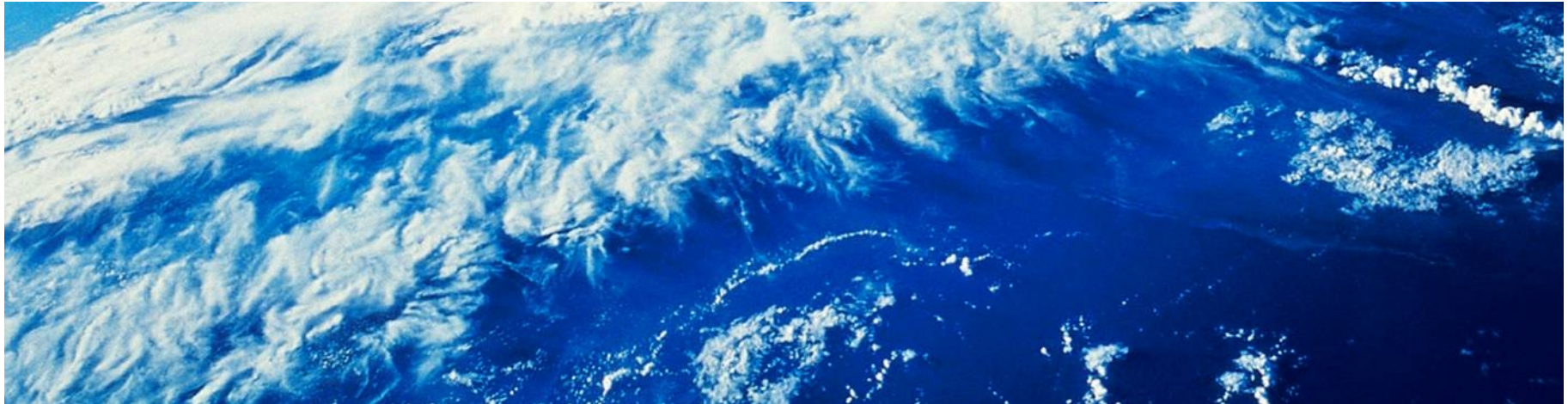# IBM Education Assistance for z/OS V2R1

Item: Automount Enhancements
Element/Component: z/OS UNIX System Services

Agenda

- Trademarks

- Presentation Objectives

- Overview

- Usage & Invocation

- Migration & Coexistence Considerations

- Presentation Summary

- Appendix

Trademarks

- See url http://www.ibm.com/legal/copytrade.shtml for a list of trademarks.

- z/OS UNIX

Presentation Objectives

- Highlight AUTOMOUNT enhancements

- Define the functional content and benefit

- Explain the expected usage

- Explain any migration issues or concerns

- Indicate list of Publications and References

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AUTOMOUNT enhancements

1) Capability to recognize last use information for the AUTOMOUNT managed file systems

2) Specify root permission for the new zFS file system dataset

3) Generic name match on upper case only

4) Make owning system identical to the parent if AUTOMOVE is UNMOUNT

5) Specify to use EUID/EGID for the new dataset owner

6) Support system symbols in the master file

7) Serialize AUTOMOUNT policy load and append

8) Not attempt to MOUNT a non-existent dataset

Recognize last use information

- Overview
  - Problem Statement / Need Addressed
    - Capability to recognize the last use information of the AUTOMOUNT managed file systems
  - Solution
    - Add new option (-f) to /usr/sbin/automount to display the last use information of the AUTOMOUNT managed file system
  - Benefit / Value
    - Enhance problem determination

Recognize last use information (continued...)

- Usage & Invocation
  - New option for the /usr/sbin/automount command:
    - **/usr/sbin/automount -f *file_system_name***
  - Output of '-f' option has mount point, state, timer, EUID, PID and jobname
    - State has two values: DURATION and DELAY. If filesystem is not mounted, message "NOT FOUND" is displayed
    - Timer is the minutes left for this file to be in this "state". Timer could be NOLIMIT if it's specified in the policy

```
# /usr/sbin/automount -f WELLIE2.AMTTEST.ZFS6
/u/WELLIE2
STATE: Duration   TIMER: 10
EUID:12  PID:16777275  JOBNAME:WELLIE2
```

Specify new zFS root permission

- Overview
  - Problem Statement / Need Addressed
    - Root permission is hard coded to 750 for the new zFS file system dataset created by AUTOMOUNT. User has to manually change it
  - Solution
    - Add new keyword "PATHPERM" in ALLOCANY/ALLOCUSER statement to specify the root permission for the new zFS file system
  - Benefit / Value
    - Improve usability

- Usage & Invocation
  - Use PATHPERM in ALLOCANY/ALLOCUSER statement in the map file
  - PATHPERM is only for zFS.

```
name                *
filesystem          MYFS.AMTTEST.ZFS6
type                ZFS
allocuser           space(10,0) vol(AMTDSK) pathperm(721)
mode                rdwr
duration            10
delay               10
```

Generic match on upper case only

- Overview
  - Problem Statement / Need Addressed
    - Capability to have matching generic name uppercases
  - Solution
    - Add new statement, "charcase", to the AUTOMOUNT policy to allow matching name all upper cases only
  - Benefit / Value
    - Improve usability

- Usage & Invocation
  - New keyword "charcase" in Map file. It has three values: upper, lower, asis
  - "charcase" is mutually exclusive with existing keyword "lowercase"
  - "charcase=asis" is equivalent to "lowercase=no". It is the default
  - "charcase=lower" is equivalent to "lowercase=yes"

```
name            *
filesystem      MYFS.AMTTEST.ZFS6
type            ZFS
charcase        upper
duration        10
delay           10
```

Make the owning system identical to the parent

- Overview
  - Problem Statement / Need Addressed
    - In the sysplex, if AUTOMOUNT file system (*AMD/) is mounted from SY2 and its parent file system is mounted from SY1, OMVS SHUTDOWN on SY1 would fail to unmount the parent even AUTOMOVE attribute is UNMOUNT
  - Solution
    - When AUTOMOUNT file system (*AMD/) is mounted and AUTOMOVE attribute is UNMOUNT, make the owning system identical to the owning system of the parent
  - Benefit / Value
    - Improve usability

- Usage & Invocation
  - No external changes. It happens automatically.

Specify to use EUID/EGID

- Overview
  - Problem Statement / Need Addressed
    - Only support to use UID/GID for the owner of the new dataset. This causes problem in the task-level security scenario
  - Solution
    - Add new keyword "EUID" in ALLOCANY/ALLOCUSER statement to indicate the owner set to EUID/EGID
  - Benefit / Value
    - Improve usability

- Usage & Invocation
  - Use EUID in ALLOCANY/ALLOCUSER statement in the Map file

```
name                *
filesystem          MYFS.AMTTEST.ZFS6
type                ZFS
allocuser           space(10,0) vol(AMTDSK) euid
mode                rdwr
duration            10
delay               10
```

Support symbols in Master file

- Overview
  - Problem Statement / Need Addressed
    - Capability to use system symbols in the master file
  - Solution
    - Add support to recognize system symbols in the master file
  - Benefit / Value
    - Improve usability

- Usage & Invocation
  - Symbols are resolved when loading AUTOMOUNT policy.

```
# cat auto.master1
/&ZOSREL              /&SYSNAME/&ZOSREL/u.map1
#
# /usr/sbin/automount auto.master1
FOMF0107I Processing file /SY1/ZOS21/u.map1
FOMF0108I Managing directory /ZOS21
#
# df
Mounted on        Filesystem              Avail/Total   Files      Status
/ZOS21            (*AMD/ZOS21)            0/8           0          Available
```

Serialize policy load/append

- Overview
  - Problem Statement / Need Addressed
    - AUTOMOUNT policy load/append are not serialized. Run AUTOMOUNT facility from the different systems in the sysplex at the same time can cause policy overlaid
  - Solution
    - Serialize policy load/append.
  - Benefit / Value
    - Improve usability

- Usage & Invocation
  - No external changes
  - Only serialize loading/appending the policies, no real "mount" work involved.

Not attempt to mount a non-existent dataset

- Overview
  - Problem Statement / Need Addressed
    - Delay may be experienced when AUTOMOUNT attempts to mount a lot non-existent dataset
  - Solution
    - Not attempt to mount the dataset if it doesn't exist. Fail the AUTOMOUNT request before it calls MOUNT operation.
  - Benefit / Value
    - Improve performance

- Usage & Invocation
  - No external changes

Migration & Coexistence Considerations

- In a shared file system configuration, all the system must be at least the z/OS V2R1 level to have the new keywords of PATHPERM, EUID and CHARCASE work correctly.

Presentation Summary

- AUTOMOUNT enhancements
    1) Use "/usr/sbin/automount -f *file_system_name"* to display last use information for the AUTOMOUNT managed file systems
    2) Specify root permission for the new zFS file system dataset in the Map file
    3) Allow matching name all uppercases
    4) Make owning system identical to the parent if AUTOMOVE is UNMOUNT
    5) Specify to use EUID/EGID for the new dataset owner
    6) Support system symbols in the master file
    7) Serialize AUTOMOUNT policy load and append
    8) Not attempt to MOUNT if the dataset does not exist

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Appendix

- GA22-7800-xx UNIX Systerm Services Planning

- SA22-7807-xx UNIX Systerm Services Messages and Codes

- SA22-7802-xx UNIX Systerm Services Command Reference