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

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

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Agenda

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

Assumptions

- **Installing on z/VM V6.2**
 - Standalone system, no SSI cluster
 - See separate presentation for z/VM V5.4 or V6.1
- **DIRMAINT is installed for directory management**
 - MAINT620 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 MAINT620 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 19E to simplify access to it
 - If on MAINT620 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 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: 5697J06B

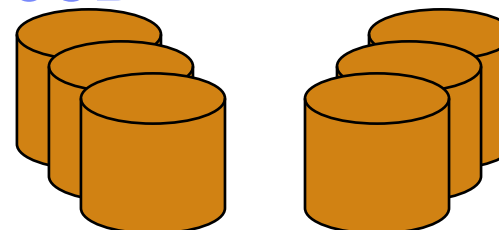
- **From MAINT620**
 - Create a file called 5697J06B DIRECT

```
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

Define the Installation ID: 5697J06B

- **Add required minidisks**
 - From MAINT620, issue



```
DIRM FOR 5697J06B AMD 191 3390 AUTOG 40 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 198 3390 AUTOG 2 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 199 3390 AUTOG 5 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 2A2 3390 AUTOG 1 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 2A6 3390 AUTOG 1 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 2B2 3390 AUTOG 5 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 2C2 3390 AUTOG 2 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 2D2 3390 AUTOG 50 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 491 3390 AUTOG 7 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 492 3390 AUTOG 7 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 49D 3390 AUTOG 5 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 591 3390 AUTOG 7 USER MR PW <readpw> <writepw> <multpw>
DIRM FOR 5697J06B AMD 592 3390 AUTOG 7 USER MR PW <readpw> <writepw> <multpw>
```


Resulting Minidisk Statements in Directory Entry for 5697J06B

```
MDISK 0191 3390 <start> 040 <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> 050 <vol> MR <readpw> <writepw> <multpw>
MDISK 0491 3390 <start> 007 <vol> MR <readpw> <writepw> <multpw>
MDISK 0492 3390 <start> 007 <vol> MR <readpw> <writepw> <multpw>
MDISK 049D 3390 <start> 005 <vol> MR <readpw> <writepw> <multpw>
MDISK 0591 3390 <start> 007 <vol> MR <readpw> <writepw> <multpw>
MDISK 0592 3390 <start> 007 <vol> MR <readpw> <writepw> <multpw>
```

Format All Minidisks

- **From MAINT620, issue**

```
link 5697J06B 191 333 MR
```


```
format 333 z
```

```
release z (det
```

- **Repeat for each 5697J06B 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, 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 NOMDCF5 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, 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

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**
- **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 5697J06B
```

```
ADMIN BKRADMIN
```

```
ADMIN BKRBKUP
```

```
ADMIN BKRCATLG
```

```
ADMIN BKRWRK01
```

```
ADMIN BKRWRK02
```

```
ADMIN BKRWRK03
```

```
ADMIN BKRWRK04
```

```
ADMIN xxxxxxxxx
```

```
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 or MAINT620

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 5697J06B

- **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 5697J06B, 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 5697J06B, 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, 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.

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 bkrctlg bkrsfs (blocks 4000 storgroup 2
enroll user bkrwrk01 bkrsfs (blocks 4000 storgroup 2
enroll user bkrwrk02 bkrsfs (blocks 4000 storgroup 2
enroll user bkrwrk03 bkrsfs (blocks 4000 storgroup 2
enroll user bkrwrk04 bkrsfs (blocks 4000 storgroup 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:bkrctlg.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
```

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**

- Mount installation tape at virtual address 181

Or

- Have SERVLINK envelope available on the MAINT620 500 disk

```
acc 500 f
```

- Unpack the VMARC file

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

Or

- Unpack the SERVLINK file

```
deterse <envfilename> servlink f 5697J06B = 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 5697J06B BKUPMGR (plan nomemo
```

or

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

- Review for errors

```
vmfview install
```

Create Directory Entries for All Required Users

- **Use directory entry samples specifically for z/VM V6.2 provided here:**

<http://www.ibm.com/support/docview.wss?rs=0&context=SSMR4R&q1=SSI&uid=swg21613686>

- **Note that list of basic steps to create directory entries and add minidisks is on next 2 pages**
- **From MAINT620, follow steps outlined earlier for creating 5697J06B 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

- Create file: BKRADMIN DIRECT
 - Based on sample, but remove the MDISK statement
- 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, 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>
```

- From MAINT620, define the subconfig entry:

- 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

```
DIRM ADD <userid-1> BUILD ON <nodeid> IN <userid>
```

- For example:

```
DIRM ADD BKRBKP-1 BUILD ON SYSTEM1 IN BKRBKUP
```

- Repeat for each user ID: BKRBKUP, BKRCATLG, BKRWRKnn

Add Minidisks to Multiconfiguration Users

- **Add a minidisk**

- From MAINT620

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

Format All Minidisks

- **From MAINT620, issue**

```
link BKRADMIN 191 333 MR
```

```
format 333 z
```

```
release z (det
```

- **Repeat for each disk you have added for**

- BKRADMIN

- BKRBKUP

- BKRCATLG

- BKRWRKnn



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Installing using VMSES/E

Initial VMSES/E Install

- **From 5697J06B**

- Create and run a PROFILE EXEC

```
xedit profile exec a
```

- Add 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 5697J06B BKUPMGR (nomemo nolink
```

- Installing from an envelope

- Access the product code

```
link maint620 500 500 rr  
acc 500 c
```

- Load the product code to disk and install

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

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
```

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
```


Initial VMSES/E Install (continued)

- Copy user code from installation disk to Y disk (MAINT620 19E) – strongly suggested to simplify access to code

- Logon to MAINT620

```
link 5697j06b 492 492 rr
acc 492 e
link maint620 19e 19e mr
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 (MAINT620 19D)

```
link 5697j06b 49d 949d rr
acc 949d e
link maint620 19d 19d mr
acc 19d f
vmfcopy * helpabkr e = = f2 (prodid 5697J06B%BKUPMGR olddate replace
vmfcopy abkr helpmenu e = = f2 (prodid 5697J06B%BKUPMGR olddate replace
```

Where Code is Installed for Configuration and Testing

Disk on 5697J06B	Description
2C2	Sample files
491, 591	Service machine executables for <ul style="list-style-type: none"> -BKRBKUP -BKRCATLG -BKRWRKxx
492, 592 MAINT/MAINT620 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/MAINT620 19D	Help files

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 V1.2**
- **Place them on MAINT620 500 disk**
- **From MAINT620**

ACC 500 F

- If each PTF is in tersed format (from IBMLINK), issue:

```
DETERSE <fn> <ft> F <fn> SERVLINK F
```

- If each PTF is in VMARC format, issue:

```
VMARC UNPK <fn> <ft> F <fn> SERVLINK F
```

- **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
 - If installing more then one PTF
 - Using Appendix B, in section B.1.1.2, you can repeat the VMFREC command for each PTF before continuing to section B.1.1.3
 - If you are using the SERVICE EXEC, repeat ACC 500 F from above before installing each PTF (the service process releases this disk)
 - **Do not** reload CMS saved system or help segments. We'll do this later.



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Configuring

Verify System Access Privileges for Backup Servers

User ID	Privileges Required and <i>Recommended</i>
BKRADMIN	<ul style="list-style-type: none"> ➤ OPTION LNKNOPAS (or equivalent, such as RACF OPERATIONS) ➤ Privilege Class G ➤ <i>Privilege Class B (for CP MSGNOH)</i>
BKRBKUP	<ul style="list-style-type: none"> ➤ 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	<ul style="list-style-type: none"> ➤ Privilege Class G ➤ Privilege Class B (CP MSGNOH) ➤ <i>OPTION LNKNOPAS (or equivalent, such as RACF OPERATIONS) if backing up to disk</i>
BKRWRKxx	<ul style="list-style-type: none"> ➤ OPTION LNKNOPAS (or equivalent, such as RACF OPERATIONS) ➤ Privilege Class G ➤ Privilege Class B (for CP MSGNOH) ➤ <i>Privilege Class A (if you plan to back up DASD volumes (vs minidisks))</i> ➤ <i>OPTION LNKSTABL (if you want to link disks in STABLE mode during a backup)</i> ➤ <i>OPTION DEVMAINT (if you plan to back up DASD volumes (vs minidisks) or if you have minidisks defined with DEVNO or &SYSRES options)</i>

Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRADMIN**

- From 5697J06B

```
link bkraadmin 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 the statement for work area in SFS (line 79)

- Change

```
Work_Area = 'VMSYS:'USERID()' .WORKAREA'
to
Work_Area = 'BKRSFS:'USERID()' .WORKAREA'
```

```
file
rel z (det
```


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:BKRAADMIN.JOBDEFS'
```

- Take out /* and */ before and after statement for work area in SFS (line 79)

- Change

```
Work_Area = 'VMSYS:'USERID()' .WORKAREA'
to
Work_Area = 'BKRSFS:'USERID()' .WORKAREA'
```

```
file
rel z (det
```

Create PROFILE EXECs for Test Service Machines

■ PROFILE EXEC for BKRBKUP

– 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:BKRAADMIN.JOBDEFS'
```

- Take out /* and */ before and after statement for work area in SFS (line 79)

- Change

```
Work_Area = 'VMSYS:'USERID()' .WORKAREA'
```

```
to
```

```
Work_Area = 'BKRSFS:'USERID()' .WORKAREA'
```

```
file
```

```
rel z (det
```

Create PROFILE EXECs for Test Service Machines

- **PROFILE EXEC for BKRWRK01**

- 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 statement for work area in SFS (line 76)

- Change

```
Work_Area = 'VMSYS:'USERID()'.WORKAREA'
to
Work_Area = 'BKRSFS:'USERID()'.WORKAREA'
```

```
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 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
 - System programmer user IDs
 - MAINT
 - MAINT620
 - Operations Manager servers if you plan to have Operations Manager submitting backup jobs as part of automation
 - > OPMGRM1
 - > OPMGRS1
 - > OPMGRS2
 - > OPMGRS3
 - > OPMGRS4

- Remove extra workers BKRWRK05 and BKRWRK06

- Scroll to the right to make sure you removed all of BKRWRK06

- File to save changes and exit

Define Special Users to Backup Manager

- **Copy BKRUSERS NAMES to a shared disk for user and server access**

- Recommended

- From MAINT620

```
link 5697j06b 198 333 rr
```

```
acc 333 e
```

```
link maint620 19e 19e mr
```

```
acc 19e f
```

```
copyfile bkrusers names e = = f2
```

- Note: Copy as filemode number 2.

- Do not reload the CMS saved system. (We'll be putting other things on MAINT620 19E so we'll reload CMS saved system later.)

- Alternative

- From 5697J06B

```
acc 198 e
```

```
acc 592 f
```

```
copyfile bkrusers names e = = f
```

Update the Configuration File: BKRSYSTEM CONFIG

- **From 5697J06B**

```
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

```
CatalogPool = BKRSFS
```

- Leave this as BKRSFS

```
Tape_Enable_EOF1HDR1 = 1
```

- Change to 0

```
Workers_Reserved_For_Backup = 2
```

```
Workers_Reserved_For_Restore = 2
```

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

Update Backup Manager to Work with Tape Manager

- **If you are using Tape Manager to manage tapes and tape mounts:**
 - Verify you have done the Tape Manager installation verification steps
 - Chapter 4 of Tape Manager Installation and Administration Guide
 - Note the tape pool defined in Tape Manager for use by Backup Manager is BKRADMIN BKRPOOL
 - Perform configuration steps for Backup Manager to work with Tape Manager
 - See the last section of Chapter 2 of the Backup Manager Administration Guide
 - No need to copy BKRSYSTEM CONFIG to MAINT 19E
 - Will do that on next page

Make the Configuration File Available

- **Copy BKRSYSTEM CONFIG to a shared disk**

- Recommended

- From MAINT620

- `link 5697j06b 198 333 rr`

- `access 333 e`

- `link maint620 19e 19e mr`

- `access 19e f`

- `copy bkrsystem config z = = f2`

- Note: Copy as filemode number 2.

- Do not reload the CMS saved system. (We'll be putting other things on MAINT620 19E so we'll reload CMS saved system later.)

- Alternative

- From 5697J06B

- `access 198 z`

- `access 592 f`

- `copy bkrsystem config z = = f`

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:`

Reload CMS Saved System if Needed

- **If you added code to MAINT620 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
`put2prod savecms`
 - If you added help files to MAINT620 19D disk (during installation and/or service)
 - Rebuild CMS HELP logical saved segment (from files on 19D)
 - From MAINT620
`put2prod segments helpseg`

Create Backup Job to Test

- **Use a shipped sample template as a model**
 - From your system programmer ID or BKRADMIN, issue

```
link 5697J06b 2c2 2c2 rr
access 2c2 e
access bkrsfs:bkradmin.jobdefs z (forcerw
copy sampfull tempsamp e testfull template z
xedit testfull template z
```

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

Customize the Backup Job: TESTFULL

- **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 TESTFULL DISKPOOL *
```

- Create a new file TESTFULL 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

Customize the Backup Job: TESTFULL

- **Update INCLUDE and EXCLUDE statements**

- Change the following entry from INCLUDE to EXCLUDE

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

- Delete 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 * = * * * = * = * = END *
```

- 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
```

Customize the Backup Job: TESTFULL

- **Update INCLUDE and EXCLUDE statements**

- Delete the SFS entries for VMSYSU

```
Include SFS VMSYSU: * SFS
Exclude SFS VMSYSU: DFSMS* SFS
Include SFS VMDEVU: * SFS
```

- Change the following to reflect BKRSVSFS instead of ROCKSFS

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

- Add a new entry to back up just your 191 disk or BKRADMIN's 191 disk

```
Include MINIDISK BKRADMIN = 191 * * = * = * = * *
```

- Modify the following to exclude large minidisks

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

- **FILE to save changes**

Configuration is Complete

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





IBM Software

Verifying

Start Backup Manager Service Machines

- **Start and verify BKRCATLG startup**
 - From MAINT620, issue

```
cp xautolog bkrcatlg
cp msg 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, issue

```
cp xautolog bkrbkup
cp msg 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, 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, issue

```
msg 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

Submit a Backup Job

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

```
smmsg 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)
```

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/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)