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# Getting Started with IBM Backup and Restore Manager for z/VM **V1.3**

VMSES/E Installation, SFS Setup, and Initial Configuration  
on z/VM V6.2 or V6.3

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If you are installing V1.2 of Backup and Restore Manager,  
email Tracy Dean for that presentation

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## Agenda

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

# Assumptions

- **Installing V1.3 of Backup and Restore for z/VM (V1.3 GAed on Feb 27, 2015)**
- **Installing on z/VM V6.2 or z/VM V6.3**
  - Standalone system, or an SSI cluster
  - See separate presentation for z/VM V5.4 (or V6.1)
- **DIRMAINT is installed for directory management**
  - MAINT620 or MAINT630 is authorized to issue AMDISK commands
  - AUTOG is available for group USER for minidisk definitions
- **Shared File System is available**
- **Installation ID is 5697J06C**
  - No PPF overrides
- **3390 ECKD DASD – see exception notes for SCSI/FBA installs**
- **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 MAINT620 or MAINT630 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

## Don't Forget

- **If you are also installing Operations Manager, install it first**
- **REXX must already be installed and available**
  - REXX Library (5695-014), **or**
  - REXX Alternate Library, free download at:  
<http://www.ibm.com/software/awdtools/rexx/rexxzseries/altlibrary.html>
  - Strongly suggest installing this on MAINT620 or MAINT630 19E to simplify access to it
    - If on MAINT620 or MAINT630 19E, make sure all files have filemode number of 2 (not the default of 1)
      - Required for loading into the CMS saved segment
- **More information about running Backup and Restore Manager in a z/VM V6.2 or later environment:**  
<http://www.ibm.com/support/docview.wss?rs=0&context=SSMR4R&q1=SSI&uid=swg21615651>



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## Preparing to Install

Create installation ID

Create an SFS server

Prepare system for VMSES/E installation

## Define the Installation ID: 5697J06C

- **From MAINT620 or MAINT630**
  - Create a file called 5697J06C DIRECT

```
USER 5697J06C password 64M 256M BG
* 5697-J06 - SES install & admin for Backup Mgr V1.3
MACHINE ESA
IPL CMS
OPTION LNKNOPAS
CONSOLE 009 3215 T
SPOOL 00C 2540 READER A
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
LINK MAINT 51D 51D MR
LINK MAINT 5E5 5E5 RR
```

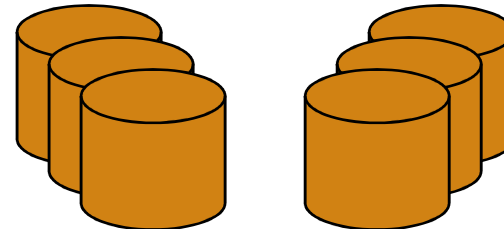
- Issue the command  
DIRM ADD 5697J06C

## Define the Installation ID: 5697J06C

- **Add required minidisks**

- From MAINT620 or MAINT630, issue

```
DIRM FOR 5697J06C AMD 191 3390 AUTOG 10 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06C AMD 2A2 3390 AUTOG 5 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06C AMD 2A6 3390 AUTOG 5 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06C AMD 2B2 3390 AUTOG 10 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06C AMD 2C2 3390 AUTOG 5 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06C AMD 2D2 3390 AUTOG 50 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06C AMD 491 3390 AUTOG 10 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06C AMD 492 3390 AUTOG 5 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06C AMD 49D 3390 AUTOG 5 USER MR PW <readpw> <writepw> <multpw>
```



- **SCSI / FBA installs – update the disk sizes based on the Program Directory**



## Resulting Minidisk Statements in Directory Entry for 5697J06C

```
MDISK 0191 3390 <start> 010 <vol> MR <readpw> <writepw> <multpw>
MDISK 02A2 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 02A6 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 02B2 3390 <start> 010 <vol> MR <readpw> <writepw> <multpw>
MDISK 02C2 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 02D2 3390 <start> 050 <vol> MR <readpw> <writepw> <multpw>
MDISK 0491 3390 <start> 010 <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>
```

## Format All Minidisks

- **From MAINT620 or MAINT630, issue**

```
link 5697J06C 191 333 MR
```


```
format 333 z
```

```
release z (det
```

- **Repeat for each 5697J06C disk**

# 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 work 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)

# Create New SFS Server: BKRSVSFS

- From MAINT620 or MAINT630, create and add directory entry for BKRSVSFS, using most of the sample values
  - Same procedure used to create user ID 5679J06C
  - 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

- Issue the command  
DIRM ADD BKRSVSFS

## BKRSVSFS Directory Entry (continued)

- From **MAINT620** or **MAINT630**, issue

```
DIRM FOR BKRSVSFS AMD 191 3390 AUTOG 2 USER W PW <readpw> <writepw> <multpw>
```

Work disk

```
DIRM FOR BKRSVSFS AMD 250 3390 AUTOG 80 USER R PW <readpw> <writepw> <multpw>
```

Control disk

```
DIRM FOR BKRSVSFS MINIOPT 250 NOMDC
```

```
DIRM FOR BKRSVSFS AMD 405 3390 AUTOG 10 USER R PW <readpw> <writepw> <multpw>
```

Repository log  
disks

```
DIRM FOR BKRSVSFS AMD 406 3390 AUTOG 10 USER R PW <readpw> <writepw> <multpw>
```

```
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> <multpw>
```

Initial catalog disk

```
DIRM FOR BKRSVSFS AMD 310 3390 AUTOG 750 USER R PW <readpw> <writepw> <multpw>
```

```
DIRM FOR BKRSVSFS AMD 311 3390 AUTOG 750 USER R PW <readpw> <writepw> <multpw>
```

```
DIRM FOR BKRSVSFS AMD 312 3390 AUTOG 750 USER R PW <readpw> <writepw> <multpw>
```

```
DIRM FOR BKRSVSFS AMD 313 3390 AUTOG 750 USER R PW <readpw> <writepw> <multpw>
```

User data  
disks

- SCSI / FBA installs – update the disk sizes by multiplying by 1440**

## 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>
MINIOPT NOMDC
MDISK 0405 3390 <start> 010 <vol> MR <readpw> <writepw> <multpw>
MINIOPT NOMDC
MDISK 0406 3390 <start> 010 <vol> MR <readpw> <writepw> <multpw>
MINIOPT NOMDC
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>
```

## Initial SFS Server Setup: BKRSVSFS

- **Logoff MAINT620 or MAINT630**
- **Logon to BKRSVSFS**
- **Format 191 disk**
  - From BKRSVSFS, issue  
format 191 a
- **Create a PROFILE EXEC on the 191 (A) disk, containing**

```
/* */  
'ACCESS 193 C'  
'CP SET EMSG ON'  
'CP SET PF11 RETRIEVE FORWARD'  
'CP SET PF12 RETRIEVE'  
Exit 0
```

- **Run the PROFILE**  
profile

## Define Startup Parameters for SFS Server: BKRSVSFS

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

```
ADMIN 5697J06C
ADMIN BKRADMIN
ADMIN BKRBKUP
ADMIN BKRCATLG
ADMIN BKRWRK01
ADMIN BKRWRK02
ADMIN BKRWRK03
ADMIN BKRWRK04
ADMIN xxxxxxxx
NOBACKUP
FILEPOOLID BKRSFS
NOCRR
NOLUNAME
SSI
SAVESEGID CMSFILES
USERS 700
CATBUFFERS 5000
```

Any other user IDs that will be Backup Manager administrators, such as MAINT, MAINTvrm, OPMGRM1, OPMGRSn

Optional – SSI or REMOTE for SFS server supporting multiple z/VM systems in an SSI cluster or ISFC collection

Optional – increases the working set size for the SFS server. Exclude this if your LPAR is memory constrained.



## 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
```

- **Note: when you leave XEDIT in the next step, z/VM will format the minidisks listed above. This may take a long time, depending on their size. Please be patient.**
- **Enter `file` on the XEDIT command line**

## 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

## Set Up 5697J06C

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

```
/* */  
'CP SET PF11 RETRIEVE FORWARD'  
'CP SET PF12 RETRIEVE'  
Exit 0
```

- **Run the PROFILE**  
profile

# Authorize Users and Create Directories in SFS

- **Authorize service machines to space in SFS**

- From 5697J06C, issue

```
enroll user bkraadmin 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 5697J06C issue

```
create directory bkrsfs:bkraadmin.workarea
create directory bkrsfs:bkraadmin.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
```

- **Authorize additional users to create and update backup job templates (e.g. MAINT, MAINT620, MAINT630, and other admin user IDs)**

```
grant auth bkrsfs:bkraadmin.jobdefs to <userid> (write newwrite
grant auth * * bkrsfs:bkraadmin.jobdefs to <userid> (write
```



Don't worry if this command results in an error. It just means nothing is in the SFS directory yet.

## 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

## Prepare for VMSES/E Installation

- **From MAINT620 or MAINT630**
  - Mount installation tape at virtual address 181  
Or
  - Have SERVLINK envelope available on the MAINT620 or MAINT630 500 disk

```
acc 500 f
```

    - Unpack the VMARC file

```
vmarc unpk <envfilename> vmarc f = = f
```

Or
    - Unpack the SERVLINK file

```
deterse <envfilename> servlink f 5697J06C = f
```
  - Access VMSES/E disks

```
access 5e5 b
access 51d d
```
  - Load product control files

```
vmfins install info (nomemo
or
vmfins install info (nomemo env <envfilename>
```
  - Obtain planning info

```
vmfins install ppf 5697J06C BKUPMGR (plan nomemo
or
vmfins install ppf 5697J06C BKUPMGR (plan nomemo env <envfilename>
```
  - Review for errors

```
vmfview install
```

## Create Directory Entries for All Required Users

- **Use directory entry samples provided in 5697J06C PLANINFO**
  - Located on 191 disk of MAINT620 or MAINT630
- **Note** - list of basic steps to create directory entries and add minidisks is on next 2 pages
- **From MAINT620 or MAINT630, follow steps outlined earlier for creating 5697J06C user ID to create directory entries for**
  - BKRADMIN           BKRWRK01
  - BKRBKUP            BKRWRK02
  - BKRCATLG           BKRWRK03
  - BKRWRK04
- **Add minidisks based on data in table in topic 5.3 of the Program Directory**

## Create Directory Entry for Single Configuration User

- **Create directory entry for BKRADMIN**

- From MAINT620 or MAINT630

- Create file: BKRADMIN DIRECT

- Based on sample

- Create directory entry

```
DIRM ADD BKRADMIN
```

```
DIRM FOR BKRADMIN AMD 191 3390 AUTOG 5 USER MR PW <readpw> <writepw> <multpw>
```



## Create Directory Entries for Multiconfiguration Users

- **Create directory entries for BKRBKUP, BKRCATLG, BKRWRKnn**
  - From MAINT620 or MAINT630, define the multiconfiguration user ID:
    - Create the file: <userid> DIRECT
      - Based on sample, but remove the BUILD ON, SUBCONFIG and MDISK statements
    - Create directory entry

```
DIRM ADD <userid>
```

## Create Directory Entries for Multiconfiguration Users

- **Create subconfig entries for BKRBKUP, BKRCATLG, BKRWRKnn**
  - From MAINT620 or MAINT630
    - Create file: <userid-1> DIRECT
      - Add only the SUBCONFIG statement from the sample <userid> DIRECT file
      - Note that the length of “userid-1” can only be 8 chars, so you will have to shorten the user ID name to make room for “-1”.
        - > E.g. use BKRBKP-1 instead of BKRBKUP-1
    - For example:

```
DIRM ADD BKRBKP-1 BUILD ON SYSTEM1 IN BKRBKUP
```
  - Repeat on this member for each user ID
    - BKRBKUP, BKRCATLG, BKRWRKnn
  - Repeat for SUBCONFIG entries on each member of the cluster

## Add Minidisks to Multiconfiguration Users

- **To add a minidisk**

- From MAINT620 or MAINT630

```
DIRM FOR <userid-1> AMD <vaddr> 3390 AUTOG <size> USER MR PW <readpw> <writepw> <multpw>
```

- Note that <userid-1> is the name of the subconfig entry (such as BKRBKP-1), not the actual userid name (BKRBKUP)

- **On this member of the cluster**

- Repeat for each BKRBKUP, BKRCATLG, and BKRWRKnn minidisk defined in the table in topic 5.3 of the Program Directory

- **Repeat minidisk creation on other members of the cluster**

## Format All Minidisks

- **From MAINT620 or MAINT630, issue**

```
link BKRADMIN 191 333 MR
```

```
format 333 z
```

```
release z (det
```

- **Repeat for each disk you have added for**
  - BKRADMIN
  - BKRBKUP
  - BKRCATLG
  - BKRWRKnn
- **Repeat for other members of the cluster**



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# Installing using VMSES/E

# Initial VMSES/E Install

- **From 5697J06C**

- Update the PROFILE EXEC

```
xedit profile exec a
```

- Add/update the following lines

```
/**/  
'ACCESS 5E5 B'  
'ACCESS 51D D'  
'CP SET PF11 RETRIEVE FORWARD'  
'CP SET PF12 RETRIEVE'
```

- Save and run

```
file  
profile
```

- Installing from tape

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

```
vmfins install ppf 5697J06C BKUPMGR (nomemo nolink
```

- Installing from an envelope

- Access the product code on the MAINT620 or MAINT630 500 disk

```
link maint6n0 500 500 rr  
acc 500 c
```

- Load the product code to disk and install

```
vmfins install ppf 5697J06C BKUPMGR (nomemo nolink env <envfilename>
```

## Initial VMSES/E Install (continued)

- Review for errors

```
vmfview install
```

- Update Build Status Table

```
vmfins build ppf 5697J06C BKUPMGR (serviced nolink
```

- Review for errors

```
vmfview install
```

- Do **not** copy to production yet

- We will do this later after service has been applied

## Prepare for Service

- **From MAINT620 or MAINT630**
  - Confirm MAINT 51D is accessed read/write
  - Issue  
VMFSUFTB
  - Issue  
VMFUPDAT SYSPINV PROD 5697J06C *membername1* {*membername2* ..}



## Where Code is Installed for Configuration and Testing

<b>Disk on 5697J06C</b>	<b>Description</b>
<b>2C2</b>	<b>Sample files</b>
<b>491 BKRBKUP 591</b>	<b>Test and production service machine executables for</b> <ul style="list-style-type: none"><li>-BKRBKUP</li><li>-BKRCATLG</li><li>-BKRWRKxx</li></ul>
<b>492 BKRBKUP 592 MAINT 19E</b>	<b>Test and production end user and administrator executables</b>
<b>SFS directory</b>	<b>Backup job templates and DISKPOOL files (not used during installation so still considered “installing on minidisks”)</b>
<b>49D MAINT 19D</b>	<b>Help files</b>

## 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

## Install All Available PTFs (COR Service)

- **Order/obtain all PTFs available for Backup Manager V1.3**
- **If installing from envelopes**
  - Place them on MAINTnnn 500 disk
  - From MAINT620 or MAINT630  
ACC 500 C
  - If each PTF is in tersed format (from IBMLINK), issue:  
DETERSE <fn> <ft> C <fn> SERVLINK C
  - If each PTF is in VMARC format, issue:  
VMARC UNPK <fn> <ft> C <fn> SERVLINK C

## Install All Available PTFs (COR Service) ...

- **From MAINT620 or MAINT630**
  - Confirm MAINT 51D is accessed read/write
  - Repeat the following as needed for each PTF
    - If installing from tape
      - Mount installation tape at virtual address 181
      - Issue  
`service 5697J06C%bkupmgr`
    - If installing from an envelope
      - Issue  
`access 500 c`
      - Issue  
`service 5697J06C%bkupmgr <ptf number>`

## Copy Code to Production Disks

- **Copy code from installation/test disk to production disk**
- **From MAINT620 or MAINT630**

```
link 5697J06C 491 491 rr
```

```
acc 491 e
```

```
link BKRBKUP 591 591 mr
```

```
acc 591 f
```

```
vmfcopy * * e = = f (prodid 5697J06C%BKUPMGR olddate replace
```

```
link 5697J06C 492 492 rr
```

```
acc 492 e
```

```
link BKRBKUP 592 592 mr
```

```
acc 592 f
```

```
vmfcopy * * e = = f (prodid 5697J06C%BKUPMGR olddate replace
```

## Copy Code to Production Disks (continued)

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

- Logon to MAINTnnn

```
link 5697j06c 492 492 rr
```

```
acc 492 e
```

```
link MAINTnnn 19e 19e mr
```

```
acc 19e f
```

```
vmfcopy * * e = = f2 (prodid 5697J06C%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 (MAINTnnn 19D)

```
link 5697j06c 49d 949d rr
```

```
acc 949d e
```

```
link MAINTnnn 19d 19d mr
```

```
acc 19d f
```

```
vmfcopy * helpabkr e = = f2 (prodid 5697J06C%BKUPMGR olddate replace
```

```
vmfcopy abkr helpmenu e = = f2 (prodid 5697J06C%BKUPMGR olddate replace
```

- Repeat on other members of the cluster
- **Do not** reload CMS saved system or help segment. We'll do this later.



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# Configuring



## Define Backup Mgr Servers as ADMINS for VMSYS: file pool

- **Logon to VMSESVS (user ID that owns the VMSYS: file pool)**
- **Shut it down**  
`stop`
- **Add BKRBKUP and all BKRWRKnn user IDs as ADMINS in the file VMSESVS DMSPARMS on the A-disk**
- **Restart the VMSESVS service machine**  
`profile`

## Verify System Access Privileges for Backup Servers

User ID	Privileges Required and <i>Recommended</i>
<b>BKRADMIN</b>	<ul style="list-style-type: none"> <li>➤ <b>OPTION LNKNOPAS</b> (or equivalent, such as <b>RACF OPERATIONS</b>)</li> <li>➤ <b>Privilege Class G</b></li> <li>➤ <b>Privilege Class B</b> (for CP MSGNOH)</li> </ul>
<b>BKRBKUP</b>	<ul style="list-style-type: none"> <li>➤ <b>OPTION LNKNOPAS</b> (or equivalent, such as <b>RACF OPERATIONS</b>)</li> <li>➤ <b>Privilege Class G</b></li> <li>➤ <b>Privilege Class A</b> (CP FORCE)</li> <li>➤ <b>Privilege Class B</b> (CP MSGNOH)</li> <li>➤ <b>Privilege Class D</b> (CP PURGE)</li> <li>➤ Admin authority to VMSYS: filepool</li> </ul>
<b>BKRCTLG</b>	<ul style="list-style-type: none"> <li>➤ <b>Privilege Class G</b></li> <li>➤ <b>Privilege Class B</b> (CP MSGNOH)</li> <li>➤ <b>Privilege Class E</b> (determine z/VM SSI status through CP DIAG 2CC)</li> <li>➤ <b>OPTION LNKNOPAS</b> (or equivalent, such as <b>RACF OPERATIONS</b>) if backing up to disk</li> </ul>
<b>BKRWRKxx</b>	<ul style="list-style-type: none"> <li>➤ <b>OPTION LNKNOPAS</b> (or equivalent, such as <b>RACF OPERATIONS</b>)</li> <li>➤ <b>Privilege Class G</b></li> <li>➤ <b>Privilege Class B</b> (for CP MSGNOH)</li> <li>➤ <b>Privilege Class A</b> (if you plan to back up DASD volumes (vs minidisks))</li> <li>➤ <b>OPTION DEVINFO</b> (if you have minidisks defined with DEVNO or &amp;SYSRES)</li> <li>➤ <b>OPTION DEVMAINT</b> (if you plan to back up DASD volumes (vs minidisks))</li> <li>➤ <b>OPTION LNKSTABL</b> (if you want to link disks in <i>STABLE</i> mode during a backup)</li> </ul>

## Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRADMIN**

- From 5697J06C

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

- Change

```
Job_Templates = '199'
to
Job_Templates = 'BKRSFS:BKRADMIN.JOBDEFS'
```

- Save and exit

```
file
rel z (det
```

## Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRCATLG**

- From 5697J06C

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

- Change

```
Job_Templates = '199'
to
Job_Templates = 'BKRSFS:BKRADMIN.JOBDEFS'
```

- Save and exit

```
file
rel z (det
```

## Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRBKUP**

- From 5697J06C

```
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:BKRAADMIN.JOBDEFS'
```

```
file
```

```
rel z (det
```

## Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRWRK01**

- From 5697J06C

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

- Change

```
Job_Templates = '199'
to
Job_Templates = 'BKRSFS:BKRADMIN.JOBDEFS'
```

- Save and exit

```
file
rel z (det
```

- **Repeat for BKRWRK02, BKRWRK03, and BKRWRK04**

- Or send or copy the PROFILE EXEC to the other workers
- No changes needed for each worker

## Define Special Users to Backup Manager

- **From 5697J06C**

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

- Authorize additional users as Administrators, as required by your site:
  - System programmer user IDs
    - MAINT620
    - MAINT630
    - Operations Manager servers if you plan to have Operations Manager submitting backup jobs as part of automation
      - > OPMGRM1
      - > OPMGRS1
      - > OPMGRS2
      - > OPMGRS3
      - > OPMGRS4
- File to save changes and exit

## Update the Configuration File: BKRSYSTEM CONFIG

- **From 5697J06C**

```
link bkrbkup 198 198 mr
```

```
access 198 z
```

```
access 2c2 e
```

```
copy bkrsystem confsamp e = config z
```

```
xedit bkrsystem config z
```



## Update the Configuration File: BKRSYSTEM 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

## Update Backup Manager to Work with Tape Manager

- **If you are using Tape Manager:**

- See the last section of Chapter 2 of the Backup Manager Administration Guide for full details
- If you followed the Tape Manager verification steps from the Tape Manager Admin Guide:
  - Most steps are already done
  - Update BKRSYSTEM CONFIG to reflect Tape Manager pool already defined:

```
Tape_Handled_Via_EUM =1  
EUM_Pool_Owner = BKRADMIN  
EUM_Pool_Name = BKRPOOL
```

- Confirm Tape Manager user code is on MAINT 19E
- Give Backup Manager servers required access to Tape Manager

```
TAPCMD POOLACC BKRADMIN BKRPOOL USER BKRADMIN BKRBACKUP BKRCATLG TAPE
```

```
TAPCMD POOLACC BKRADMIN BKRPOOL USER BKRWRK01 BKRWRK02 BKRWRK03 BKRWRK04 TAPE
```

## Make the Configuration Files Available

- **Copy BKRUSER NAMES and BKRSYSTEM CONFIG to a shared disk**

- Recommended

- From MAINT620 or MAINT630

```
link bkrbkup 198 333 rr
access 333 e
link maintnnn 19e 19e mr
access 19e f
copy bkrusers names e = = f2
copy bkrsystem config e = = f2
```

- Note: Copy as filemode number 2.

- **See next page for reloading the CMS saved system**

- Alternative

- From 5697J06C

```
Link bkrbkup 198 198 rr
access 198 z
access 592 f
copy bkrsystem config z = = f
copy bkrusers names z = = f
```

## Reload CMS Saved System if Needed

- **If you added code to MAINT620 or MAINT630 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 19E
  - Rebuild CMS saved system
    - From MAINT620 or MAINT630  
`put2prod savecms`
  
- **If you added help files to MAINT620 19D disk (during installation and/or service)**  
**Does not apply to z/VM V6.3 systems**
  - Rebuild CMS HELP logical saved segment (from files on 19D)
    - From MAINT620  
`put2prod segments helpseg`

## Configuring Other Members of the Cluster

- **Repeat pages 41-45 for all other members of the cluster**
  - Copy or send PROFILE EXECs from the first member to other members

## 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 5697J06C, issue  
`enroll public bkrsfs:`

## Create Backup Job to Test

- **Because we will store the backup job definition in SFS, we only need to define it once**
  - All members of the cluster will be able to see it
  - Our SFS server is visible across the cluster
  - By storing backup templates in SFS, multiple admins can access the files in read/write mode at the same time
    - Only one user can update a file at any one time, of course
- **Use a shipped sample backup job template as a model**

## Create Backup Job to Test

- **From your system programmer ID, BKRADMIN, MAINT620 or MAINT630, issue**

```
link 5697J06c 2c2 2c2 rr
access 2c2 e
access bkrsfs:bkradmin.jobdefs z (forcerw
copy sampfull tempsamp e testbkup template z
xedit testbkup template z
```



## Customize the Backup Job: TESTBKUP

- **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 TESTBKUP

```
CP_Command SPOOL CONSOLE TO $$ADMIN$$ ...
```

- If you are not currently logged onto BKRADMIN, change \$\$ADMIN\$\$ to the user ID to which you are currently logged on

- **Many other options available**

- See job statements and comments in SAMPFULL  
TEMPSAMP

## Customize the Backup Job: TESTBKUP

- **Determine target location for backup**

- Update or replace the following line to specify target location for backup data

```
Config BKR_Output_Spec = IBMTAPE SCRATCH RW 1
```

- If writing to tape, leave the line as-is
- To write backup data to disk (instead of tape)
  - Specify

```
Config BKR_Output_Spec = CMSFILE BACKUP DISKPOOL *
```

- And add this statement

```
Config BKR_Job_Tolerate_Diskpool_Depletion = Yes
```

- Create a new file BACKUP DISKPOOL on the job templates disk, currently accessed as Z (BKRSFS:BKRADMIN.JOBDEFS), containing the following:

```
BKUPDISK 300  
BKUPDISK 310  
BKUPDISK 320
```

- > Create a CP directory entry for the new user ID BKUPDISK
- > Add the minidisks as specified above. Add more minidisks as desired. (Minidisks must contain enough room for multiple copies of backup data)
- > Format each minidisk
- > This user should never logon – you can make it NOLOG in its directory entry

## Customize the Backup Job: TESTBKUP

- **Update INCLUDE and EXCLUDE statements**

- Remove all entries except the following

```
Include Minidisk * = * * * = * = * = END *
```

- Modify this entry to include only a single user ID and minidisk or a small number of user IDs and minidisks using wildcards
  - For example, the following line includes all minidisks owned by TCPMAINT where the virtual device address starts with 019

```
Include Minidisk TCPMAINT = 019* * * = * = * = END *
```

- Duplicate this line to add additional user IDs or minidisks as desired for a small test

- **Notes**

- If you add or modify statements that provide a virtual device address be sure to include leading wildcards or leading zeroes
  - z/VM and Backup Manager work with 4-digit virtual device addresses
- If you specify a value for the size of the minidisk, be sure you are using cylinders for ECKD volumes and blocks for SCSI/FBA volumes

- **FILE to save changes**

## Configuration is Complete

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





IBM Software

# Verifying

# Start Backup Manager Service Machines

- **Start on one member of the cluster**
  - Once it's working, move to other members
- **Start and verify BKRCATLG startup**
  - From MAINT620 or MAINT630, issue

```
cp xautolog bkrcatlg
cp smsg bkrcatlg status
```
  - If no response to status command, then view BKRCATLG console using Operations Manager
    - Find and fix the error
    - Force BKRCATLG off the system and repeat above steps
- **Start and verify BKRBKUP startup**
  - From MAINT620 or MAINT630, issue

```
cp xautolog bkrbkup
cp smsg bkrbkup status
```
  - If no response to status command, then view BKRBKUP console using Operations Manager
    - Find and fix the error
    - Force BKRBKUP off the system and repeat above steps

## Start Backup Manager Service Machines

- **Starting workers is recommended when product is first installed to verify configuration**
  - In normal operations, BKRBKUP will start workers when needed
    - Workers then automatically logged off when idle for 2 minutes
  - From MAINT620 or MAINT630, issue

```
cp xautolog bkrwrk01
cp msg bkrwrk01 status
```
  - If no response to status command, then view BKRWRK01 console using Operations Manager
    - Find and fix the error
    - Force BKRWRK01 off the system and repeat above steps
  - Repeat for BKRWRK02, BKRWRK03, BKRWRK04

## Submit a Backup Job

- **Submit a job for review**
  - From BKRADMIN, MAINT620, MAINT630 or your system programmer ID, issue  
`msg bkrbkup review testbkup`
  - Review files returned to your reader
    - TESTBKUn 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



## 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 testbkup
```
  - 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)
```

# 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**

## References and More Information

- **Backup and Restore Manager for z/VM Web site**
  - <http://www.ibm.com/software/products/en/backup-restore-manager-for-zvm>
    - Publications
    - Pre-requisites
    - Announcements
    - Support
- **e-mail: Tracy Dean, [tld1@us.ibm.com](mailto: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)