Setting new device attributes with chdef

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While building a new LPAR recently I stumbled across the chdef command. This command modifies the default value of a predefined attribute of the specified device type in the ODM (PdDv). For devices that are already configured and of the same class, subclass, and type, this command does not change the active devices attributes, instead it modifies the ODM attributes so these will be changed the next time you reboot the LPAR or rmdev and cfgmgr the device. The chdef command is a bit like using the chdev -P flag, except it changes the predefined values and the values currently configured for every device that matches the same class, subclass and type.

Let us take a look at the settings on a newly built LPAR and then make some changes with chdef.

Checking the default build settings for vscsi1.

lsattr -El vscsi1

rw_timeout 0 Virtual SCSI Read/Write Command Timeout True

vscsi_err_recov delayed_fail N/A True

vscsi_path_to 0 Virtual SCSI Path Timeout True

Checking the default build settings for vscsi2.

lsattr -El vscsi2

rw_timeout 0 Virtual SCSI Read/Write Command Timeout True

vscsi_err_recov delayed_fail N/A True

vscsi_path_to 0 Virtual SCSI Path Timeout True

Check the defaut build settings for hdisk0 (rootvg).

lsattr -El hdisk0

PCM PCM/friend/vscsi Path Control Module False

algorithm fail_over Algorithm True

hcheck_cmd test_unit_rdy Health Check Command True+

hcheck_interval 0 Health Check Interval True+

hcheck_mode nonactive Health Check Mode True+

max_transfer 0x40000 Maximum TRANSFER Size True

pvid 00123456789000000000000000000 Physical volume identifier False

queue_depth 3 Queue DEPTH True

reserve_policy no_reserve Reserve Policy True+

Find the Class, Subclass and Type values for vscsi adapters.

lsdev -H -F "name class subclass type" | grep -e ^name -e vscsi

name class subclass type

hdisk0 disk vscsi vdisk

vscsi1 adapter vdevice IBM,v-scsi

vscsi2 adapter vdevice IBM,v-scsi

Find the Class, Subclass and Type values for hdisks.

lsdev -H -F "name class subclass type" | grep -e ^name -e hdisk

name class subclass type

hdisk0 disk vscsi vdisk

Change the ODM settings for the vSCSI adapters.

Set the rw_timeout, vscsi_err_recov and vscsi_path_to options.

chdef -a rw_timeout=120 -c adapter -s vdevice -t IBM,v-scsi

chdef -a vscsi_err_recov=fast_fail -c adapter -s vdevice -t IBM,v-scsi

chdef -a vscsi_path_to=30 -c adapter -s vdevice -t IBM,v-scsi

Verify the settings have changed in the ODM.

lsattr -El vscsi1

rw_timeout 120 Virtual SCSI Read/Write Command Timeout True

vscsi_err_recov fast_fail N/A True

vscsi_path_to 30 Virtual SCSI Path Timeout True

lsattr -El vscsi2

rw_timeout 120 Virtual SCSI Read/Write Command Timeout True

vscsi_err_recov fast_fail N/A True

vscsi_path_to 30 Virtual SCSI Path Timeout True

Verify the running adapter has not changed.

lsattr -Pl vscsi1

rw_timeout 0 Virtual SCSI Read/Write Command Timeout True

vscsi_err_recov delayed_fail N/A True

vscsi_path_to 0 Virtual SCSI Path Timeout True

lsattr -El vscsi2

rw_timeout 0 Virtual SCSI Read/Write Command Timeout True

vscsi_err_recov delayed_fail N/A True

vscsi_path_to 0 Virtual SCSI Path Timeout True

Change the ODM settings for the vSCSI disks.

chdef -a hcheck_interval=120 -c disk -s vscsi -t vdisk

chdef -a hcheck_mode=nonactive -c disk -s vscsi -t vdisk

chdef -a queue_depth=16 -c disk -s vscsi -t vdisk

Verify the settings have changed in the ODM.

lsattr -El hdisk0

PCM PCM/friend/vscsi Path Control Module False

algorithm fail_over Algorithm True

hcheck_cmd test_unit_rdy Health Check Command True+

hcheck_interval 120 Health Check Interval True+

hcheck_mode nonactive Health Check Mode True+

max_transfer 0x40000 Maximum TRANSFER Size True

pvid 00123456789000000000000000000 Physical volume identifier False

queue_depth 16 Queue DEPTH True

reserve_policy no_reserve Reserve Policy True+

Verify the running hdisk has not changed.

lsattr -Pl hdisk0

PCM PCM/friend/vscsi Path Control Module False

algorithm fail_over Algorithm True

hcheck_cmd test_unit_rdy Health Check Command True+

hcheck_interval 0 Health Check Interval True+

hcheck_mode nonactive Health Check Mode True+

max_transfer 0x40000 Maximum TRANSFER Size True

pvid 00123456789000000000000000000000 Physical volume identifier False

queue_depth 3 Queue DEPTH True

reserve_policy no_reserve Reserve Policy True+

To list all the default settings that have been changed with chdef.

I added the header line in for clarity.

chdef

Attribute New Default AIX Default Device Type

dyntrk yes yes driver/vionpiv/efscsi

fc_err_recov fast_fail fast_fail driver/vionpiv/efscsi

hcheck_cmd inquiry test_unit_rdy PCM/friend/vscsi

hcheck_interval 120 0 PCM/friend/vscsi

hcheck_mode nonactive nonactive PCM/friend/vscsi

rw_timeout 120 0 adapter/vdevice/IBM,v-scsi

vscsi_err_recov fast_fail delayed_fail adapter/vdevice/IBM,v-scsi

vscsi_path_to 30 0 adapter/vdevice/IBM,v-scsi

Adding a New vSCSI Device

Before the adding of the new device.

lsdev -Cc adapter | grep vscsi

vscsi1 Available Virtual SCSI Client Adapter

vscsi2 Available Virtual SCSI Client Adapter

From the HMC, I used DLPAR to add another vSCSI device.

cfgmgr

lsdev -Cc adapter | grep vscsi

vscsi0 Available Virtual SCSI Client Adapter

vscsi1 Available Virtual SCSI Client Adapter

vscsi2 Available Virtual SCSI Client Adapter

Confirm the new device has the updated settings in the ODM.

lsattr -El vscsi0

rw_timeout 120 Virtual SCSI Read/Write Command Timeout True

vscsi_err_recov fast_fail N/A True

vscsi_path_to 30 Virtual SCSI Path Timeout True

Confirm the new device has the updated settings for the running device.

lsattr -Pl vscsi0

rw_timeout 120 Virtual SCSI Read/Write Command Timeout True

vscsi_err_recov fast_fail N/A True

vscsi_path_to 30 Virtual SCSI Path Timeout True

There are a couple of options to implement the changes on the running devices.

Option 1 - To schedule an LPAR reboot.

Option 2 - Follow my blog post here, How to make changes to vscsi adapters without a reboot.