IBM Software

Getting Started with IBM Backup and Restore Manager for z/VM

VMSES/E Installation, SFS Setup, and Initial Configuration

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Agenda

- **Assumptions**
- **Preparing to install**
- **Installing using VMSES/E**
- **Configuring**
- **Verifying installation and configuration**

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Assumptions

- **DIRMAINT is installed for directory management**
  - MAINT is authorized to issue AMDISK commands
  - AUTOG is available for group USER for minidisk definitions
- **Shared File System is available**
- **Installation ID is 5697J06B**
  - No PPF overrides
- **3390 DASD**
- **REXX Library (5695-014) is installed and available**
  - Alternatively use free download of REXX Alternate Library at: http://www.ibm.com/software/awdtools/rexx/rexxzseries/altlibrary.html
  - Strongly suggest installing this on MAINT 19E to simplify access to it
- **Installing on minidisk (not SFS)**
- **Operations Manager is running on user ID OPMGRM1**
- **Tape Manager is installed and running, or tapes are mounted manually via messages to the OPERATOR console**
- **This is not the only way to perform the install**
  - Not all options are discussed
  - See product documentation for full details

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Preparing to Install

Create installation ID
Create an SFS server
Prepare system for VMSES/E installation

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Where do I Start ???

- **In the Program Directory ??**

- **In the Installation Guide ??**

- **Because we require SFS, we recommend you start with this presentation**

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Define the Installation ID: 5697J06B

- **From MAINT**
  - Create a file called 5697J06B DIRECT

```
USER 5697J06B password 64M 256M BG
* 5697-J06 - SES install & admin for Backup Mgr V1.2
MACHINE ESA
IPL CMS
OPTION LNKNOPAS
CONSOLE 01F 3215
SPOOL 00C 2540 READER A
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D R
LINK MAINT 19E 19E RR
LINK MAINT 51D 51D MR
LINK MAINT 5E5 5E5 RR
```

  - Issue the command

```
DIRM ADD 5697J06B
```


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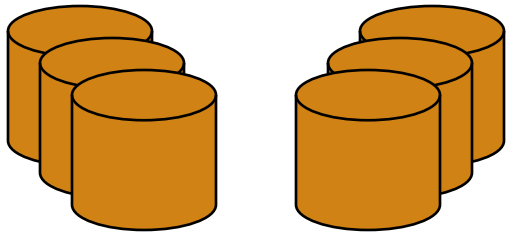
Define the Installation ID: 5697J06B



- **Add required minidisks**
  - From MAINT, issue

```
DIRM FOR 5697J06B AMD 191 3390 AUTOG 30 USER MR
DIRM FOR 5697J06B AMD 198 3390 AUTOG 2 USER MR
DIRM FOR 5697J06B AMD 199 3390 AUTOG 5 USER MR
DIRM FOR 5697J06B AMD 2A2 3390 AUTOG 1 USER MR
DIRM FOR 5697J06B AMD 2A6 3390 AUTOG 1 USER MR
DIRM FOR 5697J06B AMD 2B2 3390 AUTOG 5 USER MR
DIRM FOR 5697J06B AMD 2C2 3390 AUTOG 2 USER MR
DIRM FOR 5697J06B AMD 2D2 3390 AUTOG 30 USER MR
DIRM FOR 5697J06B AMD 491 3390 AUTOG 5 USER MR
DIRM FOR 5697J06B AMD 492 3390 AUTOG 5 USER MR
DIRM FOR 5697J06B AMD 49D 3390 AUTOG 5 USER MR
DIRM FOR 5697J06B AMD 591 3390 AUTOG 5 USER MR
DIRM FOR 5697J06B AMD 592 3390 AUTOG 5 USER MR
```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Resulting Minidisk Statements in Directory Entry for 5697J06B

```
MDISK 0191 3390 <start> 030 <vol> MR <readpw> <writepw> <multpw>
MDISK 0198 3390 <start> 002 <vol> MR <readpw> <writepw> <multpw>
MDISK 0199 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 02A2 3390 <start> 001 <vol> MR <readpw> <writepw> <multpw>
MDISK 02A6 3390 <start> 001 <vol> MR <readpw> <writepw> <multpw>
MDISK 02B2 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 02C2 3390 <start> 002 <vol> MR <readpw> <writepw> <multpw>
MDISK 02D2 3390 <start> 030 <vol> MR <readpw> <writepw> <multpw>
MDISK 0491 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 0492 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 049D 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 0591 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 0592 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
```


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Format All Minidisks

- **From MAINT, issue**

```
link 5697J06B 191 333 MR
format 333 z
release z (det
```

- **Repeat for each 5697J06B disk**

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Create New SFS Server and File Pool

- **Background**
  - Backup catalog is stored in SFS
    - Separate file pool dedicated to Backup is recommended
      - Should not use VMSYS: or VMSYSU:
      - We'll use **BKRSFS:** here, with **BKRSVSFS** as the server
  - Recommend starting with at least 3000 cylinders
    - Large sites will need more
    - Your mileage may vary
  - Need space for service machine minidisk areas also
    - We'll use BKRSFS: for this also
  - Recommend putting Backup Manager TEMPLATE and DISKPOOL files in SFS also. We'll use BKRSFS for this also
  - BKRSVSFS is a repository file pool server
    - Does not perform Coordinated Resource Recovery (CRR)
  - Reference: "CMS File Pool Planning, Administration, and Operation" (SC24-6074)

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Create New SFS Server: BKRSVSFS

- **From MAINT, create and add directory entry for BKRSVSFS, using most of the sample values**
  - Same procedure used to create user ID 5679J06B
  - Do not format the disks after you've added them

BKRSVSFS DIRECT

```
USER BKRSVSFS password 64M 64M BG
OPTION MAXCONN 2000 NOMDCFS APPLMON QUICKDSP SVMSTAT
SHARE REL 1500
MACHINE XC
IUCV ALLOW
IUCV *IDENT RESANY GLOBAL
IPL CMS
CONSOLE 009 3215 T OPMGRM1
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403
LINK MAINT 190 190 RR
LINK MAINT 193 193 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
```

Required to use data spaces

Make Ops Mgr the secondary console

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BKRSVSFS Directory Entry (continued)

- **From MAINT, issue**

```
DIRM FOR BKRSVSFS AMD 191 3390 AUTOG 2 USER W
DIRM FOR BKRSVSFS AMD 250 3390 AUTOG 80 USER R PW readpw writepw
DIRM FOR BKRSVSFS MINIOPT 250 NOMDC
DIRM FOR BKRSVSFS AMD 405 3390 AUTOG 10 USER R PW readpw writepw
DIRM FOR BKRSVSFS AMD 406 3390 AUTOG 10 USER R PW readpw writepw
DIRM FOR BKRSVSFS MINIOPT 405 NOMDC
DIRM FOR BKRSVSFS MINIOPT 406 NOMDC
DIRM FOR BKRSVSFS AMD 260 3390 AUTOG 50 USER R PW readpw writepw
DIRM FOR BKRSVSFS AMD 310 3390 AUTOG 750 USER R PW readpw writepw
DIRM FOR BKRSVSFS AMD 311 3390 AUTOG 750 USER R PW readpw writepw
DIRM FOR BKRSVSFS AMD 312 3390 AUTOG 750 USER R PW readpw writepw
DIRM FOR BKRSVSFS AMD 313 3390 AUTOG 750 USER R PW readpw writepw
```

Work disk

Control disk

Repository log disks

Initial catalog disk

User data disks

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Resulting Minidisk Statements in Directory Entry for BKRSVSFS

```
MDISK 0191 3390 <start> 002 <vol> MR <readpw> <writepw> <multpw>
MDISK 0250 3390 <start> 080 <vol> MR <readpw> <writepw> <multpw>
MDISK 0405 3390 <start> 010 <vol> MR <readpw> <writepw> <multpw>
MDISK 0406 3390 <start> 010 <vol> MR <readpw> <writepw> <multpw>
MDISK 0260 3390 <start> 050 <vol> MR <readpw> <writepw> <multpw>
MDISK 0310 3390 <start> 750 <vol> MR <readpw> <writepw> <multpw>
MDISK 0311 3390 <start> 750 <vol> MR <readpw> <writepw> <multpw>
MDISK 0312 3390 <start> 750 <vol> MR <readpw> <writepw> <multpw>
MDISK 0313 3390 <start> 750 <vol> MR <readpw> <writepw> <multpw>
```


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Initial SFS Server Setup: BKRSVSFS

- **Logoff MAINT**
- **Logon to BKRSVSFS**
- **Format 191 disk**
  - From BKRSVSFS, issue

```
format 191 a
```

- **Create a PROFILE EXEC on the 191 disk, containing**

```
/*  */
'ACCESS 193 C'
'CP SET EMSG ON'
'CP SET PF11 RETRIEVE FORWARD'
'CP SET PF11 RETRIEVE'
Exit 0
```

- **Run the PROFILE**

```
profile
```


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Define Startup Parameters for SFS Server: BKRSVSFS

- **On BKRSVSFS 191 disk, create a file called BKRSVSFS DMSPARMS, containing:**

```
ADMIN 5697J06B
ADMIN BKRADMIN
ADMIN BKRBKUP
ADMIN BKRCATLG
ADMIN BKRWRK01
ADMIN BKRWRK02
ADMIN BKRWRK03
ADMIN BKRWRK04
ADMIN xxxxxxxx
NOBACKUP
FILEPOOLID BKRSFS
NOCRR
NOLUNAME
SAVESEGID CMSFILES
USERS 700
```

Any other user IDs that will be Backup Manager administrators, such as MAINT

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Generate the File Pool BKRSFS

- **From BKRSVSFS, issue**

  `fileserv generate`

- **When prompted in $$TEMP $POOLDEF, delete the existing lines and enter the following lines instead**

```
MAXUSERS=4000
MAXDISKS=500
DDNAME=CONTROL          VDEV=250
DDNAME=LOG1             VDEV=405
DDNAME=LOG2             VDEV=406
DDNAME=MDK00001         VDEV=260 GROUP=1 BLOCKS=0
DDNAME=MDK00002         VDEV=310 GROUP=2 BLOCKS=0
DDNAME=MDK00003         VDEV=311 GROUP=2 BLOCKS=0
DDNAME=MDK00004         VDEV=312 GROUP=2 BLOCKS=0
DDNAME=MDK00005         VDEV=313 GROUP=2 BLOCKS=0
```

- **Then enter `file` on the XEDIT command line**

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Final SFS Server Tasks for BKRSVSFS

- **Start the server**
  - From BKRSVSFS,
    - Add the following at the end of PROFILE EXEC (before the Exit statement):

```
'EXEC FILESERV START'
```

    - Save the changes and exit
      `file`
    - Run the PROFILE EXEC
      `profile`
    - Leave the server running disconnected
      `#cp disc`

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Authorize Users and Create Directories in SFS

- **Authorize service machines to space in SFS**
  - From 5697J06B, issue

```
enroll user bkradmin bkrsfs (blocks 4000 storgroup 2
enroll user bkrbkup bkrsfs (blocks 4000 storgroup 2
enroll user bkrcatlg bkrsfs (blocks 500000 storgroup 2
enroll user bkrwrk01 bkrsfs (blocks 20000 storgroup 2
enroll user bkrwrk02 bkrsfs (blocks 20000 storgroup 2
enroll user bkrwrk03 bkrsfs (blocks 20000 storgroup 2
enroll user bkrwrk04 bkrsfs (blocks 20000 storgroup 2
```

- **Create required SFS directory entries**
  - From 5697J06B, issue

```
create directory bkrsfs:bkradmin.workarea
create directory bkrsfs:bkradmin.jobdefs
create directory bkrsfs:bkrcatlg.workarea
create directory bkrsfs:bkrbkup.workarea
create directory bkrsfs:bkrwrk01.workarea
create directory bkrsfs:bkrwrk02.workarea
create directory bkrsfs:bkrwrk03.workarea
create directory bkrsfs:bkrwrk04.workarea
```


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Authorize Users and Create Directories in SFS

- **Authorize service machines to space in SFS**
  - From 5697J06B, issue

```
enroll user bkradmin bkrsfs (blocks 4000 storgroup 2
enroll user bkrbkup bkrsfs (blocks 4000 storgroup 2
enroll user bkrcatlg bk                          roup 2
enroll user bkrwrk01 bk                          up 2
enroll user bkrwrk02 bk                          up 2
enroll user bkrwrk03 bk                          up 2
enroll user bkrwrk04 bk                          up 2
```

It's okay if these user IDs don't actually exist yet

- **Create required directory entries**
  - From 5697J06B, issue

```
create directory bkrsfs:bkradmin.workarea
create directory bkrsfs:bkrcatlg.workarea
create directory bkrsfs:bkrbkup.workarea
create directory bkrsfs:bkrwrk01.workarea
create directory bkrsfs:bkrwrk02.workarea
create directory bkrsfs:bkrwrk03.workarea
create directory bkrsfs:bkrwrk04.workarea
```


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Take a Breath – New SFS Server is Set Up

If you've never set up SFS before,

this is the hardest part of the product install

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Prepare for VMSES/E Installation

- **From 5697J06B**
  - Mount installation tape at virtual address 181
    - Or have SERVLINK envelope available on the A-disk
  - Link and access MAINT disks

```
link MAINT 5e5 5e5 rr
access 5e5 b
link MAINT 51d 51d mr
access 51d d
```

  - Load product control files

```
vmfins install info (nomemo
```

or

```
vmfins install info (nomemo env <envfilename>
```

  - Obtain planning info

```
vmfins install ppf 5697J06B BKUPMGR (plan nomemo
```

or

```
vmfins install ppf 5697J06B BKUPMGR(plan nomemo env <envfilename>
```

  - Review for errors

```
vmfview install
```


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Create Directory Entries for All Required Users

- **Use directory entry samples in 5697J06B PLANINFO**
  - Located on 5697J06B 191 disk
- **Follow steps outlined earlier for creating 5697J06B user ID to create directory entries for**
  - BKRADMIN
  - BKRCATLG
  - BKRBKUP
  - BKRWRK01
  - BKRWRK02
  - BKRWRK03
  - BKRWRK04
- **For all above user IDs, except BKRADMIN, add T OPMGRM1 to the end of the CONSOLE statement**
  - This allows Operations Manager to monitor these consoles
- **For all above user IDs, add a LINK to MAINT 193 disk in RR mode**
  - Provides access to ACCESSM0 MODULE, so it can back up files with filemode number 0
- **If you plan to back up full volumes (INCLUDE RDEVICE or INCLUDE RDEVVOL), also add the following to the BKRWRKxx directory entries:**
  - OPTION DEVMAINT
  - Privilege class A

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Format All Minidisks

- **From 5697J06B, issue**

```
link BKRADMIN 191 333 MR
format 333 z
release z (det
```

- **Repeat for each disk**

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Installing using VMSES/E

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Initial VMSES/E Install

- **From 5697J06B**
  - Create and run a PROFILE EXEC

```
xedit profile exec a
===> input /**/
===> input 'ACC 5E5 B'
===> input 'ACCESS 51D D'
===> input 'CP SET PF11 RETRIEVE FORWARD'
===> input 'CP SET PF12 RETRIEVE'
===> file
profile
```

  - Installing from tape
    - Mount product tape at virtual address 181
    - Load the product code to disk and install

```
vmfins install ppf 5697J06B BKUPMGR (nomemo nolink
```

  - Installing from an envelope
    - Unpack the VMARC file

```
vmarc unpk <envfilename> VMARC <envfilemode>
```

    - Load the product code to disk and install

```
vmfins install ppf 5697J06B BKUPMGR (nomemo nolink env <envfilename>
```


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Initial VMSES/E Install (continued)

- Review for errors

```
vmfview install
```

- Update Build Status Table

```
vmfins build ppf 5697J06B BKUPMGR (serviced nolink
```

- Review for errors

```
vmfview install
```


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Initial VMSES/E Install (continued)

– Copy code from installation/test disk to production disk

```
acc 491 e
acc 591 f
vmfcopy * * e = = f (prodid 5697J06B%BKUPMGR olddate replace
acc 492 e
acc 592 f
vmfcopy * * e = = f (prodid 5697J06B%BKUPMGR olddate replace
```


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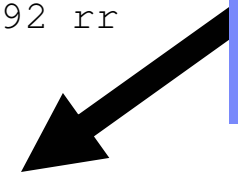
Initial VMSES/E Install (continued)

- Copy user code from installation disk to Y disk (MAINT 19E) – strongly suggested to simplify access to code
  - Logon to MAINT

```
link 5697j06b 492 492 rr
acc 492 e
acc 19e f
vmfcopy * * e = = f2 (prodid 5697J06B%BKUPMGR olddate replace
```



Must copy to “f2”, not just “f”, so that data will be loaded in CMS saved system. Same for helps below.

- Copy help files from installation disk to system HELP disk (MAINT 19D)

```
link 5697j06b 49d 49d rr
acc 49d e
acc 19d f
vmfcopy * helpabkr e = = f2 (prodid 5697J06B%BKUPMGR olddate replace
vmfcopy abkr helpmenu e = = f2 (prodid 5697J06B%BKUPMGR olddate replace
```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Where Code is Installed for Configuration and Testing

Disk on 5697J06B	Description
2C2	**Sample files**
491, 591	**Service machine executables for** –BKRBKUP –BKRCATLG –BKRWRKxx
492, 592, MAINT 19E	**End user and administrator executables**
198	**Configuration files**
SFS directory	**Backup job templates and DISKPOOL files (not used during installation so still considered "installing on minidisks"**
49D, MAINT 19D	**Help files**

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VMSES/E Installation is Complete

- **All code is installed from tape or envelope**
- **Standard install commands used by most z/VM products**
- **This was the easy part**

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Install All Available Service

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Install All Available PTFs (COR Service)

- **Order/obtain all PTFs available for Backup Manager V1.2**
- **If each PTF is in tersed format (from IBMLINK), issue:**

```
DETERSE <fn> <ft> <fm> <fn> SERVLINK A
```

- **If each PTF is in VMARC format, issue:**

```
VMARC UNPK <fn> <ft> <fm> <fn> SERVLINK A
```

- **Follow instructions in Chapter 7 of the Program Directory to install each PTF**
  - In 7.2, suggest following steps in Appendix B for installation of all initial service, in case of errors
    - SERVICE EXEC can be used in future when installing just 1 PTF
  - **Do not** reload CMS saved system or help segments. We'll do this later.

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Configuring

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Verify System Access Privileges for Backup Servers

User ID	Privileges Required and *Recommended*
BKRADMIN	➢ **OPTION LNKNOPAS** (or equivalent, such as **RACF OPERATIONS**) ➢ **Privilege Class G** ➢ ***Privilege Class B*** *(for CP MSGNOH)*
BKRBKUP	➢ **OPTION LNKNOPAS** (or equivalent, such as **RACF OPERATIONS**) ➢ **Privilege Class G** ➢ **Privilege Class A** (for CP FORCE) ➢ **Privilege Class B** (CP MSGNOH) ➢ **Privilege Class D** (CP PURGE)
BKRCATLG	➢ **Privilege Class G** ➢ **Privilege Class B** (CP MSGNOH) ➢ ***OPTION LNKNOPAS*** *(or equivalent, such as **RACF OPERATIONS**) if backing up to disk*
BKRWRKxx	➢ **OPTION LNKNOPAS** (or equivalent, such as **RACF OPERATIONS**) ➢ **Privilege Class G** ➢ **Privilege Class B** (for CP MSGNOH) ➢ ***Privilege Class A*** *(if you plan to back up DASD volumes (vs minidisks))* ➢ ***OPTION DEVINFO*** *(if you have minidisks defined with DEVNO or &SYSRES options)* ➢ ***OPTION LNKSTABL*** *(if you want to link disks in STABLE mode during a backup)* ➢ ***OPTION DEVMAINT*** *(if you plan to back up DASD volumes (vs minidisks))*

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Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRADMIN**
  - From 5697J06B
  - Take out /* and */ before and after section for MINIDISK-based installations

```
link bkradmin 191 291 mr
acc 291 z
acc 2c2 e
copy admprof sampexec e profile exec z
xedit profile exec z
```

  - Take out /* and */ before and after section for MINIDISK-based installations
    - Change
      `Job_Templates = '199'`
      to
      `Job_Templates = 'BKRSFS:BKRADMIN.JOBDEFS'`
  - Take out /* and */ before and after section for work area in SFS
    - Change
      `Work_Area = 'VMSYS:'USERID()'.WORKAREA'`
      to
      `Work_Area = 'BKRSFS:'USERID()'.WORKAREA'`

```
file
```


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Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRCATLG**
  - From 5697J06B

```
link bkrcatlg 191 292 mr
acc 292 z
acc 2c2 e
copy catprof sampexec e profile exec z
xedit profile exec z
```

  - Take out /* and */ before and after section for MINIDISK-based installations
    - Change
      `Job_Templates = '199'`
      to
      `Job_Templates = 'BKRSFS:BKRADMIN.JOBDEFS'`
  - Take out /* and */ before and after section for work area in SFS
    - Change
      `Work_Area = 'VMSYS:'USERID()'.WORKAREA'`
      to
      `Work_Area = 'BKRSFS:'USERID()'.WORKAREA'`

```
file
```


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Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRCATLG**
  - From 5697J06B

```
link bkrbkup 191 292 mr
acc 292 z
acc 2c2 e
copy mastprof sampexec e profile exec z
xedit profile exec z
```

  - Take out /* and */ before and after section for MINIDISK-based installations
    - Change
      `Job_Templates = '199'`
      to
      `Job_Templates = 'BKRSFS:BKRADMIN.JOBDEFS'`
  - Take out /* and */ before and after section for work area in SFS
    - Change
      `Work_Area = 'VMSYS:'USERID()'.WORKAREA'`
      to
      `Work_Area = 'BKRSFS:'USERID()'.WORKAREA'`

```
file
```


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Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRCATLG**
  - From 5697J06B

```
link bkrwrk01 191 292 mr
acc 292 z
acc 2c2 e
copy wrkprof sampexec e profile exec z
xedit profile exec z
```

  - Take out /* and */ before and after section for MINIDISK-based installations
    - Change
      `Job_Templates = '199'`
      to
      `Job_Templates = 'BKRSFS:BKRADMIN.JOBDEFS'`
  - Take out /* and */ before and after section for work area in SFS
    - Change
      `Work_Area = 'VMSYS:'USERID()'.WORKAREA'`
      to
      `Work_Area = 'BKRSFS:'USERID()'.WORKAREA'`

```
File
```

- **Repeat for BKRWRK02, BKRWRK03, and BKRWRK04**
  - Or send or copy the PROFILE EXEC to the other workers
  - No changes needed for each worker

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Define Special Users to Backup Manager

- **From 5697J06B**

```
access 198 z
access 2c2 e
copy bkrusers namesamp e = names z
xedit bkrusers names z
```

  - Authorize additional users as Administrators:
    - BKRBKUP
    - Others as required by your site
      - MAINT
      - Operations Manager servers (OPMGRM1, OPMGRS1 through OPMGRS4) if you plan to have Operations Manager submitting backup jobs as part of automation
  - Remove extra workers BKRWRK05 and BKRWRK06
    - Scroll to the right to make sure you removed all of BKRWRK06
  - Copy BKRUSERS NAMES to a shared disk for user and server access
    - E.g. MAINT 19E (Y disk) or 5697J06B 592
      - Note: If you copy to MAINT 19E, copy as filemode number 2. Do not reload the CMS saved system. (We'll be putting other things on MAINT 19E so we'll reload CMS saved system later.)

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Update the Configuration File: BKRSYSTM CONFIG

- **From 5697J06B**

```
access 198 z
access 2c2 e
copy bkrsystm confsamp e = config z
xedit bkrsystm config z
```


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Update the Configuration File: BKRSYSTM CONFIG

- **Choose local options for**

```
Local_SVM_Contact = System Administrator - sysadmin@some.corp.com
```

  - Contact name displayed on service machines
  - Not used for automated e-mails or messages

```
Template_MDISK_Buffer_Pages = 768
```

  - Increase this value if you have more than 30,000 minidisks on the system

```
BKR_Allow_EDF_Target_Format = 0
```

  - Change to 1 if you want Backup Manager to format unformatted minidisks on restore

```
CatalogPool = RS54QA02
```

  - Change to BKRSFS

```
Workers_Reserved_For_Backup = 2
Workers_Reserved_For_Restore = 2
```

  - Change both values to 0 (all workers can do backups and restores)

```
BKR_Job_Tape_Enable_EOF1HDR1 = 1
```

  - Change to 0

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Update Backup Manager to Work with Tape Manager

- **If you are using Tape Manager to manage tapes and tape mounts:**
  - See the last section of Chapter 2 of the Backup Manager Administration Guide
  - Perform the steps as outlined

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Make the Configuration File Available

- **Copy BKRSYSTM CONFIG to a shared disk**
  - E.g. MAINT 19E (Y disk) or 5697J06B 592
    - Note: If you copy to MAINT 19E, copy as filemode number 2. Do not reload the CMS saved system. (We'll be putting other things on MAINT 19E so we'll reload CMS saved system later.)

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Complete SFS Configuration and Authorization

- **Give all users access to the catalog for restore requests**
  - User access is limited to catalog directories for their own data
  - From 5697J06B, issue

```
enroll public bkrsfs:
```


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Reload CMS Saved System if Needed

- **If you added code to MAINT 19E disk (during installation, service, and/or configuration)**
  - Verify the filemode number is 2 for each file
    - Already done for any Backup Manager code copied during installation and service
    - Need to verify this for any configuration files you put on MAINT 19E
  - Rebuild CMS saved system
    - From MAINT

```
acc 193 m
sampnss cms
ipl 190 clear parm savesys cms
<hit ENTER>
```

- **If you added help files to MAINT 19D disk (during installation and/or service)**
  - Rebuild CMS HELP logical saved segment (from files on MAINT 19D)

```
vmfbld ppf segbld esasegs segblist helpseg (all
```


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Create Backup Job to Test

- **Use a shipped sample template as a model**
  - From 5697J06B, issue

```
access 2c2 e
access 199 z
copy sampfull tempsamp e testfull template z
xedit testfull template z
```


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Customize the Backup Job: TESTFULL

- **Choose local options for**

```
CONFIG BKR_JOB_WORKERS = 1
```

  - Increase the number of workers based on the number of items to back up

```
CONFIG BKR_JOB_NAME = SAMPFULL
```

  - Change to TESTFULL

```
CONSOLE * Sample full backup generated
```

  - Change “Sample full” to indicate name of backup job TESTFULL

```
CP_QUIET SPOOL CONSOLE CLOSE NAME SAMPFULL $$SDATE$$
```

  - Change SAMPFULL to TESTFULL

```
CONFIG BKR_CATALOG_GRANULE_FN = SAMPFULL
```

  - Change GRANULE filename: TESTFULL
  - Search for other occurrences of “Sample” or “SAMPFULL” and updated
- **Many other options available**
  - See job statements and comments in SAMPFULL TEMPSAMP

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Customize the Backup Job: TESTFULL

- **Update INCLUDE and EXCLUDE statements**
  - Delete or replace the following entries for Linux guests

```
EXCLUDE MINIDISK MACK0* = *
INCLUDE MINIDISK MACK0* = 019*
EXCLUDE MINIDISK R54TUX* = *
INCLUDE MINIDISK R54TUX* = 019*
```

  - Do not delete the entry that excludes all minidisks with an end extend of END

```
Exclude Minidisk *  =  *  *  *  =  *  = *  >  3300  *
```

  - Delete or comment out the following entries

```
EXCLUDE MINIDISK MAINT = 0123
EXCLUDE MINIDISK MAINT = 0124
INCLUDE MINIDISK MAINT = 012*
EXCLUDE MINIDISK RS54QA* = *
INCLUDE MINIDISK RS54QA* = 019*
INCLUDE SFS VMSYSU: * SFS
EXCLUDE SFS VMSYSU: DFSMS* SFS
INCLUDE SFS VMDEVU: * SFS
```

  - You can leave the VMSYSU entries in if you have that SFS filepool up and running (on user ID VMSERVU)

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Customize the Backup Job: TESTFULL

- **Update INCLUDE and EXCLUDE statements**
  - Change the following to reflect BKRSVSFS instead of ROCKSFS

```
EXCLUDE MINIDISK ROCKSFS* = *
INCLUDE MINIDISK ROCKSFS* = 019*
```

  - Modify the following to exclude large minidisks

```
EXCLUDE MINIDISK * = * * * = * = * > 3300
```

- **FILE to save changes**

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Configuration is Complete

- **Now let's see if it actually works!**

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Verifying

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Start Backup Manager Service Machines

- **Start required Backup Manager servers**
  - From MAINT, issue

```
cp xautolog bkrcatlg
cp xautolog bkrbkup
```

- **Starting workers is recommended when product is first installed to verify configuration**
  - From MAINT, issue

```
cp xautolog bkrwrk01
```

  - Repeat for other workers
- **Starting workers (BKRWRKxx) is not required in general**
  - BKRBKUP will start them when needed
- **Verify servers are up and running**
  - From MAINT, issue

```
cp smsg bkrbkup status
cp smsg bkrwrk01 status
```

  - Repeat for other workers
- **Workers automatically logged off when idle timeout expires**

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Submit a Backup Job

- **Submit a job for review**
  - From BKRADMIN, issue

    ```
    smsg bkrbkup review testfull
    ```

  - Review files returned to BKRADMIN's reader
    - `TESTFULn JOB`
      - One file for each backup worker assigned
      - All configuration statements with (most) variables resolved
      - All DUMPDYN statements for data that would be backed up

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Submit a Backup Job

- **Submit a job and perform real backup**
  - From BKRADMIN (or other user authorized as a Backup Manager admin), issue

    ```
    smsg bkrbkup submit testfull
    ```

  - Note the message(s) indicating which worker(s) the job went to
  - Review consoles of BKRWRKxx servers
    - Authorize BKRADMIN to view backup server consoles in Operations Manager
      - Use AUTH statement
      - See Chapter 5 of Operations Manager Administration Guide
    - From BKRADMIN, issue

      ```
      GOMCMD OPMGRM1 VIEWCON USER(BKRWRKxx)
      ```


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Backup and Restore Manager is Up and Running

- **Major task is SFS setup**
  - Especially if you aren't familiar with SFS
- **VMSES/E install is straightforward**
- **Configuration is quick for initial testing**
  - Use the defaults for most things
  - Give all options some thought before production use
- **Use your in-house procedures to move it to production**

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References and More Information

- **Backup and Restore Manager for z/VM Web site**
  - http://www.ibm.com/software/stormgmt/zvm/backup
    - Publications
    - Pre-requisites
    - Announcements
    - Support
- **e-mail: Tracy Dean, tld1@us.ibm.com**
- **Publications**
  - CMS File Pool Planning, Administration, and Operation (SC24-6074)
  - Directory Maintenance Facility Commands Reference (SC24-6133)
  - Backup and Restore Manager for z/VM Program Directory (GI10-8662)
  - Backup and Restore Manager for z/VM Administration Guide (SC18-9346)
  - Backup and Restore Manager for z/VM User Guide (SC18-9523)

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