L=VNIB1@S8-Z
CBR1110I OAM library status: 581
TAPE      LIB  DEVICE      TOT  ONL  AVL  TOTAL  EMPTY  SCRTCH  ON  OP
LIBRARY   TYP  TYPE      DRV  DRV  DRV  SLOTS  SLOTS  VOLS
SGC1      VCL  3957-V06  256  256  256    0      0     188   Y   Y
-----
MEDIA      SCRATCH      SCRATCH      SCRATCH
TYPE      COUNT      THRESHOLD    CATEGORY
MEDIA2      188          0          3012
-----
DISTRIBUTED LIBRARIES:  CTG1      TPG1
-----
OPERATIONAL STATE:  AUTOMATED
ERROR CATEGORY SCRATCH COUNT:          3
CORRUPTED TOKEN VOLUME COUNT:          0
-----
Library supports outboard policy management.
```

From the response, the “SCRATCH COUNT” shows the scratch volumes that are available.



Checking Stacked Volume Utilization

To check the stacked volume utilization, issue the following command at the Z/OS console. The library name will be the distributed library name.

```
D SMS,LIB(CTG1),DETAIL
D SMS,LIB(CTG2),DETAIL
D SMS,LIB(TPG1),DETAIL
D SMS,LIB(TPG2),DETAIL
```

You will see a response as follows for each of the distributed library:

```
D SMS,LIB(TPG1),DETAIL
F OAM,D,LIB,TPG1,L=VNIB1@S8-Z
CBR1110I OAM library status: 561
TAPE      LIB  DEVICE      TOT  ONL  AVL  TOTAL  EMPTY  SCRTCH  ON  OP
LIBRARY   TYP  TYPE      DRV  DRV  DRV  SLOTS  SLOTS  VOLS
TPG1      VDL  3957-V06      0    0    0   1388   1328      0    Y   Y
-----
COMPOSITE LIBRARY:      SGC1
-----
OPERATIONAL STATE:  AUTOMATED
SCRATCH STACKED VOLUME COUNT:      58
PRIVATE STACKED VOLUME COUNT:      2
-----
Library supports outboard policy management.
Convenience I/O station installed.
Convenience I/O station in Output mode.
Bulk input/output not configured.
```

From the response:

- The “Total Slots” and “Empty Slots” shows if the library is running out of slots for new stacked volume.
- The “Scratch Stacked Volume” and “Private Stacked Volume” shows if there are sufficient scratch stacked volume.

For a more detail monitoring of stacked volume, please refer to Monitoring Stacked Volume For Each Pool.



Monitoring Stacked Volume For Each Pool

The BVIR “PHYSICAL MEDIA POOLS” function can be used retrieve the stacked volume pool utilization in each of the tape library.

The following JCL template can be used. Use a *bvir_dsn* where the virtual drive allocation will be allocated to the specific tape library. JCLs are in SXDC.BSP.IBMTOOLS.

```
//... jobcard ...
//STEP1      EXEC PGM=IEBGENER
//SYSPRINT   DD SYSOUT=*
//SYSIN      DD DUMMY
//SYSUT2     DD DSN=SADC.VE1.STACK.POOL(+1),
//            UNIT=TAPE, LABEL=(,SL), DISP=(NEW,CATLG,DELETE),
//            DCB=(RECFM=F, BLKSIZE=80, LRECL=80, TRTCH=NOCOMP)
//SYSUT1     DD *
VTS BULK VOLUME DATA REQUEST
PHYSICAL MEDIA POOLS
//*
//STEP2      EXEC PGM=IEBGENER
//SYSPRINT   DD SYSOUT=*
//SYSIN      DD DUMMY
//SYSUT2     DD SYSOUT=*, DCB=(DSORG=PS, RECFM=F, LRECL=80, BLKSIZE=80)
//SYSUT1     DD DISP=OLD, DSN=SADC.VE1.STACK.POOL(+1)
//*
//STEP3      EXEC PGM=IEBGENER
//SYSPRINT   DD SYSOUT=*
//SYSIN      DD DUMMY
//SYSUT2     DD DSN=SADC.VE2.STACK.POOL(+1),
//            UNIT=TAPE, LABEL=(,SL), DISP=(NEW,CATLG,DELETE),
//            DCB=(RECFM=F, BLKSIZE=80, LRECL=80, TRTCH=NOCOMP)
//SYSUT1     DD *
VTS BULK VOLUME DATA REQUEST
PHYSICAL MEDIA POOLS
//*
//STEP4      EXEC PGM=IEBGENER
//SYSPRINT   DD SYSOUT=*
//SYSIN      DD DUMMY
//SYSUT2     DD SYSOUT=*, DCB=(DSORG=PS, RECFM=F, LRECL=80, BLKSIZE=80)
//SYSUT1     DD DISP=OLD, DSN=SADC.VE2.STACK.POOL(+1)
//
```

At the completion of the job, a report will be generated in SYSUT2 of STEP2. Following is a sample report.



VTS BULK VOLUME DATA REQUEST
 PHYSICAL MEDIA POOLS
 10/10/2007 11:54:30 VERSION 02
 S/N: 10637 LIB ID: 10637

R	POOL	MEDIA	EMPTY	FILLING	FULL	ERASE							
C	02	JJ	00085	00001	00014	00000							
C	04	JJ	00161	00001	00038	00000							
C	05	JB	00083	00003	00012	00000							
C	07	JB	00187	00003	00010	00000							
R	POOL	MEDIA	0+	10+	20+	30+	40+	50+	60+	70+	80+	90+	
D	02	JJ	00000	00000	00000	00000	00000	00000	00000	00000	00013	00001	
D	04	JJ	00000	00000	00000	00000	00000	00007	00006	00011	00007	00007	
D	05	JB	00000	00000	00000	00000	00000	00000	00001	00000	00000	00011	
D	07	JB	00000	00000	00000	00000	00000	00000	00000	00001	00001	00008	

Example is Telepark Library 1

VTS BULK VOLUME DATA REQUEST
 PHYSICAL MEDIA POOLS
 10/10/2007 11:54:41 VERSION 02
 S/N: 10672 LIB ID: 10672

R	POOL	MEDIA	EMPTY	FILLING	FULL	ERASE							
C	02	JJ	00085	00002	00013	00000							
C	04	JJ	00165	00003	00032	00000							
C	05	JB	00080	00003	00012	00000							
C	07	JB	00186	00004	00010	00000							
R	POOL	MEDIA	0+	10+	20+	30+	40+	50+	60+	70+	80+	90+	
D	02	JJ	00000	00000	00000	00000	00000	00000	00000	00002	00009	00002	
D	04	JJ	00000	00000	00000	00000	00000	00000	00000	00004	00013	00015	
D	05	JB	00000	00000	00000	00000	00001	00000	00002	00002	00003	00004	
D	07	JB	00000	00000	00000	00000	00000	00000	00000	00000	00000	00010	

Example is Telepark Library 2

At the upper area of the BVIR response for the PHYSICAL MEDIA POOLS query you can identify the number of empty and active volumes per pool, that is, the number of stacked volumes that have active data on them for each pool. This includes stacked volumes that are in the process of being filled with new data.

Pool 0 is the Common Scratch Pool (CSP) and therefore it can only contain EMPTY stacked volumes. Pool 0 is not used in Citibank Singapore setup, it's however used in Hong Kong setup.

Monitor the "Empty Count" to ensure there are sufficient stacked volume for each pool.



Descriptions of each field:

FIELDS	REMARKS
Pool Number	The pool number.
Media Type	The media type defined for the pool.
Empty Count	The count of the physical volumes that are empty for the media type.
Filling Count	The count of the physical volumes that are in the filling state for the media type.
Full Count	The count of the physical volumes that have been marked full for the media type.
Erase Count	The count of the physical volumes that have been reclaimed, but need to be erased before they become empty.
ROR Count	The count of the physical volumes that are in the read only recovery state.
Unavailable Count	The count of the physical volumes that are in the unavailable or destroyed state.

In the lower section of the output you can see the active data distribution per pool. The 0+, 10+, 20+ etc shows the count of physical volumes that are marked full and have an active data percentage of 0-10% (for 0+), 10%-20% (for 10+), 20%-30% (for 20+) and so on.



Display Specific Logical Volume Information

To display specific logical volume information, use the command:

D SMS,VOL(logical_volume)

```

D SMS,VOL(K90004)
F OAM,D,VOL,K90004,L=VNIB1@S8-Z
CBR1180I OAM tape volume status: 020
VOLUME  MEDIA      STORAGE  LIBRARY  USE  W  C  SOFTWARE  LIBRARY
          TYPE      GROUP    NAME     ATR  P  P  ERR STAT  CATEGORY
K90004   MEDIA2     SGVSLIB1 SGC1     P   N      NOERROR  PRIVATE
-----
RECORDING TECH:      36 TRACK      COMPACTION:      YES
SPECIAL ATTRIBUTE:  NONE          ENTER/EJECT DATE: 2007-08-06
CREATION DATE:      2007-08-06     EXPIRATION DATE:
LAST MOUNTED DATE:  2007-08-08     LAST WRITTEN DATE: 2007-08-08
SHELF LOCATION:
OWNER:
LM SG: SGVSLIB1  LM SC: SCVPG1    LM MC:          LM DC: DCV800
-----
Logical volume.
Volume is cache resident.
Valid copy in each distributed library.

```

Note:

- The above shows a Private Volume.
- "Volume in cache resident" means the logical volume is still in the VE TVC
- "Valid copy in each distributed library" means the logical volume has been replicated to other cluster in the grid

```

D SMS,VOL(K90000)
F OAM,D,VOL,K90000,L=VNIB1@S8-Z
CBR1180I OAM tape volume status: 004
VOLUME  MEDIA      STORAGE  LIBRARY  USE  W  C  SOFTWARE  LIBRARY
          TYPE      GROUP    NAME     ATR  P  P  ERR STAT  CATEGORY
K90000   MEDIA2     *SCRTCH* SGC1     S      REJTMS  ERROR
-----
RECORDING TECH:      36 TRACK      COMPACTION:      UNKNOWN
SPECIAL ATTRIBUTE:  NONE          ENTER/EJECT DATE: 2007-08-06
CREATION DATE:      2007-08-06     EXPIRATION DATE:
LAST MOUNTED DATE:          LAST WRITTEN DATE:
SHELF LOCATION:
OWNER:
LM SG:          LM SC:          LM MC:          LM DC:
-----
Logical volume.
Volume is cache resident.
Valid copy in each distributed library.

```

Note: The above shows a SCRATCH Volume.



Managing OAM Address Space

Commands to manage the OAM address space.

Commands	Usage
S OAM	Start OAM if it is not started
F OAM,RESTART	Restart OAM address space
S OAM,RESTART=NO	Start OAM but should not auto restart
F OAM,STOP,OAM	Stop OAM
D SMS,OAM	Display OAM Status
F OAM,QUERY,ACTIVE,SUMMARY,ALL	Display the active OAM activity
F OAM,QUERY,WAITING,SUMMARY ALL	Display the # of OAM activity in queue

D SMS, OAM

F OAM,D,OAM,L=VNIB1@S8-Z

CBR1100I OAM status: 233

TAPE	TOT	ONL	TOT	TOT	TOT	TOT	TOT	ONL	AVL	TOTAL
	LIB	LIB	AL	VL	VCL	ML	DRV	DRV	DRV	SCRATCH
	2	2	0	0	2	0	512	512	512	383

There are also 4 VTS distributed libraries defined.

CBRUXCUA processing ENABLED.

CBRUXEJC processing ENABLED.

CBRUXENT processing ENABLED.

CBRUXVNL processing ENABLED.

Other Host Commands

- Vary Online/Offline Library

F OAM,V,(libname),ONLINE - to vary a library online

F OAM,V,(libname),OFFLINE - to vary a library offline

Example: F OAM,V,CTG1,ONLINE - this is vary online library CTG1

- Device Service Query Tape. Query the status of the virtual drives.

DS QT,5000

IEE459I 14.26.37 DEVSERV QTAPE 225

UNIT	DTYPE	DSTATUS	CUTYPE	DEVTYPE	CU-SERIAL	DEV-SERIAL	ACL	LIBID
------	-------	---------	--------	---------	-----------	------------	-----	-------

5000	3490L	ON-NRD	3957C2A	3590	* 0178-63700	0178-63700	I	38500
------	-------	--------	---------	------	--------------	------------	---	-------

**** 1 DEVICE(S) MET THE SELECTION CRITERIA

**** 1 DEVICE(S) WITH DEVICE EMULATION ACTIVE

- | D SMS, LIB(ALL), DETAIL | | | | | | | | | | |
|----------------------------------|-----|----------|-----|-----|-----|-------|-------|--------|----|----|
| F OAM,D,LIB,L=VNIB1@S8-Z | | | | | | | | | | |
| CBR1110I OAM library status: 554 | | | | | | | | | | |
| TAPE | LIB | DEVICE | TOT | ONL | AVL | TOTAL | EMPTY | SCRTCH | ON | OP |
| LIBRARY | TYP | TYPE | DRV | DRV | DRV | SLOTS | SLOTS | VOLS | | |
| CTG1 | VDL | 3957-V06 | 0 | 0 | 0 | 1388 | 1378 | 0 | Y | Y |
| CTG2 | VDL | 3957-V06 | 0 | 0 | 0 | 1388 | 1378 | 0 | Y | Y |
| SGC1 | VCL | 3957-V06 | 256 | 256 | 256 | 0 | 0 | 188 | Y | Y |
| SGC2 | VCL | 3957-V06 | 256 | 256 | 256 | 0 | 0 | 195 | Y | Y |
| TPG1 | VDL | 3957-V06 | 0 | 0 | 0 | 1388 | 1328 | 0 | Y | Y |
| TPG2 | VDL | 3957-V06 | 0 | 0 | 0 | 1388 | 1248 | 0 | Y | Y |

- ```

D SMS,LIB(TPG1),DETAIL
F OAM,D,LIB,TPG1,L=VNIB1@S8-Z
CBR1110I OAM library status: 561
TAPE LIB DEVICE TOT ONL AVL TOTAL EMPTY SCRTCH ON OP
LIBRARY TYP TYPE DRV DRV DRV SLOTS SLOTS VOLS
TPG1 VDL 3957-V06 0 0 0 1388 1328 0 Y Y

COMPOSITE LIBRARY: SGC1

OPERATIONAL STATE: AUTOMATED
SCRATCH STACKED VOLUME COUNT: 58
PRIVATE STACKED VOLUME COUNT: 2

Library supports outboard policy management.
Convenience I/O station installed.
Convenience I/O station in Output mode.
Bulk input/output not configured.

```



## Managing Operator Intervention

When there is a physical intervention required on the VE, the following message is seen on hos

**\*CBR3762E Library CTG2 intervention required.**

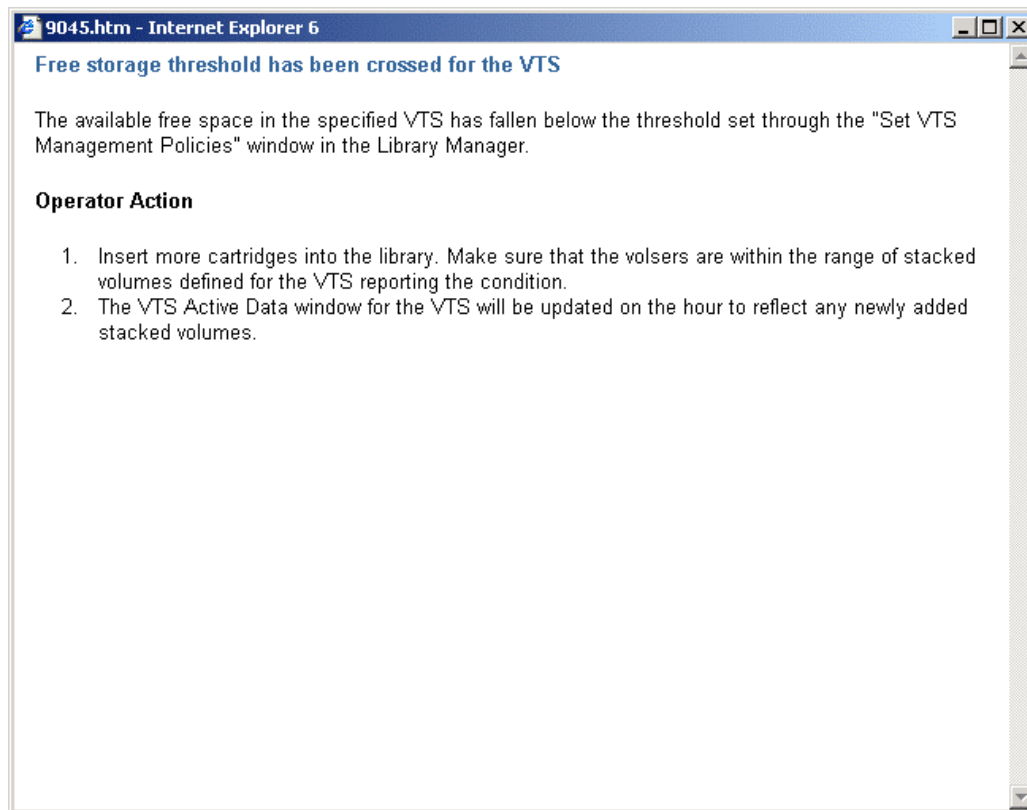
- From the library name, logon to the Library Manager indicated in the message. In the example above it's CTG2.
- Select "Monitor Library Manager" → "Operator Intervention".

The screenshot shows the IBM TotalStorage Enterprise Automated Tape Library Specialist web interface in Internet Explorer 6. The left sidebar contains a 'Work Items' menu with options like 'Welcome page', 'Monitor library manager', 'System summary', 'Operational status', 'Operator interventions', 'Device availability', 'Performance statistics', 'Command queue', 'Lan information', 'Volser ranges', 'Tape Subsystem IDs', 'Physical Device Location', 'Administer library manager', 'Monitor logical library', 'Monitor VTS 1', 'Administer VTS 1', 'Manage security', 'Service library manager', and 'Manage Virtualization Engine 1'. The main content area is titled 'Operator Interventions' and displays a list of interventions sorted by date and time. A single intervention is shown with a warning icon and the message: 'Free storage threshold has been crossed for VTS 1.' Below the table, a note states: 'Note: Items starting with an asterisk (\*) are cleared automatically when the condition causing the intervention is cleared.'

| Date     | Time     | Priority | Partition | Description                                          |
|----------|----------|----------|-----------|------------------------------------------------------|
| 07/11/07 | 09:00:05 | 3        |           | ⚠ Free storage threshold has been crossed for VTS 1. |



- Click on the hyperlink in the "Description" column to get an explanation of the intervention.



- Perform the required intervention action. For intervention that has "\*" mark on the description, the intervention item will be automatically cleared once the intervention activity is done successfully.



- If there is a need to clear the intervention manually perform the following.
- Select “Administer Library Manager” → “Manage Operator Intervention”
- Select the intervention item and select “Clear” to clear it.

Enterprise Automated Tape Library Specialist - Internet Explorer 6

File Edit View Favorites Tools Help

IBM TotalStorage™  
Enterprise Automated Tape Library Specialist

Work Items Manage Operator Interventions

Welcome page

- Monitor library manager
- Administer library manager
  - Search database
  - Modify volser ranges
  - Manage operator interventions
  - Request inventory upload
- Monitor logical library
- Monitor VTS 1
- Administer VTS 1
- Manage security
- Service library manager

Manage Virtualization Engine 1

- Monitor 3584 Tape Library

### Operator Interventions

To clear specific operator interventions, mark the checkbox next to the appropriate intervention and select the Clear button.

| Select                              | Timestamp         | Priority | Partition | Intervention                                       |
|-------------------------------------|-------------------|----------|-----------|----------------------------------------------------|
| <input checked="" type="checkbox"/> | 07/11/07 09:00:05 | 3        | 0         | Free storage threshold has been crossed for VTS 1. |

Clear Refresh

### System Interventions

To clear system interventions, select the Clear All button.

| Timestamp | Priority | Partition | Intervention |
|-----------|----------|-----------|--------------|
|           |          |           |              |

Clear All Refresh

Status  
No operation in progress.

History  
No operations have been performed.

Trusted Internal



## OAM Messages

Listed below are some general OAM messages that require follow-up action to ensure continual functionality of the IBM VE.

- \*CBR3786E VTS operations degraded in library *library\_name*.

**Explanation:** One or more elements in the TS7700 subsystem for library *library-name* are not available. The unavailable elements may include virtual device addresses, communication paths, host I/O bandwidth, etc.

Usage of the library continues in nearly normal fashion, though the performance may be degraded. This message is retained until all of the resources in the subsystem are available.

**Operator Response:** Refer to Managing Operator Intervention to determine the unavailable element in the TS7700 subsystem, then contact an IBM representative to perform the necessary repair action.

- \*CBR3789E VTS library *library\_name* is out of empty stacked volumes.  
CBR3750I Message from library TPG1: OP0139 \* Storage Pool 02 is out of scratch stacked volumes. (VTS 1) (08-06-2007 16:20:17).

**Explanation:** Distributed library *library-name* has used all its empty stacked volumes. CBR3750I provides additional information on the stacked volume pool encountering the error.

Mount operations will continue if another distributed library in the grid is available and not also in this state. If all available distributed libraries in the grid configuration are in this state, mount requests fail.

**Operator Response:** Add scratch stacked volumes to the distributed library reporting that it is out of empty stacked volumes.

- \*CBR3660A Enter MEDIA2 scratch volumes into library *library\_name*.

**Explanation:** The number of usable scratch logical volumes of the specified media type in library *library-name* has fallen below the media type scratch logical volume threshold. The media type scratch logical volume threshold is set by the storage administrator using the ISMF library application.

Processing continues. This message remains until the number of scratch logical volumes of the specified media type exceeds twice the media type scratch volume threshold.

**Operator Response:** Enter scratch logical volumes of the specified media type into the library. Please refer to “Add Logical Volume” for instructions on adding logical volume to the specific sysplex/lpar.

- CBR4105I No MEDIA2 scratch volumes available in library *library\_name*.  
\*0050 CBR4196D Job *job\_name*, drive *device\_number*, volser SCRTCH, error code 140169. Reply 'R' to retry or 'C' to cancel.

**Explanation:** Library *library-name* has indicated that there are no more eligible scratch volumes in the library, so the mount scratch request cannot be executed. Message CBR4196D will be issued for job affected by this error. Reply “C” to CBR4196D when additional scratch logical volumes are inserted into the library.

## IMPLEMENTATION



**Operator Response:** Enter scratch logical volume into the library. Please refer to “Add Logical Volume” for instructions on adding logical volume to the specific sysplex/lpar.  
CBR3750I Message from library library\_name: OP0123 Stacked volume stacked\_volser is in Read-Only status with a reason code of ....

**Explanation:** There is a media error detected on the *stacked\_volser*. The *stacked\_volser* is now in read-only mode. No new logical volumes will be written into the specified stacked volume.

**Operator Response:** Plan to eject the stacked volume from the tape library through the Library Manager interface. Logical volumes will be migrated to another stacked volume during the eject process. Please refer to the section “EJECTING STACKED VOLUME”.

## SUPPLIER INFORMATION

IBM Support Contact Number / Serial Number or Site ID  
EMC Support Contact Number / Serial Number  
HDS Support Contact Number / Serial Number

## LICENSES INFORMATION



## 5. OUTSTANDING WORK/ISSUES

| Work/Issue Description | Action Plan | Issue Owner                                       |
|------------------------|-------------|---------------------------------------------------|
|                        |             | Indicate the stream , and the name of the person. |
|                        |             |                                                   |
|                        |             |                                                   |

IBM Tape Backup



"Citibank VE Problem  
Log - 20071018.xls"



## 6. COB PROCEDURE

### A. EMC COB PROCEDURE

Due to sharing of SYSRES and coupling volumes between SP05/06 and CIT2 in the same SYSPLEX, storage team need to perform "R2-BCV" split and re-establish for these systems as a whole, i.e. storage team will split both SP05 and CIT2 Production disks at about the same time. Similarly both SP05 and CIT2 COB systems must be shut down at about the same time before storage team can re-sync the disks."

2 procedures are documented below:

- a. Setting up the COB drill where MSC and SRDFA are still active after the SPLIT
- b. Setting up the COB drill where MSC is disabled and SRDFA is suspended after the SPLIT

Management decision is required to decide on which procedure is to be used.

#### PROCEDURES FOR SETTING UP COB DRILL (SRDFA and MSC are still active after SPLIT)

FOLLOW THESE PROCEDURES FOR SETTING UP COB DRILL. ALL OF THE JCL'S USED IN THIS PROCEDURE CAN BE FOUND IN SPDC.BSP.EMC.SRDFA.JCL (PRODUCTION).

IN THE PROCEDURE, LOCAL LPAR REFERS TO THE PRODUCTION SYSTEMS (I.E. SP03/4, SPJ1/SPJ2 OR SP05/6 ), REMOTE LPAR REFERS TO THE HK SYSTEMS (I.E. HS01), AND COB LPAR REFERS TO COB SYSTEMS (I.E. HKCOBXX).

#### Pre-COB Drill Activities

- These tasks must be performed 1 or 2 days before the actual date of the COB drill.

| S/No | Activities                                                                                                                                                                                                                                                                       | LPAR                                  | JCL                           |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------|
| 1.   | <p>Ensure BCV's are offline from all LPAR's</p> <p>☒ Verify that all BCVs are offlined in HK COB Lpars and HK Host HS01 Lpar.</p> <p>☒ Run CLEANUP and RELEASE jobs in HK host HS01 Lpar to cleanup and release SNAP sessions.</p> <p>Source Data Set: SSDC.BSP.STGADMIN.JCL</p> | <p>Remote HS01</p> <p>Remote HS01</p> | <p>CLEANUP</p> <p>RELEASE</p> |
| 2.   | Query the status of SRDFA and ensure that the status is SRDFA A MSC                                                                                                                                                                                                              | Local                                 | QRYSRDFA                      |
| 3.   | Query the status of BCV and ensure that the status is either INUSE or INUSEX.                                                                                                                                                                                                    | Local                                 | QRYBCV                        |



|    |                                                                                                                                                                                                                                                                                                                                                                                     |       |                                                                                                                                                                                                                                          |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. | Re-establish the BCV that are out-of-synch (in AVAIL status) with the R2 pairs. Depending on the number of volumes out-of-synch, it may take up to 5 hours to re-establish for all the BCV.                                                                                                                                                                                         | Local | SP03<br>----<br>RE@TAB04<br>RE@TAB05<br>RE@TAB06<br>RE@TAB07<br>RE@TAB08<br>RE@TAB09<br>RE@TAB26<br><br>SPJ1<br>----<br>RE@TAB20<br><br>SP05<br>----<br>RE@TAB13<br>RE@TAB14<br>RE@TAB15<br>RE@TAB16<br>RE@TAB17<br>RE@TAB18<br>RE@TAB19 |
| 5. | Issue MSC REFRESH to force-synch any new volumes added to RDF groups.<br>Console Command → <b>F EMCSCF5, MSC, REFRESH</b> (where EMCSCF5 is the SCF started task name)<br>SCF Command to refresh the Global parms → <b>A5 SC GLOBAL, PARM_REFRESH</b><br><br>- Confirm all RDF Groups have been updated in the MSC_INCLUDE_SESSION parm member [e.g. SPDC.BSP.EMC.PARM (EMCCMDxx)]; | Local |                                                                                                                                                                                                                                          |
| 6  | Query the status of BCV and ensure that the status is in INUSE or INUSEX state.                                                                                                                                                                                                                                                                                                     | Local | QRYBCV                                                                                                                                                                                                                                   |

#### COB Drill Activities (BCV Split)

|    |                                                                                                                                                                    |       |                      |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------|
| 7  | The following activities are performed on the day of COB drill (before COB LPAR is IPLed)                                                                          |       |                      |
| 7a | BCV Split<br><br>Query the SRDFA status, ensure R1/ R2 and links are active (i.e. R/W-AS for non-operating system volumes or R/W-AD for operating system volumes). | Local | QRYSRDFA<br>QRYSRDFV |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------|
| Run the following when Ops are ready to start COB drill:                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |          |
| ☒ BCV SPLIT <ul style="list-style-type: none"> <li>- Remote Consistency Split for all BCV volumes (except operating system volumes). This may take up to 30 – 60 minutes.</li> <li>- Check for the following messages for successful completion:<br/>BCVM133I SRDFA Suspend successful for RA Group<br/>BCVM133I SRDFA Resume successful for RA Group<br/>BCVM047I All control stmts processed, highest RC 0</li> <li>- Split for all BCV operating system volumes (in xF RDF group). This may take up to 10 minutes.</li> </ul> | Local | SPLITECA |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Local | SPLITADC |
| - Query the status of BCV and ensure that all the status are AVAIL                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Local | QRYBCV   |
| ☒ Inform MVS SP that COB system is ready to be IPLed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |          |

**COB Activities (After COB LPAR is IPLed)**

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |  |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--|
| 8  | The following activities are performed on the day of COB drill (after COB LPAR is IPLed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | LPAR |  |
| 8a | <p>EMCSCF Customization</p> <p>a. In SCFINI parm,</p> <ul style="list-style-type: none"> <li>- Include BYPASS_LOG=YES statement</li> <li>- Comment out the following statements</li> <li>* SCF.LOG.RETAIN.COUNT=10</li> <li>* SCF.LOG.RETAIN.DAYS=10</li> <li>* SCF.LOG.TRACKS.PRI=150</li> <li>* SCF.LOG.TRACKS.SEC=150</li> </ul> <p>b. Delete with noscratch existing EMC logs</p> <ul style="list-style-type: none"> <li>- SPDC.BSP.EMC.LOG.SPxx\$\$\$\$</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | COB  |  |
| 8b | <p>DFHSM Customization</p> <p>☒ If DFHSM is down, update the DFHSM startup member, SPDC.MSY.DFHSM.PARMLIB(ARCCMD00):</p> <ul style="list-style-type: none"> <li>▪ Find “FUNCTIONS”, replace NODEBUG &amp; NOEMERGENCY with HOLD DUMP &amp; HOLD RECYCLE</li> <li>▪ Set primary/secondary migr start=end time, as follows:<br/>PRIMARYSPMGMTSTART(0000)<br/>SECONDARYSPMGMTSTART(0000 0000)<br/>AUTOBACKUPSTART(0000 0000 0000)<br/>AUTODUMPSTART(0000 0000 0000)</li> <li>▪ Change SETSYS PARTIALTAPE(REUSE) to<br/>SETSYS PARTIALTAPE(MARKFULL)</li> </ul> <p>☒ If DFHSM has been started up, issue these commands for DFHSM:</p> <ul style="list-style-type: none"> <li>- <b>F DFHSM,HOLD DUMP</b></li> <li>- <b>F DFHSM,HOLD AMIG</b></li> <li>- <b>F DFHSM,HOLD RECYCLE</b></li> <li>- <b>F DFHSM, HOLD RECALL(TAPE)</b></li> </ul> <p>Remarks: This is to ensure that DFHSM will use a new for all migration and backup tasks.</p> <p>Inform PCOs and operators that data sets migrated to ML2 before BCV splits cannot be recalled in the COB system.</p> | COB  |  |
| 8c | <p>Bringing up Started Tasks</p> <p>☒ CA-1</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | COB  |  |



|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |                      |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------|
|    | <ul style="list-style-type: none"> <li>▪ Go to 9.T; If CA-1 is not up, request Operator to start up CAS9.</li> </ul> <p>☒ OAM (this is the address space for IBM VE)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COB |                      |
| 8d | <p>Ensure Tape &amp; Disk Devices are Online</p> <p>☒ Online the IBM Vses and Tape Drives</p> <ul style="list-style-type: none"> <li>✓ <b>Cintech COB site</b> –             <ul style="list-style-type: none"> <li>- 5000-502F &amp; 5700-572F for SP03</li> <li>- 5040-506F &amp; 5740-576F for SPJ1</li> </ul> </li> <li>- <b>Telepark COB site</b> –             <ul style="list-style-type: none"> <li>- 5080-50BF &amp; 5780-57BF</li> <li>-</li> </ul> </li> </ul> <p>☒ Check that only these WORK volumes are ONLINE</p> <ul style="list-style-type: none"> <li>- SD03 / Telepark – 8A00 to 8A15/ 8A56 to 8A9F</li> <li>- - SD05 / Cintech – 8200 to 8248/ 8249 to 825F</li> </ul> | COB | ZCOBTEST<br>ISPF 9.T |
| 8e | <p>Run Tests (To be completed only after media librarian inserts the IBM logical volumes)</p> <p>☒ Verify that CA-1 (Tape Management) is operational.</p> <p>☒ TEST the IBM VE and 3490 files allocation</p> <ul style="list-style-type: none"> <li>▪ Go to SXDC.MSY.STGADMIN.DOC) – for SP03</li> </ul> <p>COB – use this guideline to test VTV and 3490 allocation</p>                                                                                                                                                                                                                                                                                                                   | COB | ISPF 9.T             |
| 8f | <p>Delete RE-RUN and NONCOB data sets</p> <p>☒ Execute job DELRR in SPDC.MSY.SMS.JCL to generate and delete a list of RERUN (LLQ RR%%%%RR) and NONCOB (LLQ NONCOB) data sets.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | COB |                      |

**Post-COB Drill Activities**

| S/No | Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                     | LPAR                                     | JCL                                                                                                                                                                                                                                                                                          |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9    | <p>Re-establish BCV Volumes with R2</p> <p>☒ Verify that all BCVs are offlined in HK COB Lpars and HK Host HS01 Lpar.</p> <p>☒ Run CLEANUP and RELEASE jobs in HK host HS01 Lpar.</p> <p>Source Data Set: SSDC.BSP.STGADMIN.JCL</p> <p>☒ Re-establish BCV with R2 pair.</p> <p>Note: Catalog is occasionally using the BCV cat volumes.</p>                                                                                                                    | <p>Remote</p> <p>Remote</p> <p>Local</p> | <p>CLEANUP<br/>RELEASE</p> <p>SP03<br/>----<br/>RE@TAB04<br/>RE@TAB05<br/>RE@TAB06<br/>RE@TAB07<br/>RE@TAB08<br/>RE@TAB09<br/>RE@TAB26</p> <p>SPJ1<br/>----<br/>RE@TAB20</p> <p>SP05<br/>----<br/>RE@TAB13<br/>RE@TAB14<br/>RE@TAB15<br/>RE@TAB16<br/>RE@TAB17<br/>RE@TAB18<br/>RE@TAB19</p> |
| 10   | <p>Initialize Work Packs and Coupling Data Sets</p> <p>Source Data Set: SSDC.BSP.STGADMIN.JCL</p> <p>☒ Init work packs from HS01. This would delete all obsolete data sets in the COB work volumes.</p> <ul style="list-style-type: none"> <li>- Ensure concerned volumes have been made offline in PROD first</li> <li>- Run the INITxxxx job through an ASMS Change Man package. The sample members are INITSP03, INITSP05, INITSPJ1 and INITCIT2</li> </ul> | <p>Remote</p> <p>Remote</p>              | <p>INITxxxx</p>                                                                                                                                                                                                                                                                              |



## PROCEDURES FOR SETTING UP COB DRILL (Suspend SRDFA and disable MSC after SPLIT)

FOLLOW THESE PROCEDURES FOR SETTING UP COB DRILL. ALL OF THE JCL'S USED IN THIS PROCEDURE CAN BE FOUND IN SPDC.BSP.EMC.SRDFA.JCL (PRODUCTION).

IN THE PROCEDURE, LOCAL LPAR REFERS TO THE PRODUCTION SYSTEMS (I.E. SP03/4, SPJ1/SPJ2 OR SP05/6 ), REMOTE LPAR REFERS TO THE HK SYSTEMS (I.E. HS01), AND COB LPAR REFERS TO COB SYSTEMS (I.E. HKCOBXX).

### Pre-COB Drill Activities

- These tasks must be performed 1 or 2 days before the actual date of the COB drill.

| S/No | Activities                                                                                                                                                                                                                                                                       | LPAR                                  | JCL                                                                                                                                                                                                                                                               |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.   | <p>Ensure BCV's are offline from all LPAR's</p> <p>☒ Verify that all BCVs are offlined in HK COB Lpars and HK Host HS01 Lpar.</p> <p>☒ Run CLEANUP and RELEASE jobs in HK host HS01 Lpar to cleanup and release SNAP sessions.</p> <p>Source Data Set: SSDC.BSP.STGADMIN.JCL</p> | <p>Remote HS01</p> <p>Remote HS01</p> | CLEANUP<br>RELEASE                                                                                                                                                                                                                                                |
| 2.   | Query the status of SRDFA and ensure that the status is SRDFA A MSC                                                                                                                                                                                                              | Local                                 | QRYSRDFA                                                                                                                                                                                                                                                          |
| 3.   | Query the status of BCV and ensure that the status is in AVAIL state.                                                                                                                                                                                                            | Local                                 | QRYBCV                                                                                                                                                                                                                                                            |
| 4.   | Re-establish the BCV that are out-of-synch (in AVAIL status) with the R2 pairs. Depending on the number of volumes out-of-synch, it may take up to 5 hours to re-establish for all the BCV.                                                                                      | Local                                 | <p>SP03<br/>----<br/>RE@TAB04<br/>RE@TAB05<br/>RE@TAB06<br/>RE@TAB07<br/>RE@TAB08<br/>RE@TAB09<br/>RE@TAB26</p> <p>SPJ1<br/>----<br/>RE@TAB20</p> <p>SP05<br/>----<br/>RE@TAB13<br/>RE@TAB14<br/>RE@TAB15<br/>RE@TAB16<br/>RE@TAB17<br/>RE@TAB18<br/>RE@TAB19</p> |
| 5.   | Issue MSC REFRESH to force-synch any new volumes added to                                                                                                                                                                                                                        | Local                                 |                                                                                                                                                                                                                                                                   |



|   |                                                                                                                                                                                                                                                                                                                                 |       |        |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|
|   | <p>RDF groups.<br/>Console Command → <b>F EMCSCF5,MSC,REFRESH</b> (where EMCSCF5 is the SCF started task name)<br/>SCF Command to refresh the Global parms → <b>A5 SC GLOBAL,PARM_REFRESH</b></p> <p>- Confirm all RDF Groups have been updated in the MSC_INCLUDE_SESSION parm member [e.g. SPDC.BSP.EMC.PARM (EMCCMDxx)];</p> |       |        |
| 6 | Query the status of BCV and ensure that the status is in INUSE or INUSEX state.                                                                                                                                                                                                                                                 | Local | QRYBCV |

### COB Drill Activities (BCV Split)

| S/No | Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | LPAR                                   | JCL                                           |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------|
| 7    | <p>The following activities are performed on the day of COB drill (before COB LPAR is IPLed)</p> <p>Run the following when Ops are ready to start COB drill:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                        |                                               |
| 7a   | <p>Suspend SRDFA and MSC prior to Split</p> <p>Console Command → <b>F EMCSCF5,MSC,PENDDROP</b></p> <p>☒ Query the SRDFA status, ensure that SRDFA and MSC are down</p> <p>QRYSRDFA – Expected Response: SRDFA NOT FOUND<br/>QRYSRDFV – Expected result: ALL SRDFA VOLUMES IN TNR STATUS</p>                                                                                                                                                                                                                                                                                                                                          | <p>Local</p> <p>Local</p>              | <p>QRYSRDFA<br/>QRYSRDFV</p>                  |
| 7b   | <p>BCV Split</p> <p>☒ BCV SPLIT</p> <ul style="list-style-type: none"> <li>- Remote Consistency Split for all BCV volumes (except operating system volumes). This may take up to 30 – 60 minutes.</li> <li>- Check for the following messages for successful completion:<br/>BCVM133I SRDFA Suspend successful for RA Group<br/>BCVM133I SRDFA Resume successful for RA Group<br/>BCVM047I All control stmts processed, highest RC 0</li> <li>- Split for all BCV operating system volumes (in xF RDF group). This may take up to 10 minutes.</li> <li>- Query the status of BCV and ensure that all the status are AVAIL</li> </ul> | <p>Local</p> <p>Local</p> <p>Local</p> | <p>SPLITECA</p> <p>SPLITADC</p> <p>QRYBCV</p> |



|  |                                                                                         |  |  |
|--|-----------------------------------------------------------------------------------------|--|--|
|  | <input checked="" type="checkbox"/> Inform MVS SP that COB system is ready to be IPLed. |  |  |
|--|-----------------------------------------------------------------------------------------|--|--|

**COB Drill Activities (After COB Lpar is IPLed)**

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |  |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--|
| 8  | The following activities are performed on the day of COB drill (after COB LPAR is IPLed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | LPAR |  |
| 8a | <p>EMCSCF Customization</p> <p>a. In SCFINI parm,</p> <ul style="list-style-type: none"> <li>- Include BYPASS_LOG=YES statement</li> <li>- Comment out the following statements</li> <li>* SCF.LOG.RETAIN.COUNT=10</li> <li>* SCF.LOG.RETAIN.DAYS=10</li> <li>* SCF.LOG.TRACKS.PRI=150</li> <li>* SCF.LOG.TRACKS.SEC=150</li> </ul> <p>b. Delete with noscratch existing EMC logs</p> <ul style="list-style-type: none"> <li>- SPDC.BSP.EMC.LOG.SPxx\$\$\$\$</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | COB  |  |
| 8b | <p>DFHSM Customization</p> <p>☒ If DFHSM is down, update the DFHSM startup member, SPDC.MSY.DFHSM.PARMLIB(ARCCMD00):</p> <ul style="list-style-type: none"> <li>▪ Find “FUNCTIONS”, replace NODEBUG &amp; NOEMERGENCY with HOLD DUMP &amp; HOLD RECYCLE</li> <li>▪ Set primary/secondary migr start=end time, as follows:<br/>PRIMARYSPMGMTSTART(0000)<br/>SECONDARYSPMGMTSTART(0000 0000)<br/>AUTOBACKUPSTART(0000 0000 0000)<br/>AUTODUMPSTART(0000 0000 0000)</li> <li>▪ Change SETSYS PARTIALTAPE(REUSE) to<br/>SETSYS PARTIALTAPE(MARKFULL)</li> </ul> <p>☒ If DFHSM has been started up, issue these commands for DFHSM:</p> <ul style="list-style-type: none"> <li>- <b>F DFHSM,HOLD DUMP</b></li> <li>- <b>F DFHSM,HOLD AMIG</b></li> <li>- <b>F DFHSM,HOLD RECYCLE</b></li> <li>- <b>F DFHSM, HOLD RECALL(TAPE)</b></li> </ul> <p>Remarks: This is to ensure that DFHSM will use a new for all migration and backup tasks.</p> <p>Inform PCOs and operators that data sets migrated to ML2 before BCV splits cannot be recalled in the COB system.</p> | COB  |  |
| 8c | <p>Bringing up Started Tasks</p> <p>☒ CA-1 ( TMSINIT or PCCCA120 for CIT2)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | COB  |  |



|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |                      |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------|
|    | <ul style="list-style-type: none"> <li>▪ Go to 9.T; If CA-1 is not up, request Operator to start up CAS9.</li> </ul> <p>☒ OAM (this is the address space for IBM VE)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | COB |                      |
| 8d | <p>Ensure Tape &amp; Disk Devices are Online</p> <p>☒ Online the IBM Vses and Tape Drives</p> <ul style="list-style-type: none"> <li>✓ <b>Cintech COB site</b> –             <ul style="list-style-type: none"> <li>- 5000-502F &amp; 5700-572F for SP03</li> <li>- 5040-506F &amp; 5740-576F for SPJ1</li> </ul> </li> <li>- <b>Telepark COB site</b> –             <ul style="list-style-type: none"> <li>- 5080-50BF &amp; 5780-57BF</li> <li>-</li> </ul> </li> </ul> <p>☒ Check that only these WORK volumes are ONLINE</p> <ul style="list-style-type: none"> <li>- SD03 / Telepark – 8A00 to 8A15/ 8A56 to 8A9F</li> <li>- - SD05 / Cintech – 8200 to 8248/ 8249 to 825F</li> </ul> | COB | ZCOBTEST<br>ISPF 9.T |
| 8e | <p>Run Tests (To be completed only after media librarian inserts the IBM logical volumes)</p> <p>☒ Verify that CA-1 (Tape Management) is operational.</p> <p>☒ TEST the IBM VE and 3490 files allocation</p> <ul style="list-style-type: none"> <li>▪ Go to SXDC.MSY.STGADMIN.DOC) – for SP03</li> </ul> <p>COB – use this guideline to test VTV and 3490 allocation</p>                                                                                                                                                                                                                                                                                                                   | COB | ISPF 9.T             |
| 8f | <p>Delete RE-RUN and NONCOB data sets</p> <p>☒ Execute job DELRR in SPDC.MSY.SMS.JCL to generate and delete a list of RERUN (LLQ RR%%%%RR) and NONCOB (LLQ NONCOB) data sets.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | COB |                      |

**Post-COB Drill Activities (after COB Lpar shutdown)**

| S/No | Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | LPAR                              | JCL                                                |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| 8.   | Resume and Query RDF<br><br><input checked="" type="checkbox"/> Submit RDFSUM to resume from TNR to R/W status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Local                             | RDFSUM                                             |
| 9.   | Activate SRDFA and MSC<br><br>NOTE: Before activating SRDF/A, Number of INVALID TRACKS per volumes should be less than 3000 trks or 30,000 trks for the whole Box<br><br>To check status: ISSUE A5 SQ VOL,9000,INV_TRKS<br><br><input checked="" type="checkbox"/> Submit ACTSRDFA to activate SRDFA.<br><br><input checked="" type="checkbox"/> Submit QRYSRDFA to query status<br><br>Expected Results: SRDFA ACTIVE<br>Checked for following: Secondary Consistent (Y)<br><br><input checked="" type="checkbox"/> Issue 'F EMCSCF5,MSC REFRESH'<br><br>Expected Results: 'MSC - TASK DISABLED',<br>Followed by 'MSC - TASK ENABLED'<br><br><input checked="" type="checkbox"/> Issue 'A5 SC GLOBAL,PARM_REFRESH'<br><br>Expected Results: 'ALL BOXES ACTIVE',<br>'GLOBAL CONSISTENCY HAS BEEN ACHIEVED'<br><br><input checked="" type="checkbox"/> Submit QRYSRDFA to query status<br><br>Expect Results: MSC ACTIVE (Y) | Local                             | ACTSRDFA<br><br>QRYSRDFA                           |
| 9    | Re-establish BCV Volumes with R2<br><br><input checked="" type="checkbox"/> Verify that all BCVs are offlined in HK COB Lpars and HK Host HS01 Lpar.<br><br><input checked="" type="checkbox"/> Run CLEANUP and RELEASE jobs in HK host HS01 Lpar.<br><br>Source Data Set: SSDC.BSP.STGADMIN.JCL<br><br><input checked="" type="checkbox"/> Re-establish BCV with R2 pair.<br>Note: Catalog is occasionally using the BCV cat volumes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Remote<br><br>Remote<br><br>Local | CLEANUP<br>RELEASE<br><br>SP03<br>----<br>RE@TAB04 |



|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |                                                                                                                                                                                                              |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        | RE@TAB05<br>RE@TAB06<br>RE@TAB07<br>RE@TAB08<br>RE@TAB09<br>RE@TAB26<br><br>SPJ1<br>----<br>RE@TAB20<br><br>SP05<br>----<br>RE@TAB13<br>RE@TAB14<br>RE@TAB15<br>RE@TAB16<br>RE@TAB17<br>RE@TAB18<br>RE@TAB19 |
| 10 | Issue MSC REFRESH to force-synch any new volumes added to RDF groups.<br>Console Command → <b>F EMCSCF5,MSC,REFRESH</b> (where EMCSCF5 is the SCF started task name)<br>SCF Command to refresh the Global parms → <b>A5 SC GLOBAL,PARM_REFRESH</b><br><br>Confirm all RDF Groups have been updated in the MSC_INCLUDE_SESSION parm member [e.g. SPDC.BSP.EMC.PARM (EMCCMDxx)]                                                                           |        |                                                                                                                                                                                                              |
| 11 | Initialize Work Packs and Coupling Data Sets<br><br>Source Data Set: SSDC.BSP.STGADMIN.JCL<br><br>☒ Init work packs from HS01. This would delete all obsolete data sets in the COB work volumes. <ul style="list-style-type: none"> <li>- Ensure concerned volumes have been made offline in PROD first</li> <li>- Run the INITxxxx job through an ASMS Change Man package. The sample members are INITSP03, INITSP05, INITSPJ1 and INITCIT2</li> </ul> | Remote | INITxxxx                                                                                                                                                                                                     |

## B. HDS COB PROCEDURE



## PROCEDURES FOR SETTING UP COB DRILL (FOR GCIB SYSTEMS)

### Singapore (Telepark) – HongKong

This procedure is to be used for COB drill exercise for CIT2 (GCIB) where Singapore (Telepark) is the primary site and Hongkong is secondary site. All the JCL can be found in SCIGSY.BCM.JCL IN CIT2 LPAR.

#### *Pre-COB Drill - On the primary site (CIT2)*

1. Run job PBCURQRY to query all the Primary and Secondary UR(Universal Replicator) volumes status. Check that all volumes are in duplex pair status.
2. If there are any volumes that are in suspend status, then run job PBCURRES to resynchronize these suspended volumes. You may put SELECT(COND) for selective devices and SELECT(ALL) for all devices in JCL parameter.

#### *On the recovery site*

3. Ensure that all volumes (unit address 8C00 to 8C6F, 8D00 to 8D6F, 8E00 to 8E6F, 8F00 to 8F6F) that are used for Shadow Image (SI) are offline in all LPARs (eg. HS01, SP03/4 COB, SP05/SP06 COB, etc).

#### *On the primary site (CIT2)*

4. Run the job PBCSIREs to resynchronize the COB Shadow Image volumes. You may put SELECT(COND) for selective devices and SELECT(ALL) for all devices in JCL parameter. Monitor the status through BCM or by submitting the job PBCSIQRY to query the SI volumes.

#### *Actual COB Drill - On the primary site (CIT2)*

5. Once resynch completed and volumes are in DUPLEX mode, run the job PBCSISUS to suspend the COB Shadow Image volumes. (Note: No need to suspend UR Primary and Secondary volume replication)
6. Run job PBCSIQRY to query the SI volumes and see if all volumes are in SUSOP mode.

#### *On the recovery site*

7. Once SI volumes are in SUSOP mode and SYSRES becomes available, IPL COB LPAR.

**Important:** SYSRES (EMC disk) R2-BCV split on SP05/SP06 is needed to make SYSRES available prior to IPL of CIT2 COB LPAR.

**Note:** SP05 system is using EMC disks whereas CIT2 is using HDS disks. However, the SYSRES and coupling volumes are shared by the 2 systems as they are in the same SYSPLEX. Since SYSRES and coupling volumes are residing on EMC disks, we need to split BCV on EMC if we want to IPL CIT2 COB LPAR in HK. By the same token, we cannot re-establish R2-BCV on EMC if CIT2 COB LPAR is still up and running.

Technically we cannot maintain a data consistency between EMC and HDS disks. That is the reason we cannot share application data between 2 diff disk vendors.

In summary,

1. We can IPL SP05 COB without 'touching' the HDS disks.
2. We need to split R2-BCV (SP05) if we want to IPL CIT2 COB.
3. We can shutdown CIT2 COB without impacting SP05 COB.
4. We must wait for CIT2 COB to shutdown before we can re-establish R2-BCV for SP05

### C. IBM TAPE BACKUP INFRASTRUCTURE

## IBM VE COB Drill Activities:

| <b>Activity</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Resource</b> | <b>Remarks</b>                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------|
| - Online HK IBM VE libraries in SP03, SP05, SPJ1 & CIT2 (HKC1, H1G1 & H2G1) via Interactive Storage Management Facility (ISMF) option 10 & 3. Set the INITIAL STATUS from NO to YES.                                                                                                                                                                                                                                                                                                                                                 | Storage         | Please see Build Documentation Part, IBM Tape Infrastructure, Software Set-up for more details. |
| - Activate the CA1 COB range<br>(SP03 - Wxxxxx; SP05 - Y90000-Y99999; SPJ1 - Xxxxxxx & CIT2 - Zxxxxxx)<br>using TMS ADD facility                                                                                                                                                                                                                                                                                                                                                                                                     | Media Librarian | JCL members are in SPDC.MMD.JCL.<br>(TMSACIT2)<br>(TMSASPJ1)<br>(TMSASP03)<br>(TMSASP05)        |
| - Insert logical volumes to IBM VE (via Web Mgt interface) and verify the status of the insert thru OAM address space                                                                                                                                                                                                                                                                                                                                                                                                                | Media Librarian | Please see the list of IBM VE hostnames in Appendix C                                           |
| - Display tape drives status      D U, 5000-502F & 5700-572F    for SP03                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Storage         |                                                                                                 |
| 5040-506F & 5740-576F    for SPJ1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |                                                                                                 |
| 5080-50BF & 5780-57BF    for SP05 & CIT2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |                                                                                                 |
| - Verify DEVSUP (Device Category used) in the SYSLOG, it should start with Cxxx                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Storage         | Please see Build Documentation Part, IBM Tape Infrastructure, Software Set-up for more details. |
| Configuration verification tasks<br>- display OAM                         D SMS,OAM<br>- check MIH                         D IOS,MIH,DEV=dev_addr   (it shld be 45:00)<br>- check volcat                     F CATALOG,REPORT<br>- list volcat info                 LISTCAT ENT(volcat_name) ALL<br>- list library                       DS QL,LIST<br>- display libraries details       D SMS,LIB(ALL),DETAIL<br>- display 'some' tape volume info D SMS,VOL(xxxxxxx)<br>- display stacked volume info   D SMS,LIB(dist_lib),DETAIL | Storage         |                                                                                                 |
| - Execute test plan and verify the result                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Storage         |                                                                                                 |

### Post-COB Drill Activities:

|                                                                 |                 |
|-----------------------------------------------------------------|-----------------|
| - Scratch tape volume range in CA1 and IBM VE in all PROD LPARs | Media Librarian |
| - Eject tape volume range in IBM VE in all PROD LPARs           | Media Librarian |



## APPENDICES

### APPENDIX A

Following activities are completed to meet the Hardware and Software pre-requisite requirement to support SRDF/A:

| Date      | Project ID | Activity                                                                           | Status                                                                                                                                                                                                         |
|-----------|------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1/22/2007 | 3          | Ensure completion of data migration from 8830 to DMX systems (MF)                  | All Q2 EMC 8830 successfully migrated to DMX as at 21 Jan 2007                                                                                                                                                 |
|           | 7          | Gather version details on existing EMC software tools installed on Mainframe LPARs | Validated all Mainframe LPARs at the following version and PTF maintenance level:                                                                                                                              |
|           |            |                                                                                    | ResourcePak Base V5.5 - PTF SF55054                                                                                                                                                                            |
|           |            |                                                                                    | TimeFinder Base v5.4 - PTF ST54033                                                                                                                                                                             |
|           |            |                                                                                    | TimeFinder/SNAP v5.5 - PTF SN55026                                                                                                                                                                             |
|           |            |                                                                                    | SRDF HC v5.3 - PTF SR53052                                                                                                                                                                                     |
|           |            |                                                                                    | Consistency Group v6.2 PTF SC62015                                                                                                                                                                             |
|           | 10-13      | Identify upgrade requirements (Hardware)                                           | Cache upgrade TCD - 03/04/07                                                                                                                                                                                   |
|           |            |                                                                                    | Microcode upgrade TCD - 03/04/07                                                                                                                                                                               |
|           | 17-19      | Identify upgrade requirements (MF Software)                                        | Minimum version requirement met. No further software upgrades required for MF.                                                                                                                                 |
|           |            |                                                                                    | Minimum version and PTF maintenance level required:                                                                                                                                                            |
|           |            |                                                                                    | ResourcePak Base V5.5 PTF SF55047                                                                                                                                                                              |
|           |            |                                                                                    | TimeFinder Base v5.4 PTF ST54033                                                                                                                                                                               |
|           |            |                                                                                    | TimeFinder/SNAP v5.5 PTF SN55026                                                                                                                                                                               |
|           |            |                                                                                    | SRDF HC v5.3 PTF SR53044                                                                                                                                                                                       |
| 1/29/2007 | 26-30      | Cache upgrade for Mainframe at TP (production)                                     | In progress. Change raised weekly (Outage change period - 2 weeks)                                                                                                                                             |
|           |            |                                                                                    | Cache upgrade Phase 1/Week 1 - VR #8001780 raised for Jan 27/28                                                                                                                                                |
|           | 26-30      | Cache upgrade for Mainframe at TP (production)                                     | 1. Status report: 33% completion for Phase1 cache upgrade done on Jan 28.<br>2. Cache upgrade Phase 2/Week 2 - VR #8026008 raised for Feb 4<br>3. Cache upgrade Phase 3/Week 3 - VR #8052439 raised for Feb 11 |
|           |            | Cache upgrade for Mainframe at Cintech (production)                                | Cache upgrade Phase 1/Week 1 - VR #8052495 raised for Feb 11                                                                                                                                                   |



|           |       |                                                                            |                                                                                                                                                                                   |
|-----------|-------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2/5/2007  | 26-30 | Cache upgrade for Mainframe at TP (production)                             | 1. Status report: Total 75% (equiv 4.5 of 6 boxes) completion for Telepark MF cache upgrade<br>2. Cache upgrade Phase 3/Week 3 - VR #8052439 raised for Feb 11                    |
|           |       | Cache upgrade for Mainframe at Cintech (production)                        | 1. Status report: Currently 0% completion for Cintech cache upgrade<br>2. Cache upgrade Phase 1/Week 1 - VR #8052495 raised for Feb 11                                            |
|           |       | EMC Storage Refresh - Mainframe (Q2-2005 and Q1-2006)<br>- Disconnect 8830 | Planning the disconnection of 4 8830 Boxes on Feb 10/11 - VR#8053740                                                                                                              |
| 2/13/2007 | 26-30 | Cache upgrade for Mainframe at TP (production)                             | 1. Status report: Total 75% (equiv 4.5 of 6 boxes) completion for Telepark MF cache upgrade<br>2. Cache upgrade Phase 3/Week 3 - VR #8052439 raised for Feb 25                    |
|           |       | Cache upgrade for Mainframe at Cintech (production)                        | 1. Status report: Total 75% (equiv 4.5 of 6 boxes) completion for Cintech MF cache upgrade<br>2. Cache upgrade Phase 2/Week 2 - VR #8110360 raised for Feb 25                     |
|           |       | EMC Storage Refresh - Mainframe (Q2-2005 and Q1-2006)<br>- Disconnect 8830 | 1. 4 8830 Boxes (2 each from TP and CT) disconnected on Feb 11<br>2. Status report: All 8830 Boxes in TP and CT (both Master and Slave) are completely disconnected as at Feb 11. |
| 2/19/2007 | 26-30 |                                                                            | No weekend activities due to the Lunar New Year holidays. Status quo as at 2/13                                                                                                   |
| 2/26/2007 | 26-30 | Cache upgrade for Mainframe at TP (production)                             | 1. Status report: Total 100% (equiv 6 of 6 boxes) . Completed.                                                                                                                    |
|           |       | Cache upgrade for Mainframe at Cintech (production)                        | 1. Status report: Total 100% (equiv 6 of 6 boxes) . Completed.                                                                                                                    |
|           |       | Microcode upgrade for Mainframe at Cintech and Telepark                    | 1. Status report: Total 33% (equiv 8 of 20 boxes)                                                                                                                                 |
| 3/5/2007  | 26-30 | Microcode upgrade for Mainframe at Cintech and Telepark                    | 1. Status report: Total 50% (equiv 10 of 20 boxes)                                                                                                                                |
| 3/12/2007 | 26-30 | Microcode upgrade for Mainframe at Cintech and Telepark                    | 1. Status report: Total 83% (equiv 16 of 20 boxes)                                                                                                                                |

## IMPLEMENTATION



|           |       |                                                         |                                                                                                                                                                                    |
|-----------|-------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3/19/2007 | 26-30 | Microcode upgrade for Mainframe at Cintech and Telepark | 1. Status report: Total 100% (equiv 20 of 20 boxes)<br>Note: #2070 and #2071 at 5671.54.59 level. Need to bring up to par with the other boxes at 5671.59.64. Schedule for Apr 8th |
| 3/26/2007 | 26-30 | Microcode upgrade for Mainframe at Cintech and Telepark | 1. Status report: Total 100% (equiv 20 of 20 boxes)<br>Note: Infoman VR#8269164 for code upgrade of #2070 and #2071 from 5671.54.59 to 5671.59.64 level scheduled for Apr 8th.     |
| 4/9/2007  | 26-30 | Microcode upgrade for Mainframe at Cintech and Telepark | Code upgrade of #2070 and #2071 from 5671.54.59 to 5671.59.64 level completed on Apr 8th. All DMX Boxes at same 5671.59.64 level.                                                  |

**APPENDIX B****RND/UAT Logical Volume Range:**

| LPARS                     | ST04                           | ST05                                                    | CIT1                           | ST06                           | ST07 | STJ1                                                 | STJ2 | SS08                           | SS09 | HS01 |
|---------------------------|--------------------------------|---------------------------------------------------------|--------------------------------|--------------------------------|------|------------------------------------------------------|------|--------------------------------|------|------|
| Sysplex Name              | STPLEX                         |                                                         |                                | STPLXTP                        |      | STJPPLEX                                             |      | SSPLEX                         |      | HK   |
| Location                  | CT2                            |                                                         |                                | TPK                            |      | CT2                                                  |      | TPK                            |      |      |
| New Volser Range (VE)     | F00000-F99999<br>G00000-G99999 | K00000-K89999<br>L00000-K89999<br>* Shared with SS08/09 | R00000-R99999<br>S00000-S99999 | H00000-H99999<br>I00000-I99999 |      | K90000-K99999<br>L90000-L99999<br>* Shared with CIT1 |      | K90000-K99999<br>L90000-L99999 |      |      |
| New Volser Range (Native) | T84000-T84999                  | T82000-T82999                                           | T86000-T86999                  | T81000-T81999                  |      | T98000-T98999                                        |      | U91000-U91999                  |      |      |



## APPENDIX C:

**IBM Hostnames Naming Convention**

**WW VE YY ZZ** where

**WWW** is the DC location e.g. TPK, CT2, HKG

**VE** is the IBM Tape Library

**YY** is the grid+cluster e.g. 11, 21, 10, 11,

**ZZ** is the console type

where console type are:

**LMA** - for IBM Library Manager (Primary Server)

**LMB** - for IBM Library Manager (Secondary Server-to be used if the Primary Server is down)

**VR** - for IBM Virtual Engine (Primary hostname)

**A** - for IBM Virtual Engine (Secondary hostname)

**B** - for IBM Virtual Engine (Alternate hostname)

**AOTM** - for IBM Automatic Ownership Takeover Manager

**3584** - for IBM TS3500 Tape Library

**Note:** To go to the IBM Web Interface, log on to the hostname + 'apac.nsroot.net'

e.g. <http://tpkve11vr.apac.nsroot.net>

| TPK3        |                        |              |                  |
|-------------|------------------------|--------------|------------------|
| Hostname    | Connection Description | IP Address   | Library Accessed |
| TPKVE11LMA  | IBM VE#11 (LMA)        | 163.37.99.31 | TPG1             |
| TPKVE11LMB  | IBM VE#11 (LMB)        | 163.37.99.32 |                  |
| TPKVE11VR   | IBM VE#11 (Virtual)    | 163.37.99.36 |                  |
| TPKVE11A    | IBM VE#11 (A)          | 163.37.99.33 |                  |
| TPKVE11B    | IBM VE#11 (B)          | 163.37.99.34 |                  |
| TPKVE21LMA  | IBM VE#21 (LMA)        | 163.37.99.38 | TPG2             |
| TPKVE21LMB  | IBM VE#21 (LMB)        | 163.37.99.39 |                  |
| TPKVE21VR   | IBM VE#21 (Virtual)    | 163.37.99.43 |                  |
| TPKVE21A    | IBM VE#21 (A)          | 163.37.99.40 |                  |
| TPKVE21B    | IBM VE#21 (B)          | 163.37.99.41 |                  |
| TPKVE21AOTM | IBM VE#21 (AOTM)       | 163.37.99.42 |                  |
| TPKVE11AOTM | IBM VE#11 (AOTM)       | 163.37.99.35 |                  |
| TPKVE113584 | IBM VE#11 (3584)       | 163.37.99.37 |                  |
| TPKVE213584 | IBM VE#21 (3584)       | 163.37.99.44 |                  |



| CT2         |                        |                |                  |
|-------------|------------------------|----------------|------------------|
| Hostname    | Connection Description | IP Address     | Library Accessed |
| CT2VE10LMA  | IBM VE#1 (LMA)         | 163.37.197.42  | CTG1             |
| CT2VE10LMB  | IBM VE#1 (LMB)         | 163.37.197.43  |                  |
| CT2VE10VR   | IBM VE#1 (Virtual)     | 163.37.197.47  |                  |
| CT2VE10A    | IBM VE#1 (A)           | 163.37.197.44  |                  |
| CT2VE10B    | IBM VE#1 (B)           | 163.37.197.45  |                  |
| CT2VE20LMA  | IBM VE#2 (LMA)         | 163.37.197.156 | CTG2             |
| CT2VE20LMB  | IBM VE#2 (LMB)         | 163.37.197.157 |                  |
| CT2VE20VR   | IBM VE#2 (Virtual)     | 163.37.197.161 |                  |
| CT2VE20A    | IBM VE#2 (A)           | 163.37.197.158 |                  |
| CT2VE20B    | IBM VE#2 (B)           | 163.37.197.159 |                  |
| CT2VE10AOTM | IBM VE#1 (AOTM)        | 163.37.197.46  |                  |
| CT2VE20AOTM | IBM VE#2 (AOTM)        | 163.37.197.160 |                  |
| CT2VE103584 | IBM VE#1 (3584)        | 163.37.197.48  |                  |
| CT2VE203584 | IBM VE#2 (3584)        | 163.37.197.162 |                  |

| HK-iAD      |                        |                |                  |
|-------------|------------------------|----------------|------------------|
| Hostname    | Connection Description | IP Address     | Library Accessed |
| HKGVE10LMA  | IBM VE#1 (LMA)         | 172.19.233.133 | HKG1             |
| HKGVE10LMB  | IBM VE#1 (LMB)         | 172.19.233.134 |                  |
| HKGVE10VR   | IBM VE#1 (Virtual)     | 172.19.233.138 |                  |
| HKGVE10A    | IBM VE#1 (A)           | 172.19.233.135 |                  |
| HKGVE10B    | IBM VE#1 (B)           | 172.19.233.136 |                  |
| HKGVE11LMA  | IBM VE#2 (LMA)         | 172.19.233.140 | HKG2             |
| HKGVE11LMB  | IBM VE#2 (LMB)         | 172.19.233.141 |                  |
| HKGVE11VR   | IBM VE#2 (Virtual)     | 172.19.233.145 |                  |
| HKGVE11A    | IBM VE#2 (A)           | 172.19.233.142 |                  |
| HKGVE11B    | IBM VE#2 (B)           | 172.19.233.143 |                  |
| HKGVE10AOTM | IBM VE#1 (AOTM)        | 172.19.233.137 |                  |
| HKGVE11AOTM | IBM VE#2 (AOTM)        | 172.19.233.144 |                  |
| HKGVE103584 | IBM VE#1 (3584)        | 172.19.233.139 |                  |
| HKGVE113584 | IBM VE#2 (3584)        | 172.19.233.146 |                  |