

Date: November 21, 2003

To: T10 Committee (SCSI)

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Subject: Invalid LUN on Request Sense Command

1 Overview (Problem 1)

Section 5.9.4 of SAM-3 contains detailed information on how the REQUEST SENSE and INQUIRY commands should respond to conditions within the the logical unit. This information in most cases is already stated in the description of the command. As a result it should be removed from SAM and any information not already in the commands should be placed in the commands.

1.0.1 Incorrect logical unit selection (modify to)

The SCSI target device's response to an incorrect logical unit number is described in this subclause.

If a logical unit number is incorrect because:

- a) the SCSI target device does not support the logical unit (e.g., some SCSI target devices support only one peripheral device); or
- b) the SCSI target device supports the logical unit, but the peripheral device is not currently attached to the SCSI target device; then

in response to any other command except REQUEST SENSE and INQUIRY, the SCSI target device shall terminate the command with CHECK CONDITION status. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to LOGICAL UNIT NOT SUPPORTED.

If a logical unit number is incorrect because:

- a) the SCSI target device supports the logical unit and the peripheral device is attached, but not operational; or
- b) the SCSI target device supports the logical unit but is incapable of determining if the peripheral device is attached or is not operational when it is not ready; then

the response to any other command except REQUEST SENSE and INQUIRY is vendor specific.

In response to an INQUIRY command the SCSI target device shall return the INQUIRY data with the peripheral qualifier set to the value required in SPC-2. In response to an REQUEST SENSE command the SCSI target device shall respond as defined in SPC-2.

2 Overview (Problem 2)

In SPC-3 the description of how to handle an invalid LUN when received for a REQUEST SENSE command is stated in a note as:

NOTE 37 - The sense data appropriate to the selection of an invalid logical unit is defined in SAM-3.

SAM-3 only states in section 5.9.4 Incorrect logical unit selection the following on this topic:

- a) The SCSI target device does not support the logical unit (e.g., some SCSI target devices support only one peripheral device).

In response to any other command except REQUEST SENSE and INQUIRY, the SCSI target device shall terminate the command with CHECK CONDITION status. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to LOGICAL UNIT NOT SUPPORTED;

This is as close to a circular reference I have seen in awhile. To fix this I propose the following be added to the REQUEST SENSE command description in SPC-3.

2.1 SPC-3 Additions

Replace note 37 in section 6.25 REQUEST SENSE command with the following:

In response to a REQUEST SENSE command issued to a logical unit that SCSI target device does not support the SCSI target device shall return GOOD status and parameter data that contains sense data. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to LOGICAL UNIT NOT SUPPORTED.

In response to a REQUEST SENSE command issued to a logical unit that the SCSI target device supports but that the peripheral device is not currently attached, the SCSI target device shall return GOOD status and parameter data that contains sense data. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to LOGICAL UNIT NOT SUPPORTED.

In response to a REQUEST SENSE command issued to a logical unit that is attached but not operational, the SCSI target device shall return GOOD status and parameter data that contains sense data appropriate to the condition that is making the logical unit not operational.

In response to a REQUEST SENSE command issued to a logical unit that the SCSI target device is incapable of determining if the peripheral device is attached or is not operational when it is not ready, the SCSI target device shall return GOOD status and parameter data that contains sense data with a sense key of NO SENSE.

2.2 SPC-3 Deletions

Delete the following note in section 6.25 REQUEST SENSE command:

NOTE 37 - The sense data appropriate to the selection of an invalid logical unit is defined in SAM-3.

3 Overview (Problem 3)

In SAS if a REQUEST SENSE command is reporting a Unit Attention in the sense data and the data IU fails to get delivered what happen to that Unit Attention. Should it be cleared or not.

Because the target knows the data delivery failed, I propose that the Unit Attention not be cleared in this case.

3.1 SPC-3 Additions

Add the following to section 6.25 REQUEST SENSE command right below the description of the exception conditions:

If a REQUEST SENSE command is received from an initiator when a device server has a pending unit attention condition (i.e., before the device server reports CHECK CONDITION status) and there is an exception condition specific to the REQUEST SENSE command itself, the device server shall not clear the unit attention condition (see SAM-2).