

**EMC<sup>®</sup> NetWorker<sup>®</sup>  
Module for Oracle**Release 4.2  
Multiplatform Version**Release Notes**P/N 300-003-568  
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March 31, 2009

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These release notes contain supplemental information about EMC NetWorker Module for Oracle (NMO) release 4.2. Topics include:

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Before installing NMO release 4.2, and then periodically after the installation, refer to the latest release of this document at the Powerlink<sup>®</sup> website at <http://Powerlink.EMC.com>.

## Revision History

The following table summarizes the changes since the initial release of this document.

Date	Revision Description
March 31, 2009	Added <a href="#">“Prevent Possible Degradation of NMO Restore Performance with Oracle 10.2 or Later”</a> on page 25.
March 27, 2009	Removed the obsolete limitations LGTpa62986 and LGTpa72613. Moved information about the LGTsc10107 issue (formerly under “Known problems and limitations”) to <a href="#">“Operations Across Datazones Might Cause Expired and Deleted Backups”</a> on page 26. Added <a href="#">“Where to Find the Most Recent Supported Operating System and Version Information”</a> on page 31.
February 6, 2009	Added the following information: <ul style="list-style-type: none"> <li>Updated requirements for the NMO configuration wizard in the following sections: <ul style="list-style-type: none"> <li><a href="#">“NetWorker Software”</a> on page 6</li> <li><a href="#">“New Features and Changes”</a> on page 6</li> <li><a href="#">“NetWorker Configuration Wizard Support”</a> on page 7</li> </ul> </li> <li>Under <a href="#">“Documentation Errata”</a>, <a href="#">“PRECMD and POSTCMD Settings in the nsrnmo Script Must Be Clarified”</a> on page 31</li> </ul>
December 23, 2008	Added <a href="#">“Proxy Restore Might Fail with OMF Due to Issue with Oracle SBT Calls (LGTsc23577)”</a> on page 24. Deleted sections on LGTpa49261, LGTpa52532, LGTpa58012 as NetWorker releases earlier than 7.2 are no longer supported.
November 14, 2008	Added the following information: <ul style="list-style-type: none"> <li><a href="#">“Crosscheck and Channel Allocation Might Take a Long Time on an HP-UX Cluster (LGTsc07389)”</a> on page 21</li> <li><a href="#">“PIT Proxy Restore Might Become Suspended (LGTsc15184)”</a> on page 24</li> <li><a href="#">“Proxy Restore Might Fail on HP-UX Itanium (LGTsc16852)”</a> on page 24</li> <li><a href="#">“NSR_MMDB_RETRY_TIME Setting Is Ignored on AIX (LGTsc19062)”</a> on page 24</li> <li>In the section <a href="#">“Documentation Errata”</a>: <ul style="list-style-type: none"> <li>Information on the NWORA resource file backup in <a href="#">“Additional Information Is Required in the Proxy Oracle Backup Section”</a> on page 32</li> <li><a href="#">“Additional Information Is Required in the Parameters Appendix”</a> on page 33</li> <li><a href="#">“Information on the crosscheck and delete Commands Must Be Clarified”</a> on page 33</li> <li><a href="#">“Additional Information Is Required in the Troubleshooting Appendix”</a> on page 34</li> </ul> </li> </ul>
September 24, 2008	Added the following information: <ul style="list-style-type: none"> <li><a href="#">“FLIR-type Proxy Restore Requires Twice the Disk Space (LGTpa80670)”</a> on page 16</li> <li><a href="#">“FLIB-type Proxy Backup of Multiple Nonsnapshotable Files Fails (LGTpa88636)”</a> on page 19</li> <li><a href="#">“Timestamp Is Changed After a PIT Proxy Restore on a Celerra NAS Device (LGTpa92641)”</a> on page 21</li> <li>In the section <a href="#">“Documentation Errata”</a>: <ul style="list-style-type: none"> <li><a href="#">“Additional Information on PowerSnap Parameters Is Required in the Proxy Configuration Section”</a> on page 31</li> <li><a href="#">“Additional Information on Rollback Restores Is Required in the Proxy Oracle Restore Section”</a> on page 33</li> </ul> </li> </ul>
April 25, 2008	Added the Documentation Errata section <a href="#">“Additional Information Is Required in the Proxy Oracle Backup Section”</a> on page 32.
April 11, 2008	Added the following limitations: <ul style="list-style-type: none"> <li><a href="#">“PowerSnap Module Issue Might Cause Proxy Backup or Restore to Become Suspended (LGTsc11575)”</a> on page 22</li> <li><a href="#">“Scheduled Backup Completion Report Might Include Incorrect Save Set Sizes (LGTsc13403)”</a> on page 24</li> </ul>
March 26, 2008	Added the following information: <ul style="list-style-type: none"> <li>Information on new support for Oracle Enterprise Linux, IBM AIX Dynamic Logical Partitioning (LPAR), and Oracle Data Guard in <a href="#">“New Features and Changes”</a> on page 6</li> <li><a href="#">“Oracle Data Guard support”</a> on page 10</li> </ul>
January 24, 2008	Updated the configuration wizard requirements in the section <a href="#">“NetWorker Configuration Wizard Support”</a> on page 7.

Date	Revision Description
January 11, 2008	Added the following limitations: <ul style="list-style-type: none"> <li>• <a href="#">“Backups Might Fail on Windows with NetWorker 7.1 to 7.4.1 and Oracle11g (LGTsc11491)”</a> on page 22</li> <li>• <a href="#">“Specific NMO Limitations Are Caused By Oracle11gR1 Bugs (LGTsc12549)”</a> on page 23</li> </ul> Updated <a href="#">“Multiplexing for Oracle11g Multisection Backups Is Supported with Advanced File Type Devices Only (LGTsc11340)”</a> on page 22.
January 2, 2008	Added the Important note (about disabling Oracle VSS Writer on Windows) and the list of known NMO limitations in <a href="#">“Oracle11g Support”</a> on page 8. Changed the information about contacting EMC Customer Support for the following: <ul style="list-style-type: none"> <li>• <a href="#">“Scheduled Backup Uses Improper Connection Ports (LGTpa78911)”</a> on page 15</li> <li>• <a href="#">“Rollback Restore of a Proxy Oracle Backup Stops Responding (LGTpa78988)”</a> on page 15</li> <li>• <a href="#">“The nsrnmoinfo Program Uses Improper Connection Ports (LGTpa79783)”</a> on page 15</li> <li>• <a href="#">“Backup Becomes Suspended in Cluster Environment on HP-UX (LGTpa80590)”</a> on page 16</li> <li>• <a href="#">“Backup Fails with Licensing Error on Linux AMD64/EM64T (LGTpa86823)”</a> on page 18</li> <li>• <a href="#">“Restores of FLIB-type Proxy Backups of Raw Volumes Fail on Windows (LGTpa88063)”</a> on page 18</li> <li>• <a href="#">“Backup Data Is Compressed When NSR_CHECKSUM Is Set to TRUE (LGTpa88245)”</a> on page 19</li> <li>• <a href="#">“Point-in-time Copy Remains in Media Database When Proxy Backup Is Deleted from RMAN Catalog (LGTpa92104)”</a> on page 21</li> <li>• <a href="#">“Proxy Backup or Restore Taking More than 30 Minutes Might Time Out (LGTsc06210)”</a> on page 21</li> </ul> Added the following limitations: <ul style="list-style-type: none"> <li>• <a href="#">“NMO Backup Might Fail Intermittently with an RMAN Error (LGTsc05694)”</a> on page 21</li> <li>• <a href="#">“Multiplexing for Oracle11g Multisection Backups Is Supported with Advanced File Type Devices Only (LGTsc11340)”</a> on page 22</li> <li>• <a href="#">“NWORA Resource File Is Not Backed Up on Windows When Oracle VSS Writer Is Running (LGTsc11501)”</a> on page 22</li> <li>• <a href="#">“Automatic Catalog Synchronization Fails with Deletion of Proxy Archivelog Backup in Oracle11gR1 (Oracle Bug ID 6658567)”</a> on page 23</li> <li>• <a href="#">“Backup Channel Failover Fails with Oracle11gR1 on Windows (Oracle Bug ID 6733394)”</a> on page 23</li> <li>• <a href="#">“Proxy Backup of Archived Logs Fails in Specific Scenario with Oracle11gR1 (Oracle Bug ID 6656875)”</a> on page 23</li> </ul>
November 30, 2007	Added information about the limitation <a href="#">“Multiplexing for Oracle11g Multisection Backups Is Supported with Advanced File Type Devices Only (LGTsc11340)”</a> on page 22.
November 2, 2007	Added the following information: <ul style="list-style-type: none"> <li>• Information about Oracle11g support to the following sections:               <ul style="list-style-type: none"> <li>- <a href="#">“Oracle Server Software”</a> on page 5</li> <li>- <a href="#">“New Features and Changes”</a> on page 6</li> <li>- <a href="#">“Oracle11g Support”</a> on page 8</li> </ul> </li> <li>• <a href="#">“Proxy Backup or Restore Taking More than 30 Minutes Might Time Out (LGTsc06210)”</a> on page 21</li> </ul>
October 10, 2007	Added information about the following NMO 4.2 escalations: <ul style="list-style-type: none"> <li>• <a href="#">“Scheduled Backup Uses Improper Connection Ports (LGTpa78911)”</a> on page 15</li> <li>• <a href="#">“Rollback Restore of a Proxy Oracle Backup Stops Responding (LGTpa78988)”</a> on page 15</li> <li>• <a href="#">“The nsrnmoinfo Program Uses Improper Connection Ports (LGTpa79783)”</a> on page 15</li> <li>• <a href="#">“Backup Becomes Suspended in Cluster Environment on HP-UX (LGTpa80590)”</a> on page 16</li> <li>• <a href="#">“Backup Fails with Licensing Error on Linux AMD64/EM64T (LGTpa86823)”</a> on page 18</li> <li>• <a href="#">“Backup Data Is Compressed When NSR_CHECKSUM Is Set to TRUE (LGTpa88245)”</a> on page 19</li> <li>• <a href="#">“Point-in-time Copy Remains in Media Database When Proxy Backup Is Deleted from RMAN Catalog (LGTpa92104)”</a> on page 21</li> </ul>
June 25, 2007	Added information to the following sections that the NetWorker 7.4 software distribution feature is <i>not</i> supported for updating to NMO 4.2 on a remote NMO client: <ul style="list-style-type: none"> <li>• <a href="#">“Product Description”</a> on page 4</li> <li>• <a href="#">“New Features and Changes”</a> on page 6</li> </ul>

Date	Revision Description
June 7, 2007	Removed information about LGTpa74793 (not a bug). Added the section <a href="#">“Restores of FLIB-type Proxy Backups of Raw Volumes Fail on Windows (LGTpa88063)”</a> on page 18.
September 15, 2006	Updated the section <a href="#">“Parameter Values Set with the send Command or Option Are Not Passed to More Than the First Channel When Backup Copies Commands Are Used (LGTpa89482, LGTpa89546)”</a> on page 19.
September 1, 2006	Added the proxy Oracle backup and restore operations on Real Application Cluster (RAC) systems as a new supported feature in <a href="#">“New Features and Changes”</a> on page 6.
August 10, 2006	<ul style="list-style-type: none"> <li>Updated the first bullet in <a href="#">“Limitations Exist with NMO 4.2 on a Japanese Operating System (LGTpa85806)”</a> on page 17.</li> <li>Added the following: <ul style="list-style-type: none"> <li><a href="#">“Parameter Values Set with the send Command or Option Are Not Passed to More Than the First Channel When Backup Copies Commands Are Used (LGTpa89482, LGTpa89546)”</a> on page 19.</li> <li><a href="#">“NMO Library File Is Installed in /lib on Solaris (LGTpa90977)”</a> on page 20.</li> </ul> </li> </ul>
March 31, 2006	<ul style="list-style-type: none"> <li>Updated the last bullet in <a href="#">“NetWorker Software”</a> on page 6.</li> <li>Added the following: <ul style="list-style-type: none"> <li>In the section <a href="#">“New Features and Changes”</a> on page 6, information on Japanese operating system support.</li> <li>The section <a href="#">“Limitations Exist with NMO 4.2 on a Japanese Operating System (LGTpa85806)”</a> on page 17.</li> <li>Information on the fix of LGTpa72833 and LGTpa72922 in <a href="#">Table 1</a> on page 12.</li> </ul> </li> </ul>
March 9, 2006	<ul style="list-style-type: none"> <li>Updated the PowerSnap Module release numbers listed in <a href="#">“NSR_CHECKSUM, NSR_COMPRESSION, and NSR_ENCRYPTION for Proxy Backups”</a> on page 29.</li> <li>Added the section <a href="#">“Oracle Rollback Restore Fails if the RESTORE_TYPE_ORDER Value Is Not Lowercase (LGTpa85515)”</a> on page 17.</li> </ul>
December 2, 2005	<p>Added the following:</p> <ul style="list-style-type: none"> <li>In the section <a href="#">“Proxy Backups and Restores”</a> on page 26, information that proxy backups and restores of archived redo logs are <i>not</i> supported with Oracle10g.</li> <li>The section <a href="#">“Proxy Backups and Restores of Archived Redo Logs Fail with Oracle10g (LGTpa79882, LGTpa80288, LGTpa81336)”</a> on page 16.</li> </ul>
October 14, 2005	Added the section <a href="#">“Discrepancy Between the NetWorker Resource and RMAN Backup Configurations for a Proxy Backup”</a> on page 27.
July 11, 2005	<p>In the section <a href="#">“NetWorker Configuration Wizard Support”</a> on page 7:</p> <ul style="list-style-type: none"> <li>Clarified the NetWorker 7.2 software requirements for the configuration wizard.</li> <li>Added the reference to the NetWorker Module for Oracle administrator’s guide for more information on installing the configuration wizard.</li> </ul>
May 5, 2005	Initial release of this document.

## Product Description

**Note:** The NetWorker 7.4 software distribution feature is *not* supported for updating from a previous NMO release to NMO 4.2 on a remote NMO client.

NMO release 4.2 replaces the following NMO releases:

- ◆ Release 3.5 on the supported UNIX and Windows operating systems.
- ◆ Release 3.6 on the supported AIX operating system.
- ◆ Release 4.0 on the supported HP-UX and Solaris operating systems.
- ◆ Release 4.1 on the supported UNIX and Windows operating systems.

NMO release 4.2 supports the operating systems, Oracle Server releases, NetWorker software, and NetWorker PowerSnap™ Modules described in the following sections:

- ◆ “Operating Systems” on page 5
- ◆ “Oracle Server Software” on page 5
- ◆ “Oracle OPS, RAC, and Cluster Software” on page 5
- ◆ “NetWorker Software” on page 6
- ◆ “NetWorker PowerSnap Module Software” on page 6

The current *EMC Information Protection Software Compatibility Guide* at <http://Powerlink.EMC.com> provides information on all the software that NMO supports.

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## Operating Systems

The *EMC Information Protection Software Compatibility Guide* at <http://Powerlink.EMC.com> provides a complete list of the operating systems that NMO release 4.2 supports.

**Note:** NetWorker Configuration Wizard release 1.0 supports Solaris and Windows only. The wizard can be used to configure scheduled Oracle backups of the NMO client.

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## Oracle Server Software

NMO release 4.2 supports the following Oracle Server releases:

- ◆ Oracle9i: 9.2
- ◆ Oracle10g: 10.1, 10.2
- ◆ Oracle11g: 11.1

NMO release 4.2 does *not* support Oracle 8.x releases. NMO releases 3.x, 4.0, and 4.1 support specific Oracle 8.x releases.

The *EMC Information Protection Software Compatibility Guide* at <http://Powerlink.EMC.com> provides details on the Oracle Server releases that NMO release 4.2 supports on specific platforms.

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## Oracle OPS, RAC, and Cluster Software

NMO release 4.2 supports the following Oracle Parallel Server (OPS) and Real Application Cluster (RAC) configurations:

- ◆ Oracle OPS and RAC configurations that use raw volumes or Cluster File Systems supported by Oracle.
- ◆ Oracle OPS and RAC configurations on Oracle OSD clusterware and other clusterware systems listed in the *EMC Information Protection Software Compatibility Guide* on the website at <http://Powerlink.EMC.com>.

For more information on the supported configurations with specific Cluster File Systems and Oracle OSD clusterware, refer to the Oracle documentation.

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## NetWorker Software

NMO release 4.2 supports the following NetWorker software:

- ◆ NetWorker release 7.0 and later for regular (non-proxy) backups.
- ◆ NetWorker release 7.1 and later for proxy backups.
- ◆ NetWorker Configuration Wizard for configuring scheduled backups. The configuration wizard operates with specific NetWorker releases, as outlined in [“NetWorker Configuration Wizard Support” on page 7](#).

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## NetWorker PowerSnap Module Software

NMO release 4.2 supports the following NetWorker PowerSnap Module software for proxy Oracle backups and restores:

- ◆ NetWorker PowerSnap Module for EMC CLARiiON
- ◆ NetWorker PowerSnap Module for EMC Symmetrix
- ◆ NetWorker PowerSnap Module for IBM FAStT
- ◆ NetWorker PowerSnap Module for STK D Series
- ◆ NetWorker PowerSnap Module for Sun StorEdge Availability Suite

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## New Features and Changes

**Note:** The NetWorker 7.4 software distribution feature is *not* supported for updating from a previous NMO release to NMO 4.2 on a remote NMO client.

NMO release 4.2 includes the following new features and changes:

- ◆ Support for the NetWorker Configuration Wizard, which can be used to configure scheduled Oracle backups of the NMO client. The wizard is supported with specific NetWorker releases, as outlined in [“NetWorker Configuration Wizard Support” on page 7](#).
- ◆ Support for 32-bit and 64-bit Oracle9i, Oracle10g, and Oracle11g releases *only*. Oracle8i releases are *not* supported. For more information on NMO support for Oracle11g, see [“Oracle11g Support” on page 8](#).
- ◆ Support for Oracle Enterprise Linux on Intel and AMD64/EM64T. The *EMC Information Protection Software Compatibility Guide* at <http://Powerlink.EMC.com> provides a complete list of supported operating systems.
- ◆ Support for IBM Dynamic Logical Partitioning (LPAR) and micro-partitioning with multiple LPAR partitions on pSeries AIX operating systems. Oracle documentation provides details on any limitations.

**Note:** NMO must be installed on *each* LPAR partition on pSeries AIX systems.

- ◆ Support for Oracle Data Guard, as described in [“Oracle Data Guard support” on page 10](#).
- ◆ Support for NetWorker Module for Documentum.

- ◆ Support for the restore of backups performed with NMO 4.1 and earlier, *except* for proxy backups performed with NMO 4.0.
  - ◆ Four new NMO parameters, and two obsoleted NMO parameters. For more information, see [“NMO Parameters” on page 11](#).
  - ◆ The new **nsrnmoinfo** command line program, which can be used to determine the NetWorker volumes that contain the Oracle backup pieces for a restore.
  - ◆ Improved behavior during scheduled NMO backups.  
The scheduled backup process **nsrnmstart** no longer makes changes to the RMAN backup script, but uses the RMAN **send** command to pass NSR\_SERVER and NSR\_GROUP parameter values to Oracle.
  - ◆ Improved index lookup performance with NetWorker release 7.2.x.  
With NetWorker release 7.2.x, NMO no longer requires forward slashes to be used in the **format** option of the RMAN **backup** or **configure** command.
  - ◆ Support for the new prefix *RMAN:* in NMO save set names.
    - The prefix is *automatically* added to each save set name during the following:
      - A manual backup.
      - A scheduled backup that is configured through the wizard.
    - If the prefix is included with the script name in the Save Set attribute of the Client resource, the prefix is added to each save set name during a scheduled backup that is *not* configured through the wizard.
- 
- Note:** The prefix *RMAN:* is *only* added to names in the media database.
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- ◆ Improved error logging, including descriptive error messages.
  - ◆ Implementation of many key bug fixes and requests for enhancement. For more information, see [“Fixed Problems” on page 12](#).
  - ◆ Support for Oracle operations on a Japanese operating system, with the limitations outlined in [“Limitations Exist with NMO 4.2 on a Japanese Operating System \(LGTpa85806\)” on page 17](#).
  - ◆ Support for proxy Oracle backup and restore operations on Real Application Cluster (RAC) systems.

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## NetWorker Configuration Wizard Support

The NetWorker Configuration Wizard can be used to configure scheduled Oracle backups of the NMO client. The client can be located either on the same host as the wizard or on a remote host.

The configuration wizard creates the required RMAN backup scripts, **nsrnm** scripts, and NetWorker Client and Group resources for the scheduled backups.

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**Note:** The configuration of NMO parameters that are *not* available through the configuration wizard (for example, parameters for manual backups) must be performed manually by using a text editor, as done with NMO 4.1.

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To enable the configuration wizard to configure scheduled NMO backups, ensure that the following wizard requirements are met:

- ◆ The following software is installed:
  - On the wizard host:
    - Supported NetWorker client release earlier than 7.5.
    - NetWorker Configuration Wizard software (packaged separately or included with NetWorker) for the supported operating system on the wizard host.
      - With NetWorker 7.2.x, the separate NetWorker Configuration Wizard package must be installed on Solaris or Windows (*except* Itanium).
      - With NetWorker 7.3.x to 7.4.x, the NetWorker Configuration Wizard must be installed as part of the NetWorker package on AIX, HP-UX, Linux (*except* Itanium), Solaris, or Windows (*except* Itanium).
    - Configuration wizard libraries (packaged with NMO).
  - On the NMO client host:
    - Supported NetWorker client release earlier than 7.5.
    - Configuration wizard libraries (packaged with NMO).
- ◆ The NetWorker client (**nsrexecd**) is running on the wizard host, where the wizard is launched.
- ◆ The wizard user has the following:
  - Root (UNIX) or Administrator (Windows) privileges.
  - Configure NetWorker privileges on the NetWorker server where the scheduled NMO backup is configured.
- ◆ The wizard host is listed in the *servers* file on the NMO client.
- ◆ Multiple wizard hosts do *not* access the same client host simultaneously.

For more information on:

- ◆ Installing the configuration wizard, refer to the NetWorker Module for Oracle installation guide.
- ◆ Using the configuration wizard, refer to the NetWorker Module for Oracle administrator's guide.

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## Oracle11g Support

NMO 4.2 supports Oracle11g on specific platforms, as outlined in the *EMC Information Protection Software Compatibility Guide* at <http://Powerlink.EMC.com>.



### IMPORTANT

**Before performing NMO backups with Oracle11g on Microsoft Windows, ensure that the Oracle VSS Writer service is disabled on the Windows host. If required, stop the Oracle VSS Writer from the Windows services.**

The following new or enhanced Oracle11g features are supported with NMO 4.2:

- ◆ Data Recovery Advisor
- ◆ Improved integration with Data Guard



- ◆ Archival backup through the RMAN **backup...keep** command
- ◆ Improved archived redo log management through the **configure archivelog deletion policy** command
- ◆ Recovery catalog enhancements, such as virtual private catalogs and the import and merging of recovery catalogs
- ◆ Multisection or intrafile backup and validation, with the backup of a single large datafile over multiple channels
- ◆ Improved block media recovery, with the **blockrecover** command being replaced by the **recover...block** command
- ◆ Configurable backup compression through the **configure compression algorithm to** command
- ◆ Block change tracking support in Data Guard
- ◆ Backup of read-only transportable tablespaces
- ◆ Oracle Enterprise Manager enhancements, with new interfaces for the Data Recovery Advisor
- ◆ Oracle Globalization Support enhancements

To enable NMO support of two of the Oracle11g features, Data Recovery Advisor and archival backup, you must perform the additional configuration procedures described in [“Data Recovery Advisor” on page 9](#) and [“Archival Backup Feature” on page 10](#).

The appropriate Oracle documentation provides more information on the Oracle11g features.

The following sections describe known NMO limitations related to Oracle11g:

- ◆ [“Multiplexing for Oracle11g Multisection Backups Is Supported with Advanced File Type Devices Only \(LGTsc11340\)” on page 22](#)
- ◆ [“Backups Might Fail on Windows with NetWorker 7.1 to 7.4.1 and Oracle11g \(LGTsc11491\)” on page 22](#)
- ◆ [“NWORA Resource File Is Not Backed Up on Windows When Oracle VSS Writer Is Running \(LGTsc11501\)” on page 22](#)
- ◆ [“Specific NMO Limitations Are Caused By Oracle11gR1 Bugs \(LGTsc12549\)” on page 23](#)

## Data Recovery Advisor

The Oracle Data Recovery Advisor is a new tool in Oracle11g. Integrated with RMAN and Oracle Enterprise Manager (OEM), the tool enables a DBA to diagnose and repair database failures.

Before you can use the Data Recovery Advisor to invoke an RMAN restore script that involves NMO to repair a database failure, automatic channels must be configured to specify at least the mandatory parameters NSR\_SERVER and NSR\_CLIENT.

**Note:** The NSR\_SERVER and NSR\_CLIENT parameters are the minimum parameters required to perform a restore. Other NMO parameters may also be specified for the automatic channel configuration.

To enable the use of Data Recovery Advisor with Oracle11g and NMO:

- ◆ If automatic channels have *not* been configured for NMO backups, use the following commands to ensure the basic automatic channel configuration:

```
configure channel device type 'sbt_tape' parms
'ENV=(NSR_SERVER=NetWorker_server_name,
NSR_CLIENT=NMO_client_name)';

configure channel device type 'sbt_tape' parallelism
number_of_restore_channels;
```

- ◆ If automatic channels are already configured for NMO backups, no additional configuration steps are required.

## Archival Backup Feature

With Oracle11g, the RMAN **backup...keep forever** command enables the creation of an archival backup that is exempt from Oracle backup retention policies (but *not* automatically exempt from NetWorker retention policies). The archival backup is all-inclusive because every file required to restore a database is backed up to a single disk or tape location.

To enable the use of the RMAN **backup...keep forever** command with NMO:

1. Configure an Archive type Pool resource through the NetWorker server.
2. Specify that the backup data must go to the Archive pool by performing one of the following:
  - Set the pool selection criteria accordingly on the NetWorker server.
  - Set the NSR\_DATA\_VOLUME\_POOL parameter in the RMAN backup script.
3. Set the parameter value NSR\_SAVESET\_RETENTION=forever through the **send** command in the RMAN backup script.

**Note:** Ensure that the NSR\_RETENTION\_DISABLED option is *not* set in the RMAN backup script used with NMO.

The NetWorker administration guide provides more information on how to configure resources and specify pool selection criteria through the NetWorker server.

## Oracle Data Guard support

NMO 4.2 software supports Oracle Data Guard, an Oracle data availability and protection solution that involves the primary database and one or more standby databases over an IP network. As transactions occur in the primary database and redo data is written to the local redo logs, Data Guard automatically transfers this redo data to the standby sites and applies it to the standby databases, synchronizing them with the primary database.

RMAN backups of datafiles, archived redo logs, and possibly other files can be offloaded to a physical standby database, and the backups used to recover the primary database or a standby database. RMAN and Data Guard documentation provides information on how to configure and back up a physical standby database, and use the backups to recover the primary or standby database.

To configure NMO backups and restores in a Data Guard environment:

1. Follow the instructions in Oracle documentation on how to set up the required RMAN configurations, for example, to use a Recovery Catalog and the DB\_UNIQUE\_NAME parameter.
2. Install and configure the NMO and NetWorker client software on the primary database host, and on *each* physical standby database host involved in the backups and restores.
3. Configure a Client resource on the NetWorker server for the primary database host and *each* physical standby database host involved in the backups and restores. In the Client resource of the primary database host, specify the hostname of the physical standby host in the Remote Access attribute if you set NSR\_CLIENT to the primary database hostname in the following step.
4. Create an RMAN script for the primary database and the standby database, setting the same NSR\_CLIENT parameter value in both. The NSR\_CLIENT value used for a backup should be the same as the NSR\_CLIENT value used for the restore of that backup. Setting NSR\_CLIENT to the primary hostname might be preferable.

## NMO Parameters

The NMO software supports the following new parameters:

- ◆ NSR\_DPRINTF\_FILE enables debugging by specifying the complete pathname of the log file on the Oracle Server that receives messages from the NetWorker dprintf() function during NMO operations. The parameter must be set with the **parms** option *only*.
- ◆ NSR\_NO\_MULTIPLEX is set for a specific RMAN channel, and specifies whether multiplexing is disabled during a backup on the NetWorker device that the RMAN channel uses. If multiplexing is disabled, no other save sets can be written to the device until RMAN channel is finished with it. NSR\_NO\_MULTIPLEX should *only* be used with serial devices such as tape drives.
- ◆ NSR\_RETENTION\_DISABLED specifies whether the NetWorker browse and retention policies are disabled. If set to TRUE, Oracle policies only (*not* NetWorker policies) are used to manage the life cycle of the NMO backup data.
- ◆ NSR\_SERVER\_NIC is set for a specific RMAN channel, and specifies the name of a network interface card (NIC) on a NetWorker server that overrides the NSR\_SERVER setting for the channel.

The NMO software no longer supports the parameters NSR\_BROWSE and NSR\_SAVESET\_EXPIRATION. These parameters are now *obsolete*.

- ◆ NSR\_BROWSE has been replaced by NSR\_SAVESET\_BROWSE.
- ◆ NSR\_SAVESET\_EXPIRATION has been replaced by NSR\_SAVESET\_RETENTION.

For more information on NMO parameters, refer to the NetWorker Module for Oracle administrator's guide.

## Fixed Problems

Table 1 on page 12 provides a list of the major bug fixes implemented in NMO release 4.2.

Table 1 Fixed Bugs in NMO Release 4.2 (1 of 2)

Reference Number	Description
LGTpa56459	Scheduled NMO backups did not support the use of a separate network interface card (NIC) for each allocated channel. The NSR_SERVER_NIC parameter can specify a separate NIC for each allocated channel in a scheduled NMO backup.
LGTpa56536	NMO did not provide a method to disable multiplexing on the NetWorker device used by an RMAN channel. As a result, NMO did not conform to the Oracle SBT 2.0 specification for optimization of an Oracle restore. The NSR_NO_MULTIPLEX parameter can disable multiplexing on the device used by an RMAN channel.
LGTpa58678	An Oracle restore failed if the buffer size specified in the RMAN restore script (through the <b>blksize</b> parameter) was different from that in the RMAN backup script. The RMAN backup and restore scripts for the same NMO backup can now include different buffer size settings.
LGTpa60240	The Oracle10g RMAN <b>backup...duration</b> command terminates a backup if it is not completed within a specified time period. Due to an NMO limitation, if several RMAN channels were used during such a terminated backup, RMAN was not able to delete terminated backup pieces concurrently on the different channels.
LGTpa60263	NMO did not previously support the Oracle10g Server release. NMO release 4.2 provides full support of Oracle10g features and functionality.
LGTpa60664	For index delete operations, NMO used the <b>nsrmm</b> binary and NSR_NWPATH parameter, which decreased performance. NMO uses an internal NetWorker API for index deletions, which improves the performance.
LGTpa61098	NMO did not provide a method for determining the NetWorker volumes that contain the Oracle backup pieces to be restored. The <b>nsrmoinfo</b> command reports on the volumes required for the restore of specified Oracle backup pieces.
LGTpa62280	NMO did not provide an option to prevent the RMAN catalog and NetWorker indexes from becoming unsynchronized, for example, when a NetWorker index entry was expired but the corresponding RMAN catalog entry was <i>not</i> expired. The parameter NSR_RETENTION_DISABLED can disable the NetWorker browse and retention policies and allow Oracle policies to only be used to manage the life cycle of the NMO backup data.
LGTpa63861	Proxy Oracle backups of raw devices managed by a Solaris Volume Manager failed.
LGTpa64360, LGTpa70583	With NetWorker server releases earlier than 7.2, NMO backup performance decreased as the NetWorker client file index on the server increased in size. The problem has been resolved in NMO 4.2 with the NetWorker server 7.2.
LGTpa65325	During a restore of an NMO backup with a Solaris server, if there were more tapes needed for the restore than available drives, the server opened many ports while waiting for a drive to become available.
LGTpa66452	With NetWorker server releases earlier than 7.2, the performance of NMO client file index lookups degraded unless a workaround was implemented. The workaround used forward slashes in the <b>format</b> option of the RMAN <b>backup</b> or <b>configure</b> command. This performance degradation problem has been resolved. The forward slashes in the RMAN <b>format</b> option are not required with NMO 4.2 and the NetWorker server 7.2.
LGTpa67318	Manual NMO backups could not be disabled through the Manual Saves attribute in the NetWorker Server resource.
LGTpa68564	NMO did not support the MC/ServiceGuard cluster on HP-UX 11.23 (Itanium).
LGTpa69324	In a cluster environment where NMO performed a backup of the virtual Oracle service, the NMO enabler code was bound to the physical node rather than the virtual node.

Table 1 Fixed Bugs in NMO Release 4.2 (2 of 2)

Reference Number	Description
LGTpa70003	During an NMO backup or restore, the requirement for a NetWorker Client Connection license was not enforced.
LGTpa72833, LGTpa72922	Data corruption might occur if a NetWorker 7.1.x or 7.2 server or storage node on 64-bit HP-UX Itanium backed up to itself (using immediate save technology), and backed up more than one save set at the same time to the same device.

## Environment and System Requirements

Details on the versions of operating systems, Oracle, and NetWorker software that NMO release 4.2 supports are available from the following sources:

- ◆ *EMC Information Protection Software Compatibility Guide* at <http://Powerlink.EMC.com>
- ◆ *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Installation Guide*

Details on the environment and system configurations required to operate the NMO 4.2 software are available in the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Administrator's Guide*.

## Known Problems and Limitations

This section describes known limitations with the NMO release 4.2.

### Backup Process Termination Required on Windows (LGTpa53921)

If an Oracle RMAN session fails on Windows, check for any **nsrsbctn.exe** processes that are still running and terminate the processes manually in the Task Manager.

### NMO Wizard Exits without a Confirmation Message (LGTpa72448)

When you click the Finish button in the final window of the NMO wizard, the wizard exits without displaying a confirmation message.

### Channel Failure Causes Abnormal Termination in Oracle10g (LGTpa72726)

Due to an Oracle bug in Oracle10g, when two or more channels are allocated and *all* the channels fail during an NMO backup, RMAN terminates abnormally and displays RMAN debug text instead of an expected error message on the console screen.

In Oracle10g, if multiple channels are allocated and one of the channels fails, Oracle attempts to fail over the operation on that channel to one of the other channels. If all the channels fail, RMAN should terminate with an appropriate error message.

Some of the possible reasons for a channel failure are as follows:

- ◆ The NMO software is not licensed.
- ◆ The channel is assigned a NetWorker server through the NSR\_SERVER parameter, where one of the following exists:
  - The name of the server is invalid.
  - The client is not properly configured on the server.
  - The evaluation license is expired on the server.
- ◆ The channel is assigned an invalid NetWorker volume pool through the NSR\_DATA\_VOLUME\_POOL parameter.
- ◆ During a manual backup, the channel is assigned a NetWorker server that contains a Server resource with the Manual Saves attribute set to Disabled.
- ◆ The channel encounters an internal error.

### NMO Wizard Produces an Error When the NMO Client Is on HP-UX (LGTpa72875)

When you attempt to use the NMO wizard to configure a scheduled backup of an NMO client on HP-UX, the wizard produces the following error:

```
Error loading library /opt/networker/lib/libnmodc1.sl or locating
function nmhc_init. Verify that the library is installed.
```

As a workaround, configure the scheduled backup manually, without using the configuration wizard.

To resolve the problem, download the required NetWorker 7.2 patch from the appropriate FTP location, as listed in [Table 2 on page 14](#). The FTP location is determined by the type of NetWorker 7.2 software that is installed.

**Table 2 FTP Location of the LGTpa72875 Patch**

Type of NetWorker Software	FTP Location
32-bit for HP PA-RISC	<a href="ftp://ftp.legato.com/pub/NetWorker/Updates/LGTpa72875/hpux11_32">ftp://ftp.legato.com/pub/NetWorker/Updates/LGTpa72875/hpux11_32</a>
64-bit for HP PA-RISC	<a href="ftp://ftp.legato.com/pub/NetWorker/Updates/LGTpa72875/hpux11_64">ftp://ftp.legato.com/pub/NetWorker/Updates/LGTpa72875/hpux11_64</a>
64-bit for HP Itanium	<a href="ftp://ftp.legato.com/pub/NetWorker/Updates/LGTpa72875/hp11ia64">ftp://ftp.legato.com/pub/NetWorker/Updates/LGTpa72875/hp11ia64</a>

You must install the patch on the HP-UX system in the directory `/opt/networker/bin`, which contains the NetWorker 7.2 executables. For more information, refer to the `README.txt` file at the FTP location.

### Improper Validation of Database Credentials with Oracle10g on Windows (LGTpa72924)

In the NMO wizard with Oracle10g on Windows, when you specify an invalid user name and password for the target database or catalog database, the wizard does *not* validate the database credentials. The wizard should properly validate the user name and password that are specified for a database.

As a workaround, remove the user NT AUTHORITY\SYSTEM from the ORA\_DBA group before you specify the user name and password for a database in the NMO wizard.

---

### Unable to Connect to a Tru64 Client with the NMO Wizard (LGTpa75590)

In the NMO wizard on Solaris or Windows, when you attempt to connect to an NMO client located on a Tru64 system, the following error messages are displayed:

```
Invalid RPC Server Response
Unable to initialize the File System Browser
```

To resolve the problem, download the required LGTpa75590 patch from the following FTP location:

*ftp://ftp.legato.com/pub/NetWorker/Updates/LGTpa75590/decaxp*

You must install the patch on the Tru64 system where the NMO client resides, in the directory */usr/opt/networker/bin*. For more information, refer to the *README.txt* file at the FTP location.

---

### Scheduled Backup Uses Improper Connection Ports (LGTpa78911)

An NMO scheduled backup does *not* use the connection ports defined for the backup client through NetWorker. During a scheduled backup, the NMO program **nsrnmstart** attempts to use a connection port that is *not* in the allowable range of connection ports defined in the NetWorker server for the system firewall, which causes the backup to fail.

If you experience this problem, contact your EMC Customer Support Representative.

---

### Rollback Restore of a Proxy Oracle Backup Stops Responding (LGTpa78988)

A rollback restore of a proxy Oracle backup stops responding and does not exit properly if the rollback restore fails due to one of the following errors:

- ◆ File system cannot be umounted error
- ◆ SYMAPI\_C\_NOT\_DIFFERENTIAL error

If you experience this problem, contact your EMC Customer Support Representative.

---

### The nsrnmoinfo Program Uses Improper Connection Ports (LGTpa79783)

The NMO program **nsrnmoinfo** does *not* use the connection ports defined for the backup client through NetWorker. The **nsrnmoinfo** program attempts to use a connection port that is *not* in the allowable range of connection ports defined in the NetWorker server for the system firewall, which causes the program to fail.

If you experience this problem, contact your EMC Customer Support Representative.

### Proxy Backups and Restores of Archived Redo Logs Fail with Oracle10g (LGTpa79882, LGTpa80288, LGTpa81336)

NMO release 4.2 and the PowerSnap Modules do *not* support proxy backups and restores of archived redo logs with Oracle10g and later due to the following issues:

- ◆ LGTpa79882 (I): Proxy restore of archived redo logs fails
- ◆ LGTpa79882 (II): Proxy backup of archived redo logs fails with certain RMAN scripts
- ◆ LGTpa80288, LGTpa81336: Proxy backup of archived redo logs fails to roll over to NetWorker backup media

To back up archived redo logs with Oracle10g and later, you must perform a regular RMAN backup, which does *not* include the **proxy** option in the **backup** command that backs up the logs.

### Backup Becomes Suspended in Cluster Environment on HP-UX (LGTpa80590)

In a cluster environment with MC/ServiceGuard installed on HP-UX, an NMO backup becomes suspended.

If you experience this problem, contact your EMC Customer Support Representative.

### FLIR-type Proxy Restore Requires Twice the Disk Space (LGTpa80670)

Twice as much disk space is required for a datafile with a FLIR (file-logical image restore) type of proxy restore than for a conventional-type proxy restore that involves a PowerSnap Module.

- ◆ With a conventional-type proxy restore, a file is first removed from the original destination and then redirected, avoiding this defect. The restore is successful.
- ◆ With a FLIR-type proxy restore using a proxy client, the file is first redirected to the *.nworapc* directory, then precreation occurs in the same *.nworapc* directory where the original file is in place. If the original file is removed prior to the FLIR-type proxy restore, the restore is successful.

A failed FLIR-type proxy restore generates the following type of error message:

```
BRCopyModule.cpp 2881: creating file
/datafile1/.nworapc/test1.dbf of size 5368717312
BRCopyModule.cpp 2899: Error: ESMS_fileallocate failed to
allocate /datafile1/.nworapc/test1.dbf: ESMS ERROR: Error
occurred in extend file write: No space left on device
```

The expected result is that a FLIR-type proxy restore takes a similar amount of space as a conventional proxy restore.

For any restore, there must be enough free space for the restored files. For a FLIR-type proxy restore, there must be enough space for *both* the original file and the restored file.

As a workaround, perform a conventional-type of proxy restore to redirect the files.



## Oracle Rollback Restore Fails If the RESTORE\_TYPE\_ORDER Value Is Not Lowercase (LGTpa85515)

A rollback restore of a proxy Oracle backup fails unless the value specified for the RESTORE\_TYPE\_ORDER parameter is all lowercase. For example, the following parameter setting causes the Oracle rollback restore to fail:

```
RESTORE_TYPE_ORDER=ROLLBACK
```

**Note:** For a rollback restore of *non-Oracle* data with the PowerSnap parameter RESTORE\_TYPE\_ORDER, the parameter value is case-insensitive.

As a workaround for an Oracle rollback restore, ensure that the parameter value, rollback, is all lowercase:

```
RESTORE_TYPE_ORDER=rollback
```

## Limitations Exist with NMO 4.2 on a Japanese Operating System (LGTpa85806)

With Oracle on a Japanese operating system, NMO 4.2 has certain limitations, and does *not* support Japanese characters in specific cases, depending on whether regular (non-proxy) or proxy operations are performed.

- ◆ For *both* regular and proxy operations, NMO 4.2 does *not* support the output of a message containing Japanese characters to a log file specified by either the NSR\_RMAN\_ARGUMENTS or NSR\_RMAN\_OUTPUT parameter.
- ◆ For *both* regular and proxy operations, NMO 4.2 does *not* support Japanese characters in the following:
  - Values entered in the NetWorker Configuration Wizard used to configure a scheduled NMO backup.
  - Full pathnames of the following:
    - Oracle User Dump destination where the RMAN trace file is written
    - NetWorker client installation directory on the Oracle host
    - ORACLE\_HOME location
    - RMAN script
  - Contents of the **nsrnmo** script for a scheduled NMO backup, including values of the following parameters:
    - NSR\_RMAN\_ARGUMENTS
    - PATH
    - POSTCMD
    - PRECMD
  - Contents of the RMAN script, including the following items:
    - Connection strings in **connect target** and **connect rcvcat** commands for a scheduled backup. For example:
 

```
connect target target_connection_string;
connect rcvcat rcvcat_connection_string;
```
    - A **format** string in a **backup** command. For example:
 

```
backup (database format 'format_string');
```

- Values of NMO parameters set through the **parms** option, **send** command, or **send** option. For example:
 

```
configure channel...parms
'ENV=(NSR_DEBUG_FILE=debug_filepath)';

send 'NSR_ENV=(NSR_DATA_VOLUME_POOL=pool_name)';
```
- Names and filepaths of objects to be backed up or restored, including tablespace names, datafile paths, and string patterns of archived redo logs.

---

**Note:** The RMAN script must *not* contain any Japanese characters.

---

- Command-line options of the **nsrnmo(.bat)**, **nsrnmoadmin(.exe)**, and **nsrnmoinfo(.exe)** commands.
- ◆ For regular operations *only*, NMO 4.2 supports Japanese characters in the following:
  - A tablespace name only if the tablespace name is *not* included in any RMAN scripts.
  - A datafile path only if the datafile path is *not* included in any RMAN scripts.
  - An archived redo log path only if the string pattern of the archived redo log is *not* included in any RMAN scripts.
- ◆ For proxy operations *only*, NMO 4.2 does *not* support Japanese characters in the following:
  - A tablespace name, whether or not the tablespace name is included in any RMAN scripts.
  - A datafile path, whether or not the datafile path is included in any RMAN scripts.

---

### Backup Fails with Licensing Error on Linux AMD64/EM64T (LGTpa86823)

On Linux AMD64/EM64T with the proper NetWorker enablers installed, an NMO backup fails with the following licensing error:

```
The feature "NetWorker Module for Oracle, UNIX Client/1" is not
properly enabled for client client_name. (0:5:0)
```

If you experience this problem, contact your EMC Customer Support Representative.

---

### Restores of FLIB-type Proxy Backups of Raw Volumes Fail on Windows (LGTpa88063)

Both regular and proxy restores of raw volumes on Windows fail if the raw volumes were backed up through the FLIB (file-logical image backup) type of proxy backups with PowerSnap Module for EMC Symmetrix release 2.2.1. This issue is related to the PowerSnap Module issue LGTpa87731.

If you experience this problem, contact your EMC Customer Support Representative.

### Backup Data Is Compressed When NSR\_CHECKSUM Is Set to TRUE (LGTpa88245)

When the NSR\_CHECKSUM parameter is set to TRUE, an NMO backup causes the backup data to be compressed.

If you experience this problem, contact your EMC Customer Support Representative.

### FLIB-type Proxy Backup of Multiple Nonsnapshotable Files Fails (LGTpa88636)

With a PowerSnap Module prior to version 2.4.2, a FLIB (file-logical image backup) type of proxy backup fails when a nonsnapshotable disk (a disk for which a snapshot cannot be made) contains more than one datafile, for example, a tablespace with multiple datafiles.

A conventional proxy backup is successful for the same nonsnapshotable disk with multiple datafiles.

As a workaround, perform one of the following:

- ◆ Perform a nonproxy backup of the datafiles on a nonsnapshotable disk.
- ◆ Perform a conventional proxy backup of the datafiles on a nonsnapshotable disk.

Ensure the success of a FLIB-type proxy backup by using snapshotable storage (volumes that can be snapshotted by the PowerSnap Module).

### Parameter Values Set with the send Command or Option Are Not Passed to More Than the First Channel When Backup Copies Commands Are Used (LGTpa89482, LGTpa89546)

If more than one RMAN channel is used for generated copies of an NMO backup, parameter values set with the **send** command or option are passed by RMAN to the first backup channel *only*.

For example, if the RMAN **backup** command is used to generate copies of an NMO backup to more than one channel, and one or more of the parameters NSR\_DATA\_VOLUME\_POOL1, NSR\_DATA\_VOLUME\_POOL2, and NSR\_DATA\_VOLUME\_POOL3 are set with the **send** command, none of the parameter values are passed to the expected channels. As a result, the backup copies are *not* sent to the expected volume pools.

Due to this **send** command limitation, NMO 4.2 does *not* support the use of RMAN backup copies commands during *scheduled* backups.

As a workaround, use the RMAN backup copies commands only during *manual* backups when the parameters NSR\_SERVER, NSR\_DATA\_VOLUME\_POOL1, NSR\_DATA\_VOLUME\_POOL2, and NSR\_DATA\_VOLUME\_POOL3 are set with the **parms** option.

In the following examples, the **parms** option is used in the channel configuration and to set the required parameters. Both sample scripts must be invoked manually with RMAN, for example, by using the following command:

```
rman cmdfile script_name
```

**Example 1-1 Using the set backup copies Command in the RMAN Script**

The following RMAN script uses the **set backup copies** command to generate the backup copies. The parameters are set with the **parms** option, as required. The RMAN script must be invoked for a manual backup, *not* a scheduled backup.

```
run {
set backup copies 4;
allocate channel ch1 parms 'ENV=(NSR_SERVER=server_name,
NSR_DATA_VOLUME_POOL=nmo1, NSR_DATA_VOLUME_POOL1=nmo2,
NSR_DATA_VOLUME_POOL2=nmo3, NSR_DATA_VOLUME_POOL3=nmo4)';
backup format '%d_%U'
tag tag_name
(tablespace 'SYSTEM' );
release channel ch1;
}
```

**Example 1-2 Using Automatic Channels for Backup Copies**

The following **configure** commands are used to configure RMAN automatic channels. (The **configure** commands could also be included in the RMAN script.) The **configure...backup copies** command generates the backup copies. The parameters are set with the **parms** option, as required. The RMAN script must be invoked for a manual backup, *not* a scheduled backup.

```
configure default device type to 'sbt_tape';
configure datafile backup copies for device type 'sbt_tape' to 4;
configure channel device type 'sbt_tape' parms
'ENV=(NSR_SERVER=server_name, NSR_DATA_VOLUME_POOL=nmo1,
NSR_DATA_VOLUME_POOL1=nmo2, NSR_DATA_VOLUME_POOL2=nmo3,
NSR_DATA_VOLUME_POOL3=nmo4)';
```

(RMAN script for the manual backup:)

```
connect target sys/oracle@test;
run {
backup format '%d_%U'
tag tag_name
(tablespace 'SYSTEM');
}
```

**NMO Library File Is Installed in /lib on Solaris (LGTpa90977)**

During the NMO 4.2 installation on Solaris, the library file **libnworso** is installed in the */lib* directory. If the */lib* directory is *not* linked to */usr/lib* on the particular Solaris system, then you *cannot* use the linking commands listed in Table 3 of Chapter 4 in the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Installation Guide*. In this case, use the following commands instead to link the NMO library file:

```
% cd $ORACLE_HOME/lib
% ln -s /lib/libnworso libobk.so
```

---

### Point-in-time Copy Remains in Media Database When Proxy Backup Is Deleted from RMAN Catalog (LGTpa92104)

When a proxy backup is deleted from the RMAN catalog, only the rolled over copy of the backup is deleted from the NetWorker media database. The corresponding point-in-time copy is *not* deleted from the media database. However, the NMO catalog does not show an entry for the proxy backup.

If you experience this problem, contact your EMC Customer Support Representative.

---

### Timestamp Is Changed After a PIT Proxy Restore on a Celerra NAS Device (LGTpa92641)

After a PIT proxy restore of a datafile on a Celerra NAS device, the timestamp is changed so that the restored datafile has a different timestamp. The timestamp change is caused by the PowerSnap SCM (snapshot control module) on Celerra NAS devices only. This issue has *no* functional impact on an NMO customer.

---

### NMO Backup Might Fail Intermittently with an RMAN Error (LGTsc05694)

An NMO backup (of any level) might fail intermittently when an Oracle process core dumps with the following RMAN error:

```
RMAN-00601: fatal error in recovery manager
RMAN-03004: fatal error during execution of command
RMAN-10038: database session for channel x terminated unexpectedly
RC from RMAN = 1
```

If you experience this problem, contact your EMC Customer Support Representative.

---

### Proxy Backup or Restore Taking More than 30 Minutes Might Time Out (LGTsc06210)

On all platforms where a proxy backup is supported, if a PowerSnap operation required for a proxy copy takes more than 30 minutes to complete, the proxy backup or restore times out with the following error:

```
ORA-19511: Error received from media manager layer, error text:
  The call to pb_open() failed with error:
RPC Call Failed. Reason :Timed out (114:501:0)
```

For example, if a rollback restore involves numerous volumes, the rollback operation might time out and fail after 30 minutes. Also, if a proxy backup involves a large number of devices to be discovered, the backup might time out and fail after 30 minutes.

If you experience this problem, contact your EMC Customer Support Representative.

---

### Crosscheck and Channel Allocation Might Take a Long Time on an HP-UX Cluster (LGTsc07389)

Crosscheck and channel allocation operations might take a long time to complete on an HP-UX cluster (MC/ServiceGuard). The issue is caused by an HP limitation when the Oracle user is not allowed to run the HP system command, **cmviewcl**.

As a workaround, contact HP Support, and ensure that the Oracle user is allowed to run the HP command, `cmviewcl`.

---

### **Multiplexing for Oracle11g Multisection Backups Is Supported with Advanced File Type Devices Only (LGTsc11340)**

Due to Oracle11g and NetWorker limitations, NetWorker multiplexing for multisection backups (a new feature in Oracle11g) is supported with advanced file type devices only, not with tape or regular file type devices.

If you have tape or regular file type devices, you should configure a separate NetWorker device for each RMAN channel, to avoid multiplexing in NetWorker.

If you multiplex the Oracle11g multisection backups on a tape or regular file type device and then experience a hang at restore time, use a single RMAN channel to restore the multisection NMO backups.

---

### **Backups Might Fail on Windows with NetWorker 7.1 to 7.4.1 and Oracle11g (LGTsc11491)**

NetWorker file system backups and NetWorker Module backups might fail on Windows if *all* of the following conditions are true:

- ◆ Oracle11g is installed on the client, and the Oracle VSS Writer service is running.
- ◆ NetWorker software on the Oracle11g host is release 7.1 to 7.4.1.
- ◆ The Oracle database contains at least one datafile on a raw partition identified by a drive letter, such as `\\.\d:`. (Backup failure does *not* occur if the raw datafile is located on a volume mount point.)

As a workaround, stop the Oracle VSS Writer from the Windows services.

---

### **NWORA Resource File Is Not Backed Up on Windows When Oracle VSS Writer Is Running (LGTsc11501)**

The NWORA resource file (`NetWorker_install_path\nsr\res\nwora.res` on Windows) is typically backed up at the end of each scheduled NMO backup. With Oracle11g on Windows, when the Oracle VSS Writer service is running, the resource file backup fails at the end of a scheduled NMO backup.

As a workaround with Oracle 11g on Windows, stop the Oracle VSS Writer from the Windows services.

---

### **PowerSnap Module Issue Might Cause Proxy Backup or Restore to Become Suspended (LGTsc11575)**

If one or more datafiles cannot be backed up or restored by the PowerSnap Module for any reason, the NMO proxy backup or restore might become suspended.

If you experience this problem, contact your EMC Customer Support Representative for the LGTsc11575 hotfix.

## Specific NMO Limitations Are Caused By Oracle11gR1 Bugs (LGTsc12549)

Each of the following NMO limitations is caused by an Oracle11gR1 bug.

If you experience any of these problems with Oracle11gR1, contact Oracle for support and provide the Oracle bug ID if it is listed as follows.

### Automatic Catalog Synchronization Fails with Deletion of Proxy Archivelog Backup in Oracle11gR1 (Oracle Bug ID 6658567)

If automatic catalog synchronization is enabled and you delete a proxy archivelog backup with Oracle11gR1, the automatic catalog synchronization fails to delete the proxy backup entry from the RMAN catalog.

The underlying cause is failure of RMAN **delete** commands in Oracle11gR1 to delete proxy archivelog backup entries from the RMAN catalog. The RMAN **delete** commands in this case produce the following error:

```

RMAN-03002: failure of delete command at date time
ORA-01455: converting column overflows integer datatype

```

### Backup Channel Failover Fails with Oracle11gR1 on Windows (Oracle Bug ID 6733394)

Automatic backup channel failover fails during an NMO backup with Oracle11gR1 on Windows.

### Failover and Duplication Fails with Oracle11gR1 in Non-English Environment (Oracle Bug ID 6658479)

With Oracle11gR1 in a non-English environment, NMO does *not* support the following operations:

- ◆ Failover of a backup channel
- ◆ Failover of a backup piece during restore
- ◆ Duplication with the **duplicate target database...until** command

For each of these operations, the following RMAN internal error is generated:

```

DBGANY: Mismatched message length!

```

### Oracle11gR1 Multisection Backup with Small Section Size Might Not Be Restorable

For a multisection backup with Oracle11gR1, if you specify a small section size that generates more than 256 backup pieces for the same file, the NMO backup is reported as successful, but the status of some of the backup pieces is DELETED. RMAN cannot perform a restore of the backup set.

As a workaround, specify a large enough section size to ensure that the multisection backup does *not* generate more than 256 backup pieces for any files.

### Proxy Backup of Archived Logs Fails in Specific Scenario with Oracle11gR1 (Oracle Bug ID 6656875)

An NMO proxy backup of Oracle11gR1 archived redo logs fails when some of the archived logs are missing from the main location but available in the alternative location. In this case:

- ◆ The archivelog main location is on a snapshotable disk.
- ◆ The archivelog alternate location is on a nonsnapshotable disk.

The proxy backup of archived redo logs fails with the following RMAN error:

```
RMAN-00600: internal error, arguments [13200] [] [] [] []
```

---

### **Scheduled Backup Completion Report Might Include Incorrect Save Set Sizes (LGTsc13403)**

If different NMO backups were scheduled for the same client (for example, to back up different databases on the same client) and their backup windows overlapped, the savegroup completion report produced for a scheduled backup might report incorrect sizes for the backup save sets.

If you experience this problem, contact your EMC Customer Support Representative.

---

### **PIT Proxy Restore Might Become Suspended (LGTsc15184)**

If any issue (for example, insufficient disk space) prevents completion of a PIT proxy restore, the restore might become suspended. In this case, the snapshots remain mounted on the datamover.

If you experience this problem, contact your EMC Customer Support Representative.

---

### **Proxy Restore Might Fail on HP-UX Itanium (LGTsc16852)**

A conventional or PIT proxy restore might fail on HP-UX Itanium.

For example, a conventional proxy restore might fail with the following error:

```
ORA-19511: Error received from media manager layer, error text: The call to pb_open() failed with error: Failed to get snapset and saveset-related information. Restore could not find conventional backup for this recover Failed to open the operation.
```

If you experience this problem, contact your EMC Customer Support Representative.

---

### **NSR\_MMDB\_RETRY\_TIME Setting Is Ignored on AIX (LGTsc19062)**

On AIX, NMO ignores the NSR\_MMDB\_RETRY\_TIME parameter setting, and tries to connect to the media database five times only (default behavior) before terminating a backup.

If you experience this problem, contact your EMC Customer Support Representative.

---

### **Proxy Restore Might Fail with OMF Due to Issue with Oracle SBT Calls (LGTsc23577)**

When using Oracle Managed Files (OMF), an Oracle proxy restore might fail due to an unexpected argument change with specific Oracle SBT calls.

If you experience this problem, contact your EMC Customer Support Representative.



## Technical Notes

Review the following sections for important notes and tips on the use of the NMO release 4.2 software:

- ◆ [“Prevent Possible Degradation of NMO Restore Performance with Oracle 10.2 or Later” on page 25](#)
- ◆ [“Storage Node Selection in the NetWorker Configuration Wizard” on page 25](#)
- ◆ [“Operations Across Datazones Might Cause Expired and Deleted Backups” on page 26](#)
- ◆ [“Oracle Requirements for Backups” on page 26](#)
- ◆ [“Proxy Backups and Restores” on page 26](#)
- ◆ [“Discrepancy Between the NetWorker Resource and RMAN Backup Configurations for a Proxy Backup” on page 27](#)
- ◆ [“Automatic Catalog Synchronization for Proxy Backups” on page 27](#)
- ◆ [“Catalog Synchronization After a Proxy Backup Volume Is Relabeled Manually” on page 28](#)
- ◆ [“Configuration Requirements for NetWorker Server Release 7.x” on page 29](#)
- ◆ [“NMO Parameters” on page 29](#)

### Prevent Possible Degradation of NMO Restore Performance with Oracle 10.2 or Later

Due to an Oracle limitation, degradation of NMO restore performance might occur with Oracle 10.2 or later if NetWorker multiplexing is used for NMO backups. If NetWorker multiplexing is enabled, you can prevent the restore performance degradation by including the **set parallelmediarestore off** command in the RMAN restore script that is used for the NMO restore.

For example, the following RMAN restore script contains the required Oracle command to disable the multiplexing during the NMO restore:

```
set parallelmediarestore off;
run {
  allocate channel c1 type 'SBT_TAPE';
  restore database;
  release channel c1;
}
```

### Storage Node Selection in the NetWorker Configuration Wizard

If you use the NetWorker Configuration Wizard to configure a scheduled NMO backup, you can select the storage node for the backup in the Select the Client Properties window.

If the same hostname is selected for *both* the NetWorker server and client in the configuration wizard, the value in the Storage Node field of the Select the Client Properties window must *not* be changed from the default value "<Dynamic

Allocation>". If you select a nondefault value in the Storage Node field, the Client resource configuration fails with the following error message:

```
The error number is: 15
The error is: storage node 'nsrserverhost' cannot be removed from
the NSRD client
```

---

## Operations Across Datazones Might Cause Expired and Deleted Backups

When backups of a single database are performed to more than one NetWorker datazone, you cannot use the **crosscheck** and **delete** commands for all the backup pieces across *all* the datazones due to Oracle limitations.

This issue applies to *both* proxy and non-proxy backups.

As an alternative, run the **crosscheck** and **delete** commands with the list of backup pieces generated on only one datazone, in one datazone at a time. For example:

1. Run the following command to allocate a maintenance channel for the NetWorker server host *host1*:

```
allocate channel for maintenance type 'SBT' parms 'ENV=
(NSR_SERVER=host1)';
```

2. Run the **crosscheck** command with an exact list of backup pieces on host *host1*.
3. Run the **delete expired** command on the backup pieces on host *host1* from [Step 2](#).

---

## Oracle Requirements for Backups

When a device is allocated with the **allocate channel...type disk** command, backups can be directed to disk files through Oracle's backup implementation.

To perform an Oracle backup with NMO, a device must be allocated with the **allocate channel...type sbt\_tape** command, even if it is an advanced file type device.

For a hot Oracle backup, the Oracle database instance must be in ARCHIVELOG mode. For more information, refer to the appropriate Oracle documentation.

---

## Proxy Backups and Restores

NMO release 4.2 supports proxy backups and restores of Oracle data residing on primary storage devices supported by the NetWorker PowerSnap Modules.

The supported types of primary storage include EMC CLARiiON, EMC Symmetrix, IBM FAStT, STK D Series, and Sun StorEdge Availability Suite. For details on the supported platforms, refer to the appropriate NetWorker PowerSnap Module installation and administration guide.

A proxy backup creates a snapshot of Oracle data that can be either used directly for restore or sent to a traditional storage medium. NMO supports *scheduled* proxy backups only.

---

**Note:** If you attempt to run a manual proxy backup, you receive an error message.

To enable proxy backups, you must perform the following:

- ◆ Configure the required NetWorker resources for a scheduled proxy backup.
- ◆ Set the required PowerSnap Module parameters.
- ◆ Specify the **backup proxy** or **backup proxy only** command in the RMAN backup script.

The procedure to restore proxy backups is the same as to restore regular backups, *except* that certain PowerSnap Module parameters might need to be set.

---

**Note:** The RMAN **restore** command does *not* include a **proxy** option.

NMO release 4.2 and the PowerSnap Modules do *not* support proxy backups and restores of archived redo logs with Oracle10g and later. For details, see [“Proxy Backups and Restores of Archived Redo Logs Fail with Oracle10g \(LGTpa79882, LGTpa80288, LGTpa81336\)”](#) on page 16.

For more information on proxy backups and restores, refer to NetWorker Module for Oracle administrator’s guide.

---

## Discrepancy Between the NetWorker Resource and RMAN Backup Configurations for a Proxy Backup

As mentioned in the NetWorker Module for Oracle administrator’s guide, RMAN performs a regular backup instead of a proxy backup if the **backup** commands in the RMAN script include the **proxy** option, but none of the Oracle database objects (tablespaces or datafiles) specified in the **backup** commands reside on a primary storage device that the PowerSnap Module supports. The resulting savegroup completion report includes warning messages.

In addition, the savegroup completion report for the backup includes *both* warning messages and a report of scheduled backup failure if the Snapshot Policy attribute in the Group resource specifies a SnapShot Policy resource with the following attribute settings:

- ◆ The Backup Snapshots attribute is set to a value different from None. For example, the attribute is set to All.
- ◆ The Retained Snapshot attribute is set to a value greater than 0. For example, the attribute is set to 1.

The scheduled backup failure occurs because the software attempts to back up a non-existent snapshot (point-in-time copy) to secondary storage, such as tape or disk.

---

## Automatic Catalog Synchronization for Proxy Backups

Automatic catalog synchronization removes an entry from the RMAN catalog as soon as the corresponding proxy backup entry expires in the NetWorker indexes.

---

**Note:** This feature is supported for proxy backups only—*not* for regular backups. For regular backups, you must synchronize the RMAN catalog and NetWorker indexes manually by using RMAN commands.

Automatic catalog synchronization is disabled by default. The feature must be enabled through the NMO program, **nsrnmoadmin**. The **nsrnmoadmin** program sets parameters that are stored in the NMO resource file named *nwora.res*, located as follows:

- ◆ On UNIX: */nsr/res/nwora.res*
- ◆ On Microsoft Windows: *<NetWorker\_install\_path>\res\nwora.res*, where *<NetWorker\_install\_path>* is the root directory of the NetWorker installation path

---

**Note:** The resource file is backed up automatically at the end of each proxy backup.

For more information on automatic catalog synchronization, refer to the NetWorker Module for Oracle administrator's guide.

---

## Catalog Synchronization After a Proxy Backup Volume Is Relabeled Manually

If you relabel a NetWorker volume containing proxy backups *manually*, the NMO program **nsroraclecat** cannot remove the corresponding entries from the RMAN catalog during automatic catalog synchronization.

In this case, you must perform the following procedures to reestablish automatic catalog synchronization for the volume. The procedures to perform depend on the setting of **NSR\_REMOVE\_ON\_FAILURE** in the **NWORA** resource file. For more information on this parameter resource, refer to the NetWorker Module for Oracle administrator's guide.

To reestablish catalog synchronization for the relabeled volume, see the appropriate section, depending on the **NSR\_REMOVE\_ON\_FAILURE** setting:

- ◆ ["If NSR\\_REMOVE\\_ON\\_FAILURE is Set to TRUE" on page 28](#)
- ◆ ["If NSR\\_REMOVE\\_ON\\_FAILURE is Set to FALSE" on page 28](#)

### If NSR\_REMOVE\_ON\_FAILURE is Set to TRUE

If **NSR\_REMOVE\_ON\_FAILURE** is set to **TRUE** in the **NWORA** resource file, synchronize the RMAN catalog entries manually by using the RMAN **crosscheck** command. This reestablishes the catalog synchronization for the relabeled volume.

For more information on the RMAN **crosscheck** command, refer to the appropriate Oracle documentation.

### If NSR\_REMOVE\_ON\_FAILURE is Set to FALSE

If **NSR\_REMOVE\_ON\_FAILURE** is set to **FALSE** in the **NWORA** resource file, you must first detect a catalog synchronization failure before you can reestablish the catalog synchronization. To detect a failure, monitor the backup system for one of the following events:

- ◆ A proxy backup fails due to the catalog synchronization failure and the snapshot resources not being released.
- ◆ One of the following messages appears in both the **nsroraclecat** log and debug files. (The log and debug files are specified by the **NSR\_ORACLECAT\_LOG\_FILE** and **NSR\_ORACLECAT\_DEBUG\_FILE** parameter resources, respectively.)

---

**Note:** The first message appears when all the RMAN catalog entries fail to be synchronized. The second message appears when only some of the entries fail.

---

ALERT: The save times could not be automatically synchronized because they have already been removed from the NetWorker client file index (possibly through manually relabeling a volume). Please manually synchronize the catalogs using the RMAN 'crosscheck' command.

ALERT: Some of the backup pieces may have already been removed from the NetWorker client index (possibly by manually relabeling a volume). Please manually synchronize the catalogs using the RMAN 'crosscheck' command.

When you detect this type of failure, reestablish the catalog synchronization for the relabeled volume by performing the following:

1. In the NWORA resource file, set NSR\_REMOVE\_ON\_FAILURE to TRUE by entering the **nsrnmoadmin** command.

For more information on the **nsrnmoadmin** command, refer to the NetWorker Module for Oracle administrator's guide.

2. To induce catalog synchronization, enter the **nsrsnapck -y** command.

---

**Note:** This **nsrsnapck** command also releases any incomplete or invalid snapshots that it detects.

---

3. In the NWORA resource file, set NSR\_REMOVE\_ON\_FAILURE to FALSE by entering the **nsrnmoadmin** command.
4. Synchronize the RMAN catalog entries manually by entering the RMAN **crosscheck** command.

For more information on the RMAN **crosscheck** command, refer to the appropriate Oracle documentation.

---

## Configuration Requirements for NetWorker Server Release 7.x

For NetWorker server release 7.x, ensure that the required user group privileges are set in the appropriate NetWorker User Group resources. For more information, refer to the NetWorker Module for Oracle administrator's guide.

---

## NMO Parameters

Review the following information on NMO parameters:

### NSR\_CHECKSUM, NSR\_COMPRESSION, and NSR\_ENCRYPTION for Proxy Backups

For proxy backups only, if you want the data checksum, compression, or encryption feature to be disabled, do *not* set NSR\_CHECKSUM, NSR\_COMPRESSION, or NSR\_ENCRYPTION, respectively.

This applies to proxy backups with the following NetWorker PowerSnap Modules:

- ◆ NetWorker PowerSnap Module releases 2.0.1 and 2.1 for EMC CLARiON
- ◆ NetWorker PowerSnap Module release 2.0.1 for IBM FASTT

- ◆ NetWorker PowerSnap Module release 2.0.1 for STK D Series
- ◆ NetWorker PowerSnap Module release 2.0.1 for Sun StorEdge Availability Suite
- ◆ NetWorker PowerSnap Module releases 2.0.1 and 2.1 for EMC Symmetrix DMX

To disable any of these data features for proxy backups, the corresponding parameter must *not* be set to either TRUE or FALSE in the following:

- ◆ The RMAN **send** command, either on the operating system command line or in the RMAN script.
- ◆ The user-defined configuration file specified in the parameter NSR\_PROXY\_PFILE.

For example, if NSR\_COMPRESSION is set to either TRUE or FALSE, the NetWorker software performs compression on the proxy backup data.

### NSR\_GROUP and NSR\_SERVER

For a scheduled Oracle backup, do *not* set the NMO parameters NSR\_GROUP and NSR\_SERVER in the RMAN script. During a scheduled backup, these parameters are overridden by the values in the Group and Server attributes, respectively, of the NetWorker Client resource.

---

## Documentation

The following sections describe related documentation and any documentation corrections or additions for NMO release 4.2.

---

### Related Documentation

The *EMC Information Protection Software Compatibility Guide* provides the latest information on operating systems and versions supported by the NMO software. The guide is available at <http://Powerlink.EMC.com>, **Support > Interoperability and Product Lifecycle Information > Compatibility Guides**.

The following documentation provides information related to the NMO software:

- ◆ The appropriate versions of the following NetWorker documentation:
  - NetWorker Module for Oracle installation guide
  - NetWorker Module for Oracle administrator's guide
  - NetWorker command reference guide (for NetWorker commands)
  - NetWorker Module for Oracle command reference guide (for NMO commands)
  - NetWorker PowerSnap Module installation and administration guide
  - NetWorker administration guide
  - NetWorker release notes
  - NetWorker Administrator program online help
- ◆ UNIX man pages (for NetWorker and NMO commands)
- ◆ Oracle backup and recovery documentation

The NetWorker documentation is available at <http://Powerlink.EMC.com>, **Support > Technical Documentation and Advisories**.

**Note:** The most up-to-date product issues for NMO release 4.2 are detailed online in the EMC Issue Tracker, available on the Powerlink website: <http://Powerlink.EMC.com>

The complete set of NetWorker documentation is also provided in PDF form on the EMC Documentation Suite CD-ROM shipped with the software.

## Documentation Errata

The following sections describe documentation corrections or additions for NMO release 4.2.

### Where to Find the Most Recent Supported Operating System and Version Information

The *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Installation Guide and Administration Guide* do not contain the most recent information on supported operating systems and versions of database, application, and NetWorker software. Consult the *EMC Information Protection Software Compatibility Guide* on Powerlink for the most up-to-date information on supported operating systems and versions.

### PRECMD and POSTCMD Settings in the nsrnmo Script Must Be Clarified

The settings of the PRECMD and POSTCMD parameters in the `nsrnmo` script must be clarified in Chapter 4 of the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Administrator's Guide*.

- ◆ In the section "PRECMD" on page 71, add the following Note:

**Note:** The pathname value of PRECMD must *not* contain any spaces. For example, instead of setting PRECMD to C:\Program Files\Legato\nsr\precmd.bat, set the parameter to C:\Progra~1\Legato\nsr\precmd.bat.

- ◆ In the section "POSTCMD" on page 73, add the following Note:

**Note:** The pathname value of POSTCMD must *not* contain any spaces. For example, instead of setting POSTCMD to C:\Program Files\Legato\nsr\postcmd.bat, set the parameter to C:\Progra~1\Legato\nsr\postcmd.bat.

### Additional Information on PowerSnap Parameters Is Required in the Proxy Configuration Section

Add the following information to the section "How to Set the PowerSnap Parameters" on page 137 of the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Administrator's Guide*:

To enable proxy backup and restore operations with Celerra NAS devices, ensure that the following PowerSnap parameters are set in the user-defined configuration file that you specify with the NMO parameter NSR\_PROXY\_PFILE:

- ◆ NSR\_DATA\_MOVER=*name or IP of NetWorker data mover*  
NSR\_DATA\_MOVER identifies the NetWorker data mover to use for rollovers.
- ◆ NSR\_SNAP\_NAS\_CEL\_CS\_HOST=*name or IP of Celerra control station*  
NSR\_SNAP\_NAS\_CEL\_CS\_HOST identifies the Celerra control station.

- ◆ `NAS_SNAP_SUBTYPE=CEL_SNAPSURE`  
`NAS_SNAP_SUBTYPE` identifies the NAS SCM subtype to use.
  - ◆ `NSR_SNAP_TYPE=nas`  
`NSR_SNAP_TYPE` specifies that this is a NAS save object.
- 
- Note:** The value of `NSR_SNAP_TYPE` must be *lowercase* `nas`.
- 
- ◆ `NSR_SNAP_NAS_CLIENT=name or IP address of NAS filer with the NFS file system`  
`NSR_SNAP_NAS_CLIENT` identifies the NFS server for the specified mount point.

The PowerSnap Module documentation provides more details on these PowerSnap parameters.

For example, the following PowerSnap parameters are included in the `/nsr/res/nas_backup.cfg` file (specified with `NSR_PROXY_PFILE`) for a proxy backup with a Celerra NAS device:

```
cat /nsr/res/nas_backup.cfg
NSR_PS_DEBUG_LEVEL=9
NSR_DEBUG_LEVEL=9
NSR_DATA_MOVER=datamover.emc.com
NSR_SNAP_NAS_CEL_CS_HOST=controlstn
NAS_SNAP_SUBTYPE=CEL_SNAPSURE
NSR_SNAP_TYPE=nas
NSR_SNAP_NAS_CLIENT=11.222.333.44
```

For example, the following PowerSnap parameters are included in the `/nsr/res/nas_restore.cfg` file (specified with `NSR_PROXY_PFILE`) for a proxy restore with a Celerra NAS device:

```
cat /nsr/res/nas_restore.cfg
NSR_PS_DEBUG_LEVEL=9
NSR_DEBUG_LEVEL=9
NSR_DATA_MOVER=datamover.emc.com
NSR_SNAP_NAS_CEL_CS_HOST=controlstn
NAS_SNAP_SUBTYPE=CEL_SNAPSURE
NSR_SNAP_TYPE=nas
NSR_SNAP_NAS_CLIENT=11.222.333.44
RESTORE_TYPE_ORDER=conventional
```

### Additional Information Is Required in the Proxy Oracle Backup Section

Add the following information to the proxy Oracle backup section in the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Administrator's Guide*:

- ◆ Add the following paragraph to the end of the section "With a Group Configured for Proxy Backups" on page 143:  
 If the PowerSnap Module software involved in a proxy backup *cannot* determine if a file is snapshotable, the proxy backup *fails*.



- ◆ Add a sentence to the end of the section “NWORA Resource File Backup” on page 146, changing the last paragraph in the section to the following:

The browse and retention policies applied to the NWORA resource file backup are the most conservative policies associated with the given NetWorker client—not the policies that are applied to the Oracle backups. As a result, you may see a difference between the policies assigned to the NWORA resource file backup and the Oracle backups.

### Additional Information on Rollback Restores Is Required in the Proxy Oracle Restore Section

Add the following paragraph to the section “Rollback Restore” on page 153 of the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Administrator’s Guide*:

With Celerra NAS devices, support of a rollback safety check requires that the .etc entry be added to the psrollback.res file. (This is due to the fact that Celerra creates file systems with both the lost+found and .etc directory entries by default.) Also, to enable remount of the NAS file system at the end of a rollback operation, an entry for the target file system must be placed in the /etc/vfstab file on Solaris, the /etc/fstab file on HP-UX, or the /etc/filesystems file on IBM AIX. If this is *not* done, the remount at the end of the rollback fails. The data is recovered, but the file system must be remounted manually and the tablespace must be brought back online.

### Additional Information Is Required in the Parameters Appendix

Add the following definition of the NSR\_MMDB\_RETRY\_TIME parameter to Table 7 in Appendix A of the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Administrator’s Guide*:

Parameter	Description	Default and Valid Values
NSR_MMDB_RETRY_TIME	<i>Optional.</i> Specifies the number of minutes that NMO should try to connect to the NetWorker media database before terminating the operation (backup, restore, or RMAN maintenance commands). When the media database is busy, NMO tries to reconnect after sleeping for five seconds between attempts.	<ul style="list-style-type: none"> <li>• 0 (default). NMO does <i>not</i> try to reconnect to the media database if the first attempt fails.</li> <li>• A valid number of minutes.</li> </ul>

### Information on the crosscheck and delete Commands Must Be Clarified

In the section “Retention policies” at the top of page 210 in the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Administrator’s Guide*, update the Important note to clarify information on the **crosscheck** and **delete** commands:



#### **IMPORTANT**

**Run the crosscheck command on the NMO backups before running report obsolete or delete obsolete backups of the device type sbt\_tape. This ensures that backups expired by the NetWorker server are flagged as *expired* in the RMAN catalog. As a result, RMAN can correctly identify which backups are not needed according to the Oracle retention policy.**

**For example:**

- 1. Run the following command to synchronize the RMAN Catalog and NetWorker indexes:  
crosscheck backup;**

2. Run the following command to delete all obsolete backups defined by the current Oracle retention policy:  
`delete obsolete;`

### Additional Information Is Required in the Troubleshooting Appendix

Add the following information to step 5 in the “Troubleshooting Tips” section in Appendix D of the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Administrator’s Guide*:

If the backup fails with the following error, ensure that NMO and Oracle both have the same bitness, and refer to the RMAN user guide for details on how to test that the media management library (MML) is integrated correctly:

```
ORA-19554: error allocating device, device type: SBT_TAPE, device
name:
ORA-27211: Failed to load Media Management Library
Additional information: 25
```

## Software Media, Organization, and Files

The *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Installation Guide* provides details on the NMO release 4.2 software media, organization, and files.

## Installation

This section provides notes which pertain to the installation and update of the NMO software.

For the procedures to install, update, uninstall, and reinstall the NMO software, as well as to those to obtain and install the required license enablers, refer to the *EMC NetWorker Module for Oracle, Release 4.2, Multiplatform Version, Installation Guide*.

**Note:** Linking instructions can vary with patched releases of the Oracle Server. The installation guide provides information for the *base* releases only.

## Coexistence of NMO Software

The 32-bit and 64-bit versions of NMO release 4.2 can coexist on the same 64-bit Solaris system.

The NMO software does *not* support the following types of coexistence on the same system:

- ◆ NMO releases 3.x and 4.2.
- ◆ NMO releases 4.0 and 4.2.
- ◆ NMO releases 4.1 and 4.2.

---

## NMO Reinstall After a NetWorker Software Update

If, during an update to the NetWorker software on the Oracle Server host where NMO is installed, the NetWorker client installation directory changes to a different location, you must uninstall and reinstall the NMO software.

---

## Licensing

To enable NMO operations after the end of an evaluation period, obtain and install an NMO license enabler.

To enable proxy operations, obtain and install a separate PowerSnap license enabler.

---

## Troubleshooting and Getting Help

EMC support, product, and licensing information can be obtained as follows.

**Product information.** For documentation, release notes, software updates, or for information about EMC products, licensing, and service, go to the EMC Powerlink website (registration required) at:

<http://Powerlink.EMC.com>

**Technical support** — For technical support, go to EMC Customer Service on Powerlink. To open a service request through Powerlink, you must have a valid support agreement. Please contact your EMC sales representative for details about obtaining a valid support agreement or to answer any questions about your account.

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