



To: INCITS Technical Committee T10
From: Fred Knight, Network Appliance
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Subject: SPC4 – Persistent Reservation clarification

1. *Revision history*

Revision 0 (11 September 2007) First revision

Revision 1 (19 September 2007) 2nd revision – incorporate comments from September meeting; rather than adding a new paragraph, just remove the words “specified in the reservation key field” from the existing text.

2. *Related documents*

spc4r11 – SCSI Primary Commands - 4

3. *Overview*

The text in the “Basic PERSISTENT RESERVE OUT parameter list” section (6.14.3) of the PERSISTENT RESERVE OUT command which describes how to use the PR-OUT command to unregister a key, or to change the registration key is inconsistent with the text in the table 34 (in section 5.6.6 in the model clause).

One section of the text incorrectly indicates that the RESERVATION KEY field is used by the REGISTER AND IGNORE EXISTING KEY service action, while a second section of the text correctly states that the RESERVATION KEY field is ignored by the REGISTER AND IGNORE EXISTING KEY service action. The tables (33 and 34) are also correct.

This proposal corrects the incorrect section of the text to make it consistent with the other correct sections.

<Red Text> indicates changes.

<Yellow highlight> is the correct text to match.

Proposal:

Table 33 — Register behaviors for a REGISTER service action

Command L_T nexus status	Parameter list fields ^a			Results
	RESERVATION KEY	SERVICE ACTION RESERVATION KEY	SPEC_I_PT	
received on an unregistered L_T nexus	zero	zero	ignore	Do nothing except return GOOD status.
		non-zero	zero	Register the L_T nexus on which the command was received with the value specified in the SERVICE ACTION RESERVATION KEY field.
			one	Register the L_T nexus on which the command was received and each unregistered L_T nexus specified in the parameter list with the value specified in the SERVICE ACTION RESERVATION KEY field. ^b
	non-zero	ignore	ignore	Return RESERVATION CONFLICT status.
received on a registered L_T nexus	Not equal to L_T nexus reservation key	ignore	ignore	Return RESERVATION CONFLICT status.
	Equal to L_T nexus reservation key	zero	zero	Unregister the L_T nexus on which the command was received (see 5.6.10.3).
			one	Return CHECK CONDITION status. ^c
		non-zero	zero	Change the reservation key of the L_T nexus on which the command was received to the value specified in the SERVICE ACTION RESERVATION KEY field.
			one	Return CHECK CONDITION status. ^c

^a For requirements regarding the parameter list fields not shown in this table see 6.14.3.

^b If any L_T nexus specified in the parameter list is registered, the command shall be terminated with CHECK CONDITION status, with the sense key set to ILLEGAL REQUEST, and the additional sense code set to INVALID FIELD IN PARAMETER LIST. Devices compliant with previous versions of this standard may return an additional sense code set to INVALID FIELD IN CDB.

^c The sense key shall be set to ILLEGAL REQUEST, and the additional sense code shall be set to INVALID FIELD IN PARAMETER LIST. Devices compliant with previous versions of this standard may return an additional sense code set to INVALID FIELD IN CDB.

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Table 34 — Register behaviors for a REGISTER AND IGNORE EXISTING KEY service action

Command I_T nexus status	Parameter list fields ^a		Results
	SERVICE ACTION RESERVATION KEY	SPEC_I_PT	
received on an unregistered I_T nexus	zero	ignore	Do nothing except return GOOD status.
	non-zero	zero	Register the I_T nexus on which the command was received with the value specified in the SERVICE ACTION RESERVATION KEY field.
		one	Return CHECK CONDITION status. ^b
received on a registered I_T nexus	zero	zero	Unregister the I_T nexus on which the command was received (see 5.6.10.3).
		one	Return CHECK CONDITION status. ^b
	non-zero	zero	Change the reservation key of the I_T nexus on which the command was received to the value specified in the SERVICE ACTION RESERVATION KEY field.
		one	Return CHECK CONDITION status. ^b

^a The RESERVATION KEY field is ignored when processing a REGISTER AND IGNORE EXISTING KEY service action. For requirements regarding other parameter list fields not shown in this table see 6.14.3.

^b The sense key shall be set to ILLEGAL REQUEST, and the additional sense code shall be set to INVALID FIELD IN PARAMETER LIST. Devices compliant with previous versions of this standard may return an additional sense code set to INVALID FIELD IN CDB.

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6.14.3 Basic PERSISTENT RESERVE OUT parameter list

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The RESERVATION KEY field contains an 8-byte value provided by the application client to the device server to identify the I_T nexus that is the source of the PERSISTENT RESERVE OUT command. The device server shall verify that the contents of the RESERVATION KEY field in a PERSISTENT RESERVE OUT command parameter data matches the registered reservation key for the I_T nexus from which the command was received, except for:

- a) The REGISTER AND IGNORE EXISTING KEY service action where the RESERVATION KEY field shall be ignored; and
- b) The REGISTER service action for an unregistered I_T nexus where the RESERVATION KEY field shall contain zero.

Except as noted above, when a PERSISTENT RESERVE OUT command specifies a RESERVATION KEY field other than the reservation key registered for the I_T nexus the device server shall return a RESERVATION CONFLICT status. Except as noted above, the reservation key of the I_T nexus shall be verified to be correct regardless of the SERVICE ACTION and SCOPE field values.

The SERVICE ACTION RESERVATION KEY field contains information needed for the following service actions: REGISTER, REGISTER AND IGNORE EXISTING KEY, PREEMPT, and PREEMPT AND ABORT. The SERVICE ACTION RESERVATION KEY field is ignored for the following service actions: RESERVE, RELEASE, and CLEAR.

For the REGISTER service action and REGISTER AND IGNORE EXISTING KEY service action, the SERVICE ACTION RESERVATION KEY field contains:

- a) The new reservation key to be registered in place of the registered reservation key ~~specified in the RESERVATION KEY field~~; or
- b) Zero to unregister the registered reservation key ~~specified in the RESERVATION KEY field~~.

For the PREEMPT service action and PREEMPT AND ABORT service action, the SERVICE ACTION RESERVATION KEY field contains the reservation key of:

- a) The registrations to be removed; and
- b) If the SERVICE ACTION RESERVATION KEY field identifies a persistent reservation holder (see 5.6.9), persistent reservations that are to be preempted.