

```
advn.txt
Script started on Fri 16 Oct 2009 11:26:09 AM BST
[oracle@prutser2 demos]$ sqlplus / as sysasm
SQL*Plus: Release 11.2.0.1.0 Production on Fri Oct 16 11:26:21 2009
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```

```
Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.1.0 - Production
With the Automatic Storage Management option
```

```
SQL> set numwidth 16
SQL> set pagesize 43
SQL> set linesize 132
SQL> set numwidth 10
SQL> set sqlprompt '_user@&_CONNECT_IDENTIFIER SQL> ';
SYS@+ASM SQL> rem set sqlprompt 'SQL> '
SYS@+ASM SQL> set sqlnumber on
SYS@+ASM SQL> col value for 999999999999999999
SYS@+ASM SQL> -- Used for the SHOW ERRORS command
SYS@+ASM SQL> COLUMN LINE/COL FORMAT A8
SYS@+ASM SQL> COLUMN ERROR          FORMAT A65 WORD_WRAPPED
SYS@+ASM SQL> -- Used for the SHOW SGA command
SYS@+ASM SQL> COLUMN name_col_plus_show_sga FORMAT a28
SYS@+ASM SQL> -- Defaults for SHOW PARAMETERS
SYS@+ASM SQL> COLUMN name_col_plus_show_param FORMAT a35 HEADING NAME
SYS@+ASM SQL> COLUMN value_col_plus_show_param FORMAT a55 HEADING VALUE
SYS@+ASM SQL> -- Defaults for SET AUTOTRACE EXPLAIN report
SYS@+ASM SQL> COLUMN id_plus_exp FORMAT 990 HEADING i
SYS@+ASM SQL> COLUMN parent_id_plus_exp FORMAT 990 HEADING p
SYS@+ASM SQL> COLUMN plan_plus_exp FORMAT a70
SYS@+ASM SQL> COLUMN object_node_plus_exp FORMAT a16
SYS@+ASM SQL> COLUMN other_tag_plus_exp FORMAT a29
SYS@+ASM SQL> COLUMN other_plus_exp FORMAT a44
SYS@+ASM SQL> break on inst_id skip 1
SYS@+ASM SQL> define _editor = "vi"
SYS@+ASM SQL> define p=&_CONNECT_IDENTIFIER
SYS@+ASM SQL> define sys='sys/oracle@&p as sysdba'
SYS@+ASM SQL> define hr='hr/hr@&p'
SYS@+ASM SQL> define sh='sh/sh@&p'
SYS@+ASM SQL> define scott='scott/tiger@&p'
SYS@+ASM SQL> set serveroutput on size 5000
SYS@+ASM SQL> store set mysettings replace
Wrote file mysettings
```

```
SYS@+ASM SQL> alter session set nls_date_format = 'dd-mon-rrrr HH24:MI:SS';
```

```
Session altered.
```

```
SYS@+ASM SQL> set pause on
SYS@+ASM SQL> set pause "Hit Any Key to Continue"
SYS@+ASM SQL> rem clear screen
SYS@+ASM SQL> @advn
```

```
SYS@+ASM SQL> rem demo ADVN and ACFS use
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> rem clean up to start over
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> rem make sure drivers are loaded
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> host sudo /u01/app/oracle/product/11.2.0/grid/bin/acfsload start
```

```
ACFS-9327: Verifying ADVN/ACFS devices.
ACFS-9322: done.
```

```
SYS@+ASM SQL> rem unmount the mount point
SYS@+ASM SQL> pause
SYS@+ASM SQL>
SYS@+ASM SQL> host sudo umount /home/oracle/asmfs
```

```
umount: /home/oracle/asmfs: not mounted
```

```
SYS@+ASM SQL> rem now check it
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> host mount
```

```
/dev/mapper/volGroup00-LogVol100 on / type ext3 (rw)
proc on /proc type proc (rw)
sysfs on /sys type sysfs (rw)
```

```

                                advm.txt
devpts on /dev/pts type devpts (rw,gid=5,mode=620)
/dev/sda1 on /boot type ext3 (rw)
tmpfs on /dev/shm type tmpfs (rw)
/dev/mapper/VolGroup01-lvol0 on /u01 type ext3 (rw)
none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)
sunrpc on /var/lib/nfs/rpc_pipefs type rpc_pipefs (rw)
oracleasmfs on /dev/oracleasm type oracleasmfs (rw)

SYS@+ASM SQL> rem now remove the mount metadata from the acfs registry
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/acfsutil registry -d /home/oracle/asmfs

acfsutil registry: ACFS-03135: unable to locate mount point /home/oracle/asmfs in Oracle Registry
acfsutil registry: ACFS-03112: unable to remove mount point /home/oracle/asmfs from Oracle Registry

SYS@+ASM SQL> rem now check it
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/acfsutil registry

SYS@+ASM SQL> rem now delete the volume
SYS@+ASM SQL> pause

SYS@+ASM SQL> host asmcmd voldelete -G DATA demovol

ORA-15032: not all alterations performed
ORA-15466: volume name 'demovol' does not exist (DBD ERROR: OCISmtExecute)

SYS@+ASM SQL> rem now check it
SYS@+ASM SQL> pause

SYS@+ASM SQL> host asmcmd volinfo -a

no volumes found

SYS@+ASM SQL> rem also check the device files
SYS@+ASM SQL> pause

SYS@+ASM SQL> host ls /dev/asm

SYS@+ASM SQL> rem remove the drivers
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /u01/app/oracle/product/11.2.0/grid/bin/acfsload stop

SYS@+ASM SQL> rem check the drivers
SYS@+ASM SQL> pause

SYS@+ASM SQL> host /sbin/lsmmod |grep oracle

oracleasm                46100  1

SYS@+ASM SQL> rem see how they may be loaded automatically if required
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo cat /etc/init.d/acfsload

#!/bin/sh
# chkconfig: 2345 30 21
# description: Load Oracle ACFS drivers at system boot
/u01/app/oracle/product/11.2.0/grid/bin/acfsload start -s
#

SYS@+ASM SQL> rem see the services config
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/chkconfig --list |grep acfsload

acfsload          0:off  1:off  2:on   3:on   4:on   5:on   6:off

SYS@+ASM SQL> rem so now load the drivers manually
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /u01/app/oracle/product/11.2.0/grid/bin/acfsload start

ACFS-9327: Verifying ADVM/ACFS devices.
ACFS-9322: done.

SYS@+ASM SQL> rem check again that they are loaded
SYS@+ASM SQL> pause

SYS@+ASM SQL> host /sbin/lsmmod |grep oracle

oracleacfs          787460  0

```

```

                                advm.txt
oracleadm      177792  0
oracleoks     226656  2 oracleacfs,oracleadm
oracleasm     46100   1

```

```
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> rem check the disk groups available with asmcmd
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> host asmcmd lsdg
```

State	Type	Rebal	Sector	Block	AU	Total_MB	Free_MB	Req_mir_free_MB	Usable_file_MB
Offline_disks									
Voting_files Name									
MOUNTED	EXTERN	N	512	4096	1048576	3067	1472	0	1472
	0								
N DATA/									
MOUNTED	EXTERN	N	512	4096	1048576	5114	4690	0	4690
	0								

```
N FRA/
```

```
SYS@+ASM SQL> rem now use v$asm_diskgroup
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> desc v$asm_diskgroup
```

Name	Null?	Type
GROUP_NUMBER		NUMBER
NAME		VARCHAR2(30)
SECTOR_SIZE		NUMBER
BLOCK_SIZE		NUMBER
ALLOCATION_UNIT_SIZE		NUMBER
STATE		VARCHAR2(11)
TYPE		VARCHAR2(6)
TOTAL_MB		NUMBER
FREE_MB		NUMBER
HOT_USED_MB		NUMBER
COLD_USED_MB		NUMBER
REQUIRED_MIRROR_FREE_MB		NUMBER
USABLE_FILE_MB		NUMBER
OFFLINE_DISKS		NUMBER
COMPATIBILITY		VARCHAR2(60)
DATABASE_COMPATIBILITY		VARCHAR2(60)
VOTING_FILES		VARCHAR2(1)

```
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> col name for a10
SYS@+ASM SQL> col compatibility for a20
SYS@+ASM SQL> col database_compatibility for a20
```

```
SYS@+ASM SQL> select name,state,total_mb,free_mb, compatibility,database_compatibility
2 from v$asm_diskgroup
3 order by name;
```

NAME	STATE	TOTAL_MB	FREE_MB	COMPATIBILITY	DATABASE_COMPATIBILI
DATA	MOUNTED	3067	1472	11.2.0.0.0	11.2.0.0.0
FRA	MOUNTED	5114	4690	11.2.0.0.0	11.2.0.0.0

```
2 rows selected.
```

```
SYS@+ASM SQL> rem we will create a volume file in the DATA DG
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> host asmcmd volcreate -G DATA -s 512M --redundancy unprotected demovo1
```

```
SYS@+ASM SQL> rem see the device file now on the file system
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> host ls -als /dev/asm
```

```
total 0
0 drwxrwx--- 2 root dba          320 Oct 16 11:28 .
0 drwxr-xr-x 13 root root        4140 Oct 16 11:28 ..
0 brwxrwx--- 1 root dba    252, 0 Oct 16 11:27 .asm_ctl_spec
0 brwxrwx--- 1 root dba    252, 10 Oct 16 11:27 .asm_ctl_vbg0
```

```

                                advm.txt
0 brwxrwx--- 1 root dba 252,    11 Oct 16 11:27 .asm_ctl_vbg1
0 brwxrwx--- 1 root dba 252,    12 Oct 16 11:27 .asm_ctl_vbg2
0 brwxrwx--- 1 root dba 252,    13 Oct 16 11:27 .asm_ctl_vbg3
0 brwxrwx--- 1 root dba 252,    14 Oct 16 11:27 .asm_ctl_vbg4
0 brwxrwx--- 1 root dba 252,    15 Oct 16 11:27 .asm_ctl_vbg5
0 brwxrwx--- 1 root dba 252,    16 Oct 16 11:27 .asm_ctl_vbg6
0 brwxrwx--- 1 root dba 252,    17 Oct 16 11:27 .asm_ctl_vbg7
0 brwxrwx--- 1 root dba 252,    18 Oct 16 11:27 .asm_ctl_vbg8
0 brwxrwx--- 1 root dba 252,    19 Oct 16 11:27 .asm_ctl_vbg9
0 brwxrwx--- 1 root dba 252,     1 Oct 16 11:27 .asm_ctl_vdbg
0 brwxrwx--- 1 root dba 252,     2 Oct 16 11:27 .asm_ctl_vmb
0 brwxrwx--- 1 root dba 252, 182785 Oct 16 11:28 demovol-357

```

```

SYS@+ASM SQL> rem use the advm utility to see the volume
SYS@+ASM SQL> pause

```

```

SYS@+ASM SQL> host sudo /sbin/advmutil volinfo /dev/asm/demovol-357

```

```

Interface Version: 1
Size (MB): 512
Resize Increment (MB): 256
Redundancy: unprotected
Stripe Columns: 4
Stripe Width (KB): 128
Disk Group: DATA
Volume: DEMOVOL

```

```

SYS@+ASM SQL> rem now check volume info with asmcmd
SYS@+ASM SQL> pause

```

```

SYS@+ASM SQL> host asmcmd volinfo -G DATA -a

```

```

Diskgroup Name: DATA

Volume Name: DEMOVOL
Volume Device: /dev/asm/demovol-357
State: ENABLED
Size (MB): 512
Resize Unit (MB): 256
Redundancy: UNPROT
Stripe Columns: 4
Stripe Width (K): 128
Usage:
Mountpath:

```

```

SYS@+ASM SQL> rem see the volume in the dynamic performance view
SYS@+ASM SQL> pause

```

```

SYS@+ASM SQL> desc v$asm_volume

```

Name	Null?	Type
GROUP_NUMBER		NUMBER
VOLUME_NAME		VARCHAR2(30)
COMPOUND_INDEX		NUMBER
SIZE_MB		NUMBER
VOLUME_NUMBER		NUMBER
REDUNDANCY		VARCHAR2(6)
STRIPE_COLUMNS		NUMBER
STRIPE_WIDTH_K		NUMBER
STATE		VARCHAR2(8)
FILE_NUMBER		NUMBER
INCARNATION		NUMBER
DRL_FILE_NUMBER		NUMBER
RESIZE_UNIT_MB		NUMBER
USAGE		VARCHAR2(30)
VOLUME_DEVICE		VARCHAR2(256)
MOUNTPATH		VARCHAR2(1024)

```

SYS@+ASM SQL> pause

```

```

SYS@+ASM SQL> col volume_name for a10
SYS@+ASM SQL> col usage for a10
SYS@+ASM SQL> col volume_device for a21
SYS@+ASM SQL> col mountpath for a20

```

```

SYS@+ASM SQL> select volume_name,volume_number,volume_device,mountpath,usage,
2 state,redundancy,size_mb,stripe_columns,stripe_width_k
3 from v$asm_volume;

```

VOLUME_NAM	VOLUME_NUMBER	VOLUME_DEVICE	MOUNTPATH	USAGE	STATE	REDUND
SIZE_MB	STRIPE_COLUMNS					

```
-----
-----
STRIPE_WIDTH_K
-----
DEMOVOL          1 /dev/asm/demovol-357          ENABLED UNPROT
  512              4
              128
```

1 row selected.

SYS@+ASM SQL> rem note that there is currently no mount point for any acfs file system  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> rem now check for acfs volumes using v\$asm\_acfsvolumes  
 SYS@+ASM SQL> pause

```
SYS@+ASM SQL> desc v$asm_acfsvolumes
Name                                                    Null?       Type
-----
FS_NAME                                                  VARCHAR2(1024)
VOL_DEVICE                                               VARCHAR2(256)
VOL_LABEL                                                VARCHAR2(64)
PRIMARY_VOL                                              VARCHAR2(5)
TOTAL_MB                                                 NUMBER
FREE_MB                                                  NUMBER
```

SYS@+ASM SQL> pause

SYS@+ASM SQL> col fs\_name for a30  
 SYS@+ASM SQL> col vol\_device for a30  
 SYS@+ASM SQL> col vol\_label for a10

SYS@+ASM SQL> select \*  
 2 from v\$asm\_acfsvolumes;

no rows selected

SYS@+ASM SQL> rem now check volume stats with asmcmd  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host asmcmd volstat

DISKGROUP NUMBER / NAME: 1 / DATA

```
-----
VOLUME_NAME
  READS      BYTES_READ  READ_TIME  READ_ERRS
  WRITES      BYTES_WRITTEN  WRITE_TIME  WRITE_ERRS
-----
DEMOVOL
  0           0           0           0
  0           0           0           0
```

SYS@+ASM SQL> rem check that the mount point exists  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host ls -ld /home/oracle/asmfs

drwxr-xr-x 2 oracle dba 4096 Sep 17 11:12 /home/oracle/asmfs

SYS@+ASM SQL> rem now create an asm file system on the device  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/mkfs -t acfs /dev/asm/demovol-357

```
mkfs.acfs: version          = 11.2.0.1.0.0
mkfs.acfs: on-disk version  = 39.0
mkfs.acfs: volume          = /dev/asm/demovol-357
mkfs.acfs: volume size     = 536870912
mkfs.acfs: Format complete.
```

SYS@+ASM SQL> rem check it now  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/acfsutil info fs

acfsutil info fs: ACFS-03036: no mounted ACFS file systems

SYS@+ASM SQL> rem as it is not mounted we can not check yet  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> rem now add it to the acfs registry

```

SYS@+ASM SQL> pause
SYS@+ASM SQL> host sudo /sbin/acfsutil registry -a /dev/asm/demovol-357 /home/oracle/asmfs
acfsutil registry: mount point /home/oracle/asmfs successfully added to Oracle Registry
SYS@+ASM SQL> rem now see it in the registry
SYS@+ASM SQL> pause
SYS@+ASM SQL> host sudo /sbin/acfsutil registry

```

```

Mount Object:
Device: /dev/asm/demovol-357
Mount Point: /home/oracle/asmfs
Disk Group: DATA
Volume: DEMOVOL
Options: none
Nodes: all

```

```

SYS@+ASM SQL> rem now mount it using mount
SYS@+ASM SQL> pause
SYS@+ASM SQL> host sudo mount -t acfs /dev/asm/demovol-357 /home/oracle/asmfs
SYS@+ASM SQL> rem see it mounted
SYS@+ASM SQL> pause
SYS@+ASM SQL> host mount

```

```

/dev/mapper/volGroup00-LogVol100 on / type ext3 (rw)
proc on /proc type proc (rw)
sysfs on /sys type sysfs (rw)
devpts on /dev/pts type devpts (rw,gid=5,mode=620)
/dev/sda1 on /boot type ext3 (rw)
tmpfs on /dev/shm type tmpfs (rw)
/dev/mapper/volGroup01-lvol0 on /u01 type ext3 (rw)
none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)
sunrpc on /var/lib/nfs/rpc_pipefs type rpc_pipefs (rw)
oracleasmfs on /dev/oracleasm type oracleasmfs (rw)
/dev/asm/demovol-357 on /home/oracle/asmfs type acfs (rw)

```

```

SYS@+ASM SQL> rem now check it again
SYS@+ASM SQL> pause
SYS@+ASM SQL> host sudo /sbin/acfsutil info fs

```

```

/home/oracle/asmfs
ACFS Version: 11.2.0.1.0.0
flags: MountPoint,Available
mount time: Fri Oct 16 11:28:56 2009
volumes: 1
total size: 536870912
total free: 497803264
primary volume: /dev/asm/demovol-357
label:
flags: Primary,Available,ADVM
on-disk version: 39.0
allocation unit: 4096
major, minor: 252, 182785
size: 536870912
free: 497803264
ADVM diskgroup: DATA
ADVM resize increment: 268435456
ADVM redundancy: unprotected
ADVM stripe columns: 4
ADVM stripe width: 131072
number of snapshots: 0
snapshot space usage: 0

```

```

SYS@+ASM SQL> rem now check the v$ view again to see it mounted
SYS@+ASM SQL> pause

```

```

SYS@+ASM SQL> select volume_name,volume_number,volume_device,mountpath,usage,
2 state,redundancy,size_mb,stripe_columns,stripe_width_k
3 from v$asm_volume;

```

VOLUME_NAM	VOLUME_NUMBER	VOLUME_DEVICE	MOUNTPATH	USAGE	STATE	REDUND
DEMOVOL	1	/dev/asm/demovol-357	/home/oracle/asmfs	ACFS	ENABLED	UNPROT

512 4  
128

1 row selected.

SYS@+ASM SQL> rem check the acfs volumes again  
SYS@+ASM SQL> pause

SYS@+ASM SQL> select \*  
2 from v\$asm\_acfsvolumes;

FS_NAME	VOL_DEVICE	VOL_LABEL	PRIMA	TOTAL_MB	FREE_MB
/home/oracle/asmfs	/dev/asm/demov01-357		TRUE	512	474.742188

1 row selected.

SYS@+ASM SQL> rem try to do an fsck of the acfs system  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/fsck -t acfs /dev/asm/demov01-357

fsck 1.39 (29-May-2006)  
fsck.acfs: version = 11.2.0.1.0.0  
fsck.acfs: ACFS-00511: /dev/asm/demov01-357 is mounted on at least one node of the cluster.  
fsck.acfs: ACFS-07656: Unable to continue

SYS@+ASM SQL> rem so unmount it  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo umount /home/oracle/asmfs

SYS@+ASM SQL> rem check it  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host mount

/dev/mapper/volGroup00-LogVol00 on / type ext3 (rw)  
proc on /proc type proc (rw)  
sysfs on /sys type sysfs (rw)  
devpts on /dev/pts type devpts (rw,gid=5,mode=620)  
/dev/sda1 on /boot type ext3 (rw)  
tmpfs on /dev/shm type tmpfs (rw)  
/dev/mapper/volGroup01-lvol0 on /u01 type ext3 (rw)  
none on /proc/sys/fs/binfmt\_misc type binfmt\_misc (rw)  
sunrpc on /var/lib/nfs/rpc\_pipefs type rpc\_pipefs (rw)  
oracleasmfs on /dev/oracleasm type oracleasmfs (rw)

SYS@+ASM SQL>  
SYS@+ASM SQL> rem now fsck the acfs system with the file system unmounted  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/fsck -t acfs /dev/asm/demov01-357

fsck 1.39 (29-May-2006)  
fsck.acfs: version = 11.2.0.1.0.0  
Oracle ASM Cluster File System (ACFS) On-Disk Structure Version: 39.0  
\*\*\*\*\*  
\*\*\*\*\* Pass 1: \*\*\*\*\*  
\*\*\*\*\*  
The ACFS volume was created at Fri Oct 16 11:28:42 2009  
Checking primary file system...

Files checked in primary file system: 5%	
Files checked in primary file system: 10%	Files checked in primary file system: 15%
Files checked in primary file system: 20%	
Files checked in primary file system: 25%	
Files checked in primary file system: 30%	
Files checked in primary file system: 35%	
Files checked in primary file system: 40%	
Files checked in primary file system: 45%	Files checked in primary file system: 50%
Files checked in primary file system: 55%	
Files checked in primary file system: 60%	
Files checked in primary file system: 65%	
Files checked in primary file system: 70%	
Files checked in primary file system: 75%	
Files checked in primary file system: 80%	
Files checked in primary file system: 85%	
Files checked in primary file system: 90%	Files checked in primary file system: 95%
Files checked in primary file system: 100%	

Checking if any files are orphaned...

0 orphans found

fsck.acfs: Checker completed with no errors.

SYS@+ASM SQL> rem now mount it using asmfs registry  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/mount.acfs -o all

SYS@+ASM SQL> rem see it mounted  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host mount

```
/dev/mapper/volGroup00-Logvol100 on / type ext3 (rw)
proc on /proc type proc (rw)
sysfs on /sys type sysfs (rw)
devpts on /dev/pts type devpts (rw,gid=5,mode=620)
/dev/sda1 on /boot type ext3 (rw)
tmpfs on /dev/shm type tmpfs (rw)
/dev/mapper/volGroup01-lvol0 on /u01 type ext3 (rw)
none on /proc/sys/fs/binfmt_misc type binfmt_misc (rw)
sunrpc on /var/lib/nfs/rpc_pipefs type rpc_pipefs (rw)
oracleasmfs on /dev/oracleasm type oracleasmfs (rw)
/dev/asm/demovol-357 on /home/oracle/asmfs type acfs (rw)
```

SYS@+ASM SQL> rem and check it again  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/acfsutil info fs

```
/home/oracle/asmfs
ACFS Version: 11.2.0.1.0.0
flags:          MountPoint,Available
mount time:    Fri Oct 16 11:29:05 2009
volumes:      1
total size:    536870912
total free:    497803264
primary volume: /dev/asm/demovol-357
  label:
  flags:          Primary,Available,ADVM
  on-disk version: 39.0
  allocation unit: 4096
  major, minor:   252, 182785
  size:           536870912
  free:           497803264
  ADVM diskgroup: DATA
  ADVM resize increment: 268435456
  ADVM redundancy: unprotected
  ADVM stripe columns: 4
  ADVM stripe width: 131072
  number of snapshots: 0
  snapshot space usage: 0
```

SYS@+ASM SQL> rem now try to create a file in the file system  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host echo "Test acfs data" > /home/oracle/asmfs/demofile

/bin/bash: /home/oracle/asmfs/demofile: Permission denied

SYS@+ASM SQL> rem see the owner and group  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host ls -ld /home/oracle/asmfs

```
drwxr-xr-x 4 root root 4096 Oct 16 11:28 /home/oracle/asmfs
```

SYS@+ASM SQL> rem we must set owner and group correctly  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo chown oracle:dba /home/oracle/asmfs

SYS@+ASM SQL> rem check again  
SYS@+ASM SQL> pause

SYS@+ASM SQL> host ls -ld /home/oracle/asmfs

```
drwxr-xr-x 4 oracle dba 4096 Oct 16 11:28 /home/oracle/asmfs
```

SYS@+ASM SQL> rem now try again to create the file

```
SYS@+ASM SQL> pause
SYS@+ASM SQL> host echo "Test acfs data" > /home/oracle/asmfs/demofile
SYS@+ASM SQL> rem now see it
SYS@+ASM SQL> pause
SYS@+ASM SQL> host ls -asl /home/oracle/asmfs
```

```
total 84
 4 drwxr-xr-x  4 oracle dba      4096 Oct 16 11:29 .
 8 drwx----- 18 oracle oinstall 4096 Oct  2 14:35 ..
 4 drwxr-xr-x  5 root   root    4096 Oct 16 11:28 .ACFS
 4 -rw-r--r--  1 oracle oinstall  15 Oct 16 11:29 demofile
64 drwx-----  2 root   root   65536 Oct 16 11:28 lost+found
```

```
SYS@+ASM SQL> pause
SYS@+ASM SQL> host cat /home/oracle/asmfs/demofile
```

Test acfs data

```
SYS@+ASM SQL> rem now check volume stats again with asmcmd
SYS@+ASM SQL> pause
SYS@+ASM SQL> host asmcmd volstat
```

DISKGROUP NUMBER / NAME: 1 / DATA

VOLUME_NAME	READS	BYTES_READ	READ_TIME	READ_ERRS
	WRITES	BYTES_WRITTEN	WRITE_TIME	WRITE_ERRS
DEMOVOL	831	1905664	4191	0
	589	2164736	2263	0

```
SYS@+ASM SQL> rem now create an acfs snapshot using acfsutil
SYS@+ASM SQL> pause
SYS@+ASM SQL> host sudo /sbin/acfsutil snap create mysnap /home/oracle/asmfs
acfsutil snap create: Snapshot operation is complete.
```

```
SYS@+ASM SQL> rem now see the snap directory
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> host sudo ls -ld /home/oracle/asmfs/.ACFS/snaps/mysnap
drwxr-xr-x 4 oracle dba 4096 Oct 16 11:29 /home/oracle/asmfs/.ACFS/snaps/mysnap
```

```
SYS@+ASM SQL> rem see the snapshot of our file
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> host cat /home/oracle/asmfs/.ACFS/snaps/mysnap/demofile
```

Test acfs data

```
SYS@+ASM SQL> rem see the metadata using acfsutil
SYS@+ASM SQL> pause
```

```
SYS@+ASM SQL> host sudo /sbin/acfsutil info fs
/home/oracle/asmfs
```

```
ACFS Version: 11.2.0.1.0.0
flags:      MountPoint,Available
mount time: Fri Oct 16 11:29:05 2009
volumes:   1
total size: 536870912
total free: 431796224
primary volume: /dev/asm/demovol-357
label:
flags:      Primary,Available,ADVM
on-disk version: 39.0
allocation unit: 4096
major, minor: 252, 182785
size:       536870912
free:       431796224
ADVM diskgroup: DATA
ADVM resize increment: 268435456
ADVM redundancy: unprotected
ADVM stripe columns: 4
```

ADVM stripe width: 131072  
 number of snapshots: 1  
 snapshot space usage: 32768

SYS@+ASM SQL> rem see it in v\$asm\_acfssnapshots  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> desc v\$asm\_acfssnapshots

Name	Null?	Type
FS_NAME		VARCHAR2(1024)
VOL_DEVICE		VARCHAR2(256)
SNAP_NAME		VARCHAR2(1024)
CREATE_TIME		DATE

SYS@+ASM SQL> pause

SYS@+ASM SQL> col fs\_name for a24  
 SYS@+ASM SQL> col vol\_device for a24  
 SYS@+ASM SQL> col snap\_name for a16

SYS@+ASM SQL> select \*  
 2 from v\$asm\_acfssnapshots  
 3 order by 1;

FS_NAME	VOL_DEVICE	SNAP_NAME	CREATE_TIME
/home/oracle/asmfs	/dev/asm/demovol-357	mysnap	16-oct-2009 11:29:12

1 row selected.

SYS@+ASM SQL> rem now modify with append to the original file  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host echo "Changes to my acfs data" >> /home/oracle/asmfs/demofile

SYS@+ASM SQL> rem now see the changes  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host cat /home/oracle/asmfs/demofile

Test acfs data  
 Changes to my acfs data

SYS@+ASM SQL> rem and see the snapshot still containing the original  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host cat /home/oracle/asmfs/.ACFS/snaps/mysnap/demofile

Test acfs data

SYS@+ASM SQL> rem now "restore" our damaged file  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host cp /home/oracle/asmfs/.ACFS/snaps/mysnap/demofile /home/oracle/asmfs/demofile

SYS@+ASM SQL> rem see the "restored" file  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host cat /home/oracle/asmfs/demofile

Test acfs data

SYS@+ASM SQL> rem now clean up  
 SYS@+ASM SQL> pause

SYS@+ASM SQL> host sudo /sbin/acfsutil snap delete mysnap /home/oracle/asmfs

acfsutil snap delete: snapshot operation is complete.

SYS@+ASM SQL> host sudo umount /home/oracle/asmfs

SYS@+ASM SQL> host sudo /sbin/acfsutil registry -d /home/oracle/asmfs

acfsutil registry: successfully removed ACFS mount point /home/oracle/asmfs from Oracle Registry

SYS@+ASM SQL> host asmcmd voldelete -G DATA demovol

SYS@+ASM SQL> host sudo /u01/app/oracle/product/11.2.0/grid/bin/acfsload stop

acfsload: ACFS-9118: oracleadvn.ko driver in use - can not unload.  
 acfsload: ACFS-9118: oracleoks.ko driver in use - can not unload.

advn.txt

```
SYS@+ASM SQL> exit  
Disconnected from Oracle Database 11g Enterprise Edition Release 11.2.0.1.0 - Production  
With the Automatic Storage Management option
```

```
oracle@prutser2 demos]$ exit  
exit
```

Script done on Fri 16 Oct 2009 11:29:33 AM BST