



Host Settings Affected by AIX Host Utilities

The AIX Host Utilities sometimes recommend that settings on the host be modified. These recommendations are based on research and internal testing. Testers use different settings before arriving at the recommendations.

The values listed here apply to the 6.0 version of the Host Utilities.

The recommended values might differ based on:

- Whether you are using a clustered storage system or a single, stand-alone storage system. With clustered systems, the values might vary depending on your cluster failover mode (cfmode).
- Whether you are running the current version of the Host Utilities or an earlier version of the Attach Kit.
- Which environment you are using.

Recommended host settings for Clustered Systems

There are some settings that are changed and recommendations for settings that are not changed.

Parameters changed:			
Parameter	Environment	Value	Description
algorithm	AIX MPIO	round_robin	(Changed by Host Utilities) Determines the method for distributing I/O. Using round_robin distributes I/O across all enabled paths so that the host can take advantage of multiple interactions. Doing this can improve performance. The path priority is determined by the path priority attribute value. If you change this value, you also need to change the reserve_policy value.
dyntrk	All	yes	The recommended value for this parameter is yes; however, you must manually set this parameter. The Host Utilities installation does not change this parameter from its default value of no. This parameter provides dynamic tracking of FC devices. The default value of no allows for cables on the host FC adapter to be moved on the switch side. If a cable is disconnected on the switch, it must be reconnected in the same port to start functioning again. When you set the value to yes and you are using soft zoning, you can safely relocate the cable to another port on the switch. Internal testing has shown that a value of yes works well for this parameter. However, you can change this value based on your system setup especially if you have a large number of QFULL events occurring on over-subscribed storage arrays.

fc_err_recov	All	fast_fail	(Recommendation only) This parameter enables the AIX Fast I/O Failure. Other applications and AIX MPIO environments might require that you set this value to <code>fast_fail</code>. For more information about recommended values for this parameter, see the IBM APAR IY85526. The Host Utilities installation does not change this value. When the FC adapter driver detects a link event such as a lost link between a storage device and a switch, the adapter driver waits for a short period of time to allow the fabric to stabilize. The normal wait is about 15 seconds. After that time, if the adapter driver detects that the device is not on the fabric, it begins failing all I/Os at the adapter driver. The adapter immediately fails any new I/O or retries of the failed I/Os until it detects that the device has rejoined the fabric.
hcheck_cmd	AIX MPIO	inquiry	(Changed by Host Utilities) Specifies which SCSI command to use during the health check periods for all paths that have active I/O.
hcheck_interval	AIX MPIO	30	(Changed by Host Utilities) Defines how often the health check is performed on the paths for a device. Internal testing has shown that a value of 30 works well for this parameter.
hcheck_mode	AIX MPIO	nonactive	(Changed by Host Utilities) Sends the healthcheck command down paths that have no active I/O, including paths with a state of failed.
lun_reset_spt	All	yes	(Changed by Host Utilities) Resets the LUN if there is a problem. (Host Utilities 4.1 and later) The ODM device settings file shipped with the Host Utilities 4.1 and later supports LUN-level reset over target level resets. The advantage of using <code>lun_reset_spt</code> is that, when there is a problem with a LUN, this parameter resets only that LUN. Using the <code>target_reset</code> causes a reset of the entire target and all LUNs on it, which results in more commands being lost. (Host Utilities prior to 4.1) Early versions of the Host Utilities and Host Attach Kits used <code>target_reset</code> as the parameter.

max_transfer	All	FC LUNs: 0x100000 bytes	(Changed by Host Utilities) Determines the maximum size in bytes that can be transferred to the device in one operation. The AIX Host Utilities 6.0 has increased this value to 0x100000 bytes for FC LUNs. These values align with the default settings used by numerous storage vendors. (Host Utilities prior to 6.0) Earlier versions of the Host Utilities used a value of 0x40000 for this parameter.
num_cmd_elems	All	200	(Recommendation only) Specifies the maximum number of requests that can be outstanding on a SCSI bus. The Host Utilities use the AIX default value of 200 because the best value for your system depends on how your system is set up. Based on the number of LUNs going through a particular adapter and the type of workload you are running, your AIX performance engineer might tune this value.
qfull_dly	All	2-second delay	(Default value) Controls the number of seconds before any outstanding command is retried. The retries are based on the number of pending commands at the time of the first QFULL event. The AIX Host Utilities 6.0 use the qfull_dly parameter with its default value of a 2-second delay. The retry counter logic inside the AIX I/O stack uses a per-command counter. For example, if the commands A, B, and C are all pending at the storage system when the first queue full comes in, this parameter puts the errored command at the end of the error queue and delays it for the default 2 seconds. When this happens, the storage system rotates between commands A, B, and C. Thus the total time before one of those commands reaches the error threshold would be approximately: $\text{queue_depth} * 2 * \text{qfull_dly value in seconds} * 3$ commands. When the error threshold is reached before the command is processed, the outstanding command receives an EIO error status and fails.

queue_depth	All	64	(Changed by Host Utilities) Determines the maximum number of requests that the disk device can hold in its queue. The AIX Host Utilities 6.0 sets this value to 64. This value aligns with the default settings used by numerous storage vendors. The best value for your system depends on your system setup. Based on the number of LUNs and the type of workload you are running, your AIX performance engineer might tune this value. In general, any value above 1 is good. A value of 1 serializes all I/O and slows things down. (Host Utilities prior to 6.0) The ODM device settings file shipped with the Host Utilities 4.1 through the Host Utilities 5.0 set the value to 12.
q_type	All	simple	(Changed by Host Utilities) Specifies the device's queue type. The queue type is the way commands are queued to the device. Internal testing has shown that a value of <code>simple</code> works well for this parameter.
reserve_policy	All	no_reserve	(Changed by Host Utilities) Indicates the type of reservation to be established and managed by the device driver while the disk is open in normal mode. This value is connected with the value for the <code>algorithm</code> parameter. By default, the Host Utilities use the <code>round_robin</code> algorithm. As a result, requiring a SCSI-2 reservation be established when using a path would cause performance overhead. You should not change this value unless you change the <code>algorithm</code> parameter.
rw_timeout	All	30 seconds	(Changed by Host Utilities) Indicates the amount of time in seconds for the Read/Write commands to complete before they time out. Internal testing has shown that a time-out value of 30 seconds works well for this parameter.