zFS Tools V1.6

This zFS tools package consists of four routines that are very useful for dealing with and monitoring zFS aggregates. It has been created seprately from the zFS Redbook material to allow easy access to the tools. All the utilities may be used from a UNIX shell, in TSO or as a SYSREXX routine.

Utility RXLSAGGR (Version 1.3)

The REXX procedure rxlsaggr allows you to display a list of the names of all attached aggregates in a sysplex sharing environment, together with the system name.

```
$> rxlsaggr "?"
rxlsaggr           - lists one information line per aggregate
rxlsaggr -axd      - lists the aggregates with aggrgrow=on
rxlsaggr -nax      - lists the aggregates with aggrgrow=off
rxlsaggr -qsd      - lists the aggregates that are quiesced
rxlsaggr -f8k      - lists the number of free 8K blocks
rxlsaggr -sa       - lists the aggregates that are sysplex-aware
rxlsaggr -all      - lists important data for all aggregates
rxlsaggr aggr_name - lists important data for given aggregate
$> rxlsaggr hering.test.zfs
HERING.TEST.ZFS                                SC70      R/W Sysplex-aware
Monitored for full  . . : Disabled
New block security  . . : Enabled
HFS compatibility . . . : Enabled
Auto-extend . . . . . . : Enabled
Number of fragments . . :      18000
8K Blocks available . . :       2250
Aggregate free space KB :        290
Number free 8K blocks . :         31
Number free 1K fragments:         42
Log file size in KB . . :        112
File system table in KB :         32
Bitmap file size in KB  :          8
Auditfid  . . . . . . . : E2C2D6E7 F1C3009C 0000
Disk format version . . : 1.4
$>
```

The next example shows output when using the tool as a SYSREXX.

```
 F AXR,RXLSAGGR
 RXLSA017I RXLSAGGR on SC70                                        - 616
 RXLSA004I A total of 180 aggregates are attached.
 OMVS.DB2V9.SDAHHFS1.D070806                    SC70      R/W
 OMVS.DB2V9.SDAHHFS1.D090309                    SC63      R/W
 OMVS.DB2V9.SDSNWORF.D110202                    SC70      R/W
 OMVS.D0Z1ADMT.HFS                              SC63      R/W
 OMVS.D0Z2ADMT.HFS                              SC64      R/W
 OMVS.ADMR2.HFS                                 SC63      R/W Splx-Awr
…
 OMVS.SC64.MZWAS85.MZCELL.MZDMNODE.CONFIG.ZFS   SC63      R/W
 HERING.TEST.KB.ZFS                             SC63      R/W Quiesced
 OMVS.SC64.CZCELL1.CZCELL.CZNODE4.CONFIG.ZFS    SC64      R/W
…
 HFS.ZOSR1D.Z1DRB1.JAVA64V5                     SC63      R/O
 HERING.TEST.ZFS                                SC70      R/W Splx-Awr
 HFS.ZOSR1D.Z1DRB1.JAVA64V6                     SC63      R/O
…
 OMVS.DB2V9.SDAHHFS1.D070705                    SC70      R/W
 F AXR,RXLSAGGR -SA
 RXLSA017I RXLSAGGR on SC70                                        - 307
 RXLSA015I A total of 2 aggregates are mounted sysplex-aware.
 OMVS.ADMR2.HFS
 HERING.TEST.ZFS
```

Utility RXZFSMON (Version 1.3)

This utility can be used to monitor the status of all or a specific zFS aggregate.

```
$> rxzfsmon "?"

rxzfsmon  - lists freespace information for all active aggregates
rxzfsmon aggr_name - lists freespace information for given aggregate

Information provided is the following:

Column 1= aggregate name
Column 2= total number of 8K blocks in the aggregate
Column 3= used number of 8K blocks in the aggregate
Column 4= percentage of the used number of 8K blocks
Column 5= X|- Q|- R|- S|- auto-Xtend Quiesced Read-only Sysplex-aware
```

Here is an example using the tool as a SYSREXX.

```
 F AXR,RXZFSMON
 ZFSMN004I RXZFSMON on SC70                                      - 317
 ZFSMN008I A total of 180 aggregates are attached.

 Aggregate name                    8K blk tot 8K blk use Percent  XQRS
 --------------------------------- ---------- ---------- -------  ----
 OMVS.DB2V9.SDAHHFS1.D070806             3600       2142 = 59.5%  X---
 OMVS.DB2V9.SDAHHFS1.D090309             3600       2262 = 62.8%  X---
 OMVS.DB2V9.SDSNWORF.D110202              900        181 = 20.1%  X---
 OMVS.D0Z1ADMT.HFS                         90         21 = 23.3%  X---
 OMVS.D0Z2ADMT.HFS                         90         21 = 23.3%  X---
 OMVS.ADMR2.HFS                           900         23 =  2.6%  X--S
…
 OMVS.SC64.MZWAS85.MZCELL.MZDMNODE.CONFIG.ZFS
                                        37800      21580 = 57.1%  X---
 HERING.TEST.KB.ZFS                       270        180 = 66.7%  XQ--
 OMVS.SC64.CZCELL1.CZCELL.CZNODE4.CONFIG.ZFS
                                        27000      13241 = 49.0%  X---
…
 HFS.ZOSR1D.Z1DRB1.JAVA64V5              34380      33277 = 96.8%  X-R-
 HERING.TEST.ZFS                          2250       2208 = 98.1%  X--S
 HFS.ZOSR1D.Z1DRB1.JAVA64V6              58950      57700 = 97.9%  X-R-
…
```

Utilities "rxdowner" and "zfsowner" (Version 1.6)

REXX procedures RXDOWNER and ZFSOWNER can be used to display owner-related information about UNIX System Services file systems and especially zFS aggregates.

The syntax to run the RXDOWNER routine is as follows:

```
rxdowner -l|-d uss_direntry | -f file_system | -a zfs_aggrname
```

The parameters appended with a blank in between after the possible options have the following meaning:

uss_direntry	This is a UNIX System Services file system directory entry.
file_system	This is the name a currently mounted UNIX System Services file system.
zfs_aggrname	This the name of a currently active zFS aggregate.

As a result, the owner and owner-related information is displayed.

The syntax to run the ZFSOWNER routine is as follows:

```
zfsowner zfs_aggrname
```

The parameter has the following meaning:

zfs_aggrname	This the name of a currently active zFS aggregate.

As a result, the owner and owner-related information for the aggregate is displayed.

Important: After copying RXDOWNER into a REXX library for use in TSO or as a SYSREXX and into a UNIX directory named rxdowner, you simply define ZFSOWNER as an ALIAS in the REXX library (not done by the install job) and zfsowner as a hard link of rxdowner in UNIX. If you prefer to see a blank line before and one after the output data you can set the REXX variable blank_lines at the beginning of the REXX to 1.

In the following some examples are shown.

```
$> rxdowner
Syntax: rxdowner -l|-d uss_direntry | -f file_system | -a zfs_aggrname

Parameter "uss_direntry" is an USS file system directory entry, "file_system"
is the name a currently mounted USS file system and "zfs_aggrname" is the name
of a currently active zFS aggregate. As a result appropriate owner and owner
related information is displayed. If option "-l" is used instead of "-d" and the
entry is a symbolic link, information is retrieved for the file system
containing the symbolic link.

$> sudo /usr/sbin/mount -t zFS -o rwshare -f HERING.TEST.ZFS test
$> rxdowner -d test
MP Directory : /u/hering/test
File System  : HERING.TEST.ZFS
PFS Type     : ZFS
Local Sysname: SC70     - File System local-client=N
USS Owner    : SC70     - File System read-only=N
zFS Owner    : SC70     - Aggregate read-only=N, mounted RWSHARE
$> sudo /usr/sbin/chmount -d SC65 test
$> zfsowner HERING.TEST.ZFS
zFS Owner    : SC70     - Aggregate read-only=N, mounted RWSHARE
$> rxdowner -d test
MP Directory : /u/hering/test
File System  : HERING.TEST.ZFS
PFS Type     : ZFS
Local Sysname: SC70     - File System local-client=N
USS Owner    : SC65     - File System read-only=N
zFS Owner    : SC70     - Aggregate read-only=N, mounted RWSHARE
$>
```

Finally some commands are run from a console.

```
SETOMVS FILESYS,FILESYSTEM='HERING.TEST.ZFS',SYSNAME=SC63
BPXO015I THE SETOMVS COMMAND WAS SUCCESSFUL.
F AXR,RXDOWNER -F HERING.TEST.ZFS
RXDWN012I RXDOWNER on SC70                                        - 369
MP Directory : /u/hering/test
File System  : HERING.TEST.ZFS
PFS Type     : ZFS
Local Sysname: SC70     - File System local-client=N
USS Owner    : SC63     - File System read-only=N
zFS Owner    : SC70     - Aggregate read-only=N, mounted RWSHARE
F AXR,USSUMNT HERING.TEST.ZFS S
IOEZ00048I Detaching aggregate HERING.TEST.ZFS
IOEZ00044I Aggregate HERING.TEST.ZFS attached successfully.
UMNT001I Unmount processing has been performed successfully.
F AXR,RXDOWNER -D '/u/hering/test'
RXDWN012I RXDOWNER on SC70                                        - 376
MP Directory : /u/hering/test
File System  : HERING.TEST.ZFS
PFS Type     : ZFS
Local Sysname: SC70     - File System local-client=N
USS Owner    : SC63     - File System read-only=N
zFS Owner    : SC63     - Aggregate read-only=N, mounted RWSHARE
```

...