

**EMC<sup>®</sup> NetWorker<sup>®</sup>  
Module for Oracle**Release 4.5  
Multiplatform Version**Release Notes**P/N 300-003-565  
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These release notes contain supplemental information about EMC NetWorker Module for Oracle (NMO) release 4.5. Topics include:

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Before installing NMO release 4.5, and then periodically after the installation, refer to the latest release of this document on the Powerlink website at <http://Powerlink.EMC.com>.

## Revision history

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

Revision	Date	Description
A19	October 15, 2009	Added "NW105093" on page 47.
A18	March 31, 2009	<p>Removed the obsolete limitations LGTpa62986 and LGTpa72613.</p> <p>Moved information about the LGTsc10107 issue (formerly under "Known problems and limitations") to "Operations across datazones might cause expired and deleted backups" on page 48.</p> <p>Added the following:</p> <ul style="list-style-type: none"> <li>• "Prevent possible degradation of NMO restore performance with Oracle 10.2 or later" on page 48</li> <li>• "Where to find the most recent supported operating system and version information" on page 54</li> <li>• "Information on setting up I18N support must be changed" on page 54</li> <li>• "Information on deferred live backup must be changed" on page 59</li> <li>• "Information on PowerSnap parameter settings must be changed" on page 60</li> </ul>
A17	February 6, 2009	<p>Added the following:</p> <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>- "Product description" on page 5</li> <li>- "New features and changes" on page 8</li> <li>- "NMO configuration wizard features" on page 12</li> </ul> </li> <li>• "LGTsc09556" on page 40</li> <li>• In the section "Documentation errata": <ul style="list-style-type: none"> <li>- "PRECMD and POSTCMD settings in the nsrnm script must be clarified" on page 55</li> <li>- "NMO update information must be changed in the Installation Guide" on page 64</li> </ul> </li> </ul>
A16	December 23, 2008	<p>Added the following:</p> <ul style="list-style-type: none"> <li>• "LGTsc23577" on page 47</li> <li>• "Information for RAC systems must be changed" on page 56</li> </ul> <p>Deleted sections on LGTpa49261, LGTpa52532, LGTpa58012 as NetWorker releases earlier than 7.2 are no longer supported.</p>

Revision	Date	Description
A15	November 14, 2008	<p>Added the following:</p> <ul style="list-style-type: none"> <li>Information on AES encryption support for proxy backups in: <ul style="list-style-type: none"> <li>- "New features and changes" on page 8</li> <li>- "NMO parameters" on page 13</li> </ul> </li> <li>Information on Windows 2008 and Windows Vista support in: <ul style="list-style-type: none"> <li>- "New features and changes" on page 8</li> <li>- "Windows 2008 and Windows Vista support" on page 14</li> </ul> </li> <li>"LGTsc07389" on page 36</li> <li>"LGTsc15184" on page 44</li> <li>"LGTsc16852" on page 45</li> <li>"LGTsc19273" on page 46</li> <li>"LGTsc19856" on page 46</li> <li>"LGTsc22741" on page 47</li> <li>In the section "Documentation errata": <ul style="list-style-type: none"> <li>- "Information on the crosscheck and delete commands must be clarified" on page 55</li> <li>- "Parameter settings must be clarified for save set bundling and policy uniformity" on page 56</li> <li>- Information on the "NWORA resource file backup" in "Additional information is required in the proxy Oracle backup section" on page 60</li> <li>- Information on NSR_MMDB_RETRY_TIME in "Additional information is required in the Parameters appendix" on page 62</li> <li>- "NSR_AES_ENCRYPTION definition must be changed" on page 62</li> <li>- Information on "Troubleshooting tips" in "Additional information is required in the Troubleshooting appendix" on page 62</li> </ul> </li> </ul> <p>In "Save set bundling and policy uniformity fail with Oracle9i" on page 29, changed "Oracle10g only" to "Oracle10g and later".</p>
A14	September 24, 2008	<p>Added the following:</p> <ul style="list-style-type: none"> <li>In "New features and changes" on page 8, information on NMO 4.5 support for proxy operations on Japanese operating systems</li> <li>In "NMO internationalization (I18N) support" on page 10, updated information on NMO 4.5 support for proxy operations on Japanese operating systems</li> <li>"LGTpa80670" on page 25</li> <li>"LGTpa88636" on page 25</li> <li>"LGTpa92641" on page 27</li> <li>"LGTsc18427" on page 45 ("Limitations exist in NMO 4.5 proxy operations on a Japanese operating system")</li> <li>In the section "Documentation errata": <ul style="list-style-type: none"> <li>- "Information on I18N support with proxy operations must be changed" on page 54</li> <li>- "Additional information on PowerSnap parameters is required in the proxy configuration section" on page 59</li> <li>- "Additional information on rollback restores is required in the proxy Oracle restore section" on page 61</li> </ul> </li> </ul>
A13	April 11, 2008	<p>Added the following:</p> <ul style="list-style-type: none"> <li>"LGTsc11575" on page 42</li> <li>"LGTsc11968" on page 42</li> <li>"LGTsc12226" on page 43</li> <li>"LGTsc14744" on page 44</li> <li>"LGTsc14858" on page 44</li> <li>"LGTsc15383" on page 45</li> <li>"Additional information is required in the proxy Oracle backup section" on page 60</li> </ul>

Revision	Date	Description
A12	March 26, 2008	Added the following: <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” on page 8</a></li> <li><a href="#">“Oracle Data Guard support” on page 15</a></li> </ul>
A11	January 24, 2008	Updated the configuration wizard requirements in <a href="#">“NMO configuration wizard features” on page 12</a> . Added the following: <ul style="list-style-type: none"> <li><a href="#">“LGTsc08880” on page 39</a></li> <li><a href="#">“Additional information is required in the Parameters appendix” on page 62</a></li> </ul>
A10	January 11, 2008	Added the following known limitations: <ul style="list-style-type: none"> <li><a href="#">“LGTsc11491” on page 42</a></li> <li><a href="#">“LGTsc12549” on page 43</a></li> </ul> Updated <a href="#">“LGTsc11340” on page 41</a> .
A09	January 2, 2008	Added the following: <ul style="list-style-type: none"> <li>LGTsc06210 in the fixed bugs list of <a href="#">Table 2 on page 16</a></li> <li>Important note (about disabling Oracle VSS Writer on Windows) and list of known NMO limitations in <a href="#">“Oracle11g support” on page 6</a></li> <li><a href="#">“LGTsc05694” on page 32</a></li> <li><a href="#">“LGTsc10426” on page 40</a></li> <li><a href="#">“LGTsc10485” on page 40</a></li> <li><a href="#">“LGTsc10884” on page 41</a></li> <li><a href="#">“LGTsc11340” on page 41</a></li> <li><a href="#">“LGTsc11501” on page 42</a></li> <li><a href="#">“Automatic catalog synchronization fails with deletion of proxy archivelog backup in Oracle11gR1 (Oracle bug ID 6658567)” on page 43</a></li> <li><a href="#">“Backup channel failover fails with Oracle11gR1 on Windows (Oracle Bug ID 6733394)” on page 43</a></li> <li><a href="#">“Proxy backup of archived logs fails in specific scenario with Oracle11gR1 (Oracle bug ID 6656875)” on page 44</a></li> </ul>
A08	November 30, 2007	Added the following known limitations: <ul style="list-style-type: none"> <li><a href="#">“LGTsc10670” on page 40</a></li> <li><a href="#">“LGTsc10887” on page 41</a></li> </ul>
A07	November 2, 2007	Added information on NMO support of Oracle11g in <a href="#">“Oracle11g support” on page 6</a> .
A06	October 18, 2007	Added LGTpa92104 to the list of fixed bugs in <a href="#">Table 2 on page 16</a> . Added the following information to the Documentation errata section: <ul style="list-style-type: none"> <li><a href="#">“Scheduled backup information stored in the media database is changed in NMO release 4.5” on page 63</a></li> <li><a href="#">“Linux relocation information must be clarified in the Installation Guide” on page 65</a></li> </ul>

Revision	Date	Description
A05	September 28, 2007	<p>Added information in the following:</p> <ul style="list-style-type: none"> <li>• <a href="#">Table 1 on page 11</a></li> <li>• <a href="#">“LGTsc07586” on page 36</a></li> <li>• <a href="#">“LGTsc07711” on page 37</a></li> <li>• <a href="#">“LGTsc07791” on page 37</a></li> <li>• <a href="#">“LGTsc07792” on page 38</a></li> <li>• <a href="#">“LGTsc07856” on page 38</a></li> <li>• <a href="#">“LGTsc08475” on page 38</a></li> <li>• <a href="#">“LGTsc09096” on page 39</a></li> <li>• <a href="#">“Documentation errata” on page 54</a></li> </ul> <p>Remove information about LGTpa92104 as a fixed bug and LGTsc05869 as a known limitation.</p>
A04	August 7, 2007	Changed the known limitation reference from LGTpa07287 to LGTsc07287. The limitation is described in <a href="#">“LGTsc07287” on page 35</a> .
A03	July 18, 2007	Added information about the known limitation LGTpa07287.
A02	July 2, 2007	Deleted the information about support of NetWorker Module for Documentum in <a href="#">“Revision history” on page 2</a> .
A01	June 29, 2007	Initial release of this document.

## Product description

NMO software is an add-on module for the EMC<sup>®</sup> NetWorker<sup>®</sup> server that enables you to perform the following tasks:

- ◆ Manual (unscheduled) Oracle backups
- ◆ Scheduled Oracle backups
- ◆ Restores of Oracle backup data
- ◆ Automated media management

NMO works with the NetWorker server to augment the backup and recovery system of the Oracle Server and provide a storage management solution that addresses the need for cross-platform support of enterprise applications.

NMO software provides the following major features:

- ◆ Regular (non-proxy) backups and restores of Oracle database files.
- ◆ Proxy backups and restores of Oracle database files on specific types of primary storage devices, with the proxy operations performed by NMO, the NetWorker server, and appropriate NetWorker PowerSnap<sup>™</sup> Module software.
- ◆ Backup and restore configuration and database duplication operations through the NMO configuration wizard.

**Note:** The NMO configuration wizard is supported with specific NetWorker releases, as outlined in [“NMO configuration wizard features” on page 12](#).

- ◆ Save set bundling and staging operations with NetWorker server release 7.4 or later.

- ◆ Enforcement of policy uniformity to ensure that the dependent save sets in the same scheduled backup cycle or same save set bundle receive the same browse and retention policies.
- ◆ Specific NMO internationalization and localization support.
- ◆ The `nsmoinfo` command line program that is used to determine the NetWorker volumes that contain the Oracle backup pieces for a restore.
- ◆ Capability to integrate database and file system backups, to relieve the burden of backup from the database administrator while allowing the administrator to retain control of the restore process.
- ◆ Automatic database storage management through automated scheduling, autochanger support, electronic tape labeling, and tracking.
- ◆ Support for backup to a centralized backup server.
- ◆ High performance through support for multiple, concurrent high-speed devices such as digital linear tape (DLT) drives.

“New features and changes” on page 8 provides more details on the major new features in NMO release 4.5.

The NetWorker Module for Oracle Administration Guide provides details on the NMO software features.

The NetWorker Module for Oracle Installation Guide provides details on how to install the NMO software.

The *EMC Information Protection Software Compatibility Guide* on the Powerlink<sup>®</sup> website at <http://Powerlink.EMC.com> provides detailed information about the operating systems, Oracle Server releases, and other software components that NMO supports.

“Oracle11g support” on page 6 provides more information on NMO support of Oracle11g features.

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## Oracle11g support



NMO 4.5 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 4.5:

- ◆ 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 7](#) and [“Archival backup feature” on page 8](#).

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

The following sections describe known NMO limitations related to Oracle11g:

- ◆ [“LGTsc11340” on page 41](#)
- ◆ [“LGTsc11491” on page 42](#)
- ◆ [“LGTsc11501” on page 42](#)
- ◆ [“LGTsc12549” on page 43](#)

## 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.

## New features and changes

Release 4.5 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.
- ◆ Releases 4.1 and 4.2 on the supported UNIX and Windows operating systems.

NMO release 4.5 includes the following new or enhanced features:

- ◆ Save set bundling and staging operations with NetWorker server release 7.4.
- ◆ Enforcement of policy uniformity to ensure that the dependent save sets in the same scheduled backup cycle or same save set bundle receive the same browse and retention policies.

**Note:** Due to Oracle bug 5887447, NMO supports save set bundling and enforcement of policy uniformity with Oracle10g and later. [“Save set bundling and policy uniformity fail with Oracle9i” on page 29](#) provides more information.

- ◆ Specific internationalization support, as described in [“NMO internationalization \(I18N\) support” on page 10](#).
- ◆ Specific localization support, as described in [“NMO localization \(L10N\) support” on page 11](#).

- ◆ Support for NMO 4.5 proxy operations on a Japanese operating system, with the support limitations outlined in [“Limitations exist in NMO 4.5 proxy operations on a Japanese operating system”](#) on page 45.
- ◆ Configuration of typical scheduled backups, Oracle restores, and database duplication through the NMO configuration wizard.

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**Note:** The NMO configuration wizard is supported with specific NetWorker releases, as outlined in [“NMO configuration wizard features”](#) on page 12.

- ◆ 256-bit AES encryption during NMO backups, as specified through the required NMO parameter settings.  
NMO 4.5 supports 256-bit AES encryption for *both* regular backups and proxy backups with the PowerSnap Module 2.4 SP2 for CLARiON, RecoverPoint, and Symmetrix DMX.

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**Note:** [“Proxy backup fails if NSR\\_ENCRYPTION\\_PHRASES set to multiple phrases in configuration file”](#) on page 46 describes a known limitation. Refer to the PowerSnap documentation for any other limitations on AES encryption support for proxy backups. For example, PowerSnap supports AES encryption for all PowerSnap workflows, but does *not* support data that remains in a PowerSnap PiT backup.

- ◆ Six new NMO parameters and two obsolete NMO parameters, as described in [“NMO parameters”](#) on page 13.
- ◆ Display of information about scheduled NMO backups in the Monitoring window (Groups and Sessions tabs) of the NetWorker Management Console release 7.3.1 and later.
- ◆ Remote software distribution whereby an operator on a remote NetWorker 7.4 server updates NMO release 4.2 to release 4.5 on the NMO client.

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**Note:** The NetWorker 7.4 software distribution feature does *not* support the following:  
 - Remote update of NMO 4.2 to 4.5 on Microsoft Windows.  
 - Installation of NMO 4.5 language packs during the remote update on UNIX or Linux. After the update to NMO 4.5 is complete, NMO language packs must be installed separately on the remote client.

- ◆ Regular (non-proxy) NMO backups and restores with Solaris 10 zones on Solaris 10 and later.
- ◆ Proxy NMO backups and restores with HP-UX Itanium as the proxy client host, as supported by the appropriate PowerSnap Module.
- ◆ NMO backups and restores on the following new platforms:
  - Oracle Enterprise Linux on Intel and AMD64/EM64T
  - Solaris on AMD64/EM64T
  - Windows XP and Windows Server 2003 on AMD64/EM64T
  - Windows 2008 and Windows Vista, as described in [“Windows 2008 and Windows Vista support”](#) on page 14

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.

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

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- ◆ Support for Oracle Data Guard, as described in [“Oracle Data Guard support” on page 15](#).
- ◆ Restores of backups performed by NMO 4.2 and earlier, *except* for proxy backups performed by NMO 4.0.
- ◆ Improved error logging, including descriptive error messages.
- ◆ Implementation of key bug fixes and requests for enhancement. [“Fixed problems” on page 16](#) provides more information.

The NetWorker Module for Oracle Administration Guide provides more information on these new and enhanced NMO 4.5 features.

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## NMO internationalization (I18N) support

The NMO 4.5 software provides internationalization (I18N) support, whereby NMO can operate in a non-English environment or locale *without* itself generating non-ASCII data. Once NMO I18N support is set up, NMO processes and displays non-ASCII data that is *passed to it* by the operating system, NetWorker software, and Oracle software. This non-ASCII data can include text messages, dates, times, numbers, and so on.

NMO localization (L10N) support is an separate NMO feature, whereby NMO can itself *generate* non-ASCII data and print the data to the user interface. NMO L10N requires the installation of NMO language packs, whereas NMO I18N does *not* require the installation of NMO language packs.

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**Note:** With proxy Oracle operations, limited NMO I18N support is provided on a Japanese operating system only, as described in [“Limitations exist in NMO 4.5 proxy operations on a Japanese operating system”](#).

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The extent of the NMO I18N support is dependent on the following:

- ◆ I18N support provided by the operating system on the NMO client host.
- ◆ I18N support provided by the NetWorker client and server software.
- ◆ National Language Support (NLS) or Globalization support provided by the Oracle software.

The NetWorker Module for Oracle Administration Guide provides details on NMO I18N and how to set it up.

The *EMC Information Protection Software Compatibility Guide on Powerlink* provides details on the different languages supported, and the versions of operating systems, Oracle Servers, and NetWorker software required for NMO I18N support.

## NMO localization (L10N) support

The NMO 4.5 software provides localization (L10N) support, whereby NMO can itself generate non-ASCII character and numeric data based on the locale of the user and output the data to the user interface. The generated data is printed to the command line, log files, or NMO wizard screens.

When NMO I18N is set up, NMO can process and display non-ASCII data that is *passed to it* by the operating system, NetWorker software, and Oracle software. When NMO L10N is set up by also installing the required NMO language packs, NMO can also *generate* non-ASCII data, localized according to the user locale. The non-ASCII data can include text messages, dates, times, and numeric values, displayed in the locale-dependent format.

**Note:** NMO L10N is *not* supported with proxy Oracle backups and restores. NMO *cannot* perform proxy backups of tablespaces or files with names that contain non-ASCII characters.

The use of the NetWorker 7.4 software distribution feature to update NMO 4.2 to 4.5 on a remote client does *not* support the installation of NMO 4.5 language packs. After a remote update to NMO 4.5 is complete, NMO language packs must be installed separately on the NMO client.

The NetWorker Module for Oracle Administration Guide provides details on NMO L10N and how to set it up.

The *EMC Information Protection Software Compatibility Guide on Powerlink* provides details on the different languages supported, and the versions of operating systems, Oracle Servers, and NetWorker software required for NMO L10N support.

[Table 1 on page 11](#) lists the supported locales.

**Table 1 Supported locales**

Language	Operating system				
	Windows	Solaris	HPUX	AIX	Linux
English	English	OS Default Locale	OS Default Locale	OS Default Locale	OS Default Locale
French	French (France)	UTF-8 ISO8859-1 ISO8859-15	UTF-8 ISO8859-1 ISO8859-15	UTF-8 ISO8859-1 ISO8859-15	UTF-8 ISO8859-1 ISO8859-15
Japanese	Japanese (Japan)	UTF-8 EUC-JP S-JIS	UTF-8 EUC-JP	UTF-8 EUC-JP	UTF-8 EUC-JP S-JIS
Chinese	Chinese (China)	UTF-8 EUC-CN GB18030 GBK BIG5	UTF-8 EUC-CN	UTF-8 EUC-CN	UTF-8 EUC-CN GB18030 GBK BIG5
Korean	Korean (Korea)	UTF-8	UTF-8	UTF-8	UTF-8

**Note:** Localization is not supported on the Tru64 platform.

## NMO configuration wizard features

The NMO configuration wizard can be used to configure the following backups and restores of the NMO client:

- ◆ Typical scheduled Oracle backups
- ◆ Customized scheduled Oracle backups
- ◆ Oracle data restores
- ◆ Oracle database duplication to either the local host or a remote host

The NMO client can be located either on the same host as the wizard or on a remote host.

The configuration wizard creates the following:

- ◆ For NMO backups, the wizard creates the required RMAN backup scripts, **nsrnm** scripts, and NetWorker Client and Group resources.
- ◆ For NMO restores and database duplication, the wizard creates the required RMAN restore scripts.

**Note:** The configuration of NMO parameters that are unavailable through the configuration wizard (for example, parameters for manual backups) must be performed manually by using a text editor, as done with NMO 4.2.

To enable the configuration wizard, 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.

The following sources provide more information:

- ◆ The NetWorker Module for Oracle Installation Guide describes how to install the configuration wizard.
- ◆ The NetWorker Module for Oracle Administration Guide describes how to use the configuration wizard.

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## NMO parameters

The NMO 4.5 software supports the following new parameters:

- ◆ `NSR_AES_ENCRYPTION` enables 256-bit AES encryption during NMO backups (including proxy backups) with NetWorker server 7.3 or later. The parameter must be set through the RMAN **send** command.  
NMO 4.5 supports 256-bit AES encryption for *both* regular backups and proxy backups with the PowerSnap Module 2.4 SP2 for CLARiiON, RecoverPoint, and Symmetrix DMX.
- ◆ `NSR_BUNDLING` enables save set bundling of scheduled NMO backups with NetWorker server 7.4 or later. The parameter must be set through the NMO **nsrnmoadmin** command.
- ◆ `NSR_ENCRYPTION_PHRASES` specifies the encryption phrase to use during the restore of an AES encrypted NMO backup. The parameter must be set through the RMAN **send** command.

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**Note:** [“Proxy backup fails if NSR\\_ENCRYPTION\\_PHRASES set to multiple phrases in configuration file” on page 46](#) describes a known limitation. Refer to the PowerSnap documentation for any other limitations on AES encryption support for proxy backups. For example, PowerSnap supports AES encryption for all PowerSnap workflows, but does *not* support data that remains in a PowerSnap PiT backup.

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- ◆ `NSR_INCR_EXPIRATION` enables enforcement of policy uniformity to ensure that all the save sets of a scheduled backup cycle receive the same browse and retention policies. The parameter must be set through the NMO **nsrnmoadmin** command.
- ◆ `NSR_ORACLE-NLS_LANG` enables the use of the configuration wizard with internationalized NMO in a non-English user locale. The parameter must be set through the NMO **nsrnmoadmin** command.
- ◆ `NSR_TMPDIR` specifies the pathname of a temporary directory to use during save set bundling of scheduled NMO backups when the `/tmp` or `C:\Temp` directory does not exist on the Oracle Server. The parameter must be set through the NMO **nsrnmoadmin** command.

The NMO 4.5 software no longer supports the following parameters:

- ◆ `NSR_DPRINTF_FILE`
- ◆ `NSR_RMAN_OUTPUT` with Oracle10g.

---

**Note:** `NSR_RMAN_OUTPUT` is supported with Oracle9i *only*. With Oracle10g, use `NSR_RMAN_ARGUMENTS` instead of `NSR_RMAN_OUTPUT`.

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The NetWorker Module for Oracle Administration Guide provides more information on NMO parameters.

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## Windows 2008 and Windows Vista support

NMO 4.5 software provides new support of Windows 2008 and Windows Vista. Review the following sections for specific requirements on these platforms.

### Using the `nsrnmoadmin` command

The `nsrnmoadmin` command is used to create and modify the NWORA resource file (`nwora.res`).

Due to a limitation in NetWorker 7.4.1 and 7.4.2 (LGTsc15258), you must follow these steps to use the `nsrnmoadmin` command:

1. Manually change the permissions on the `NetWorker_install_dir\tmp` directory:
  - a. In Windows Explorer, right-click the `NetWorker_install_dir\tmp` directory, and select **Properties**.
  - b. On the **Security** tab, click **Advanced**.
  - c. On the **Owner** tab, click **Edit**.
  - d. Change the owner to the Administrators group (this is a temporary change).
  - e. Reopen the **Properties** window.
  - f. In the **Properties** window, add Administrators to the **Group or user names** table, and grant Read and Write permissions to the Administrators group.
  - g. Follow steps 1a to 1d to change the owner to SYSTEM.
2. Run the `nsrnmoadmin` command in the **Command Prompt** window as an administrator:
  - a. Click **Start**.
  - b. Right-click **Command Prompt**.
  - c. Select **Run as administrator**.
  - d. Run the `nsrnmoadmin` command in the open **Command Prompt** window.

### Editing the `nsrnmo.bat` file

Similar to any other Windows platform, only the administrator can edit the `nsrnmo.bat` file or any file located in the `NetWorker_install_dir\bin` directory.

You must follow these steps to edit the `nsrnmo.bat` file:

1. Click **Start**.
2. Right-click **Notepad** or any other text editor listed as a menu item.
3. Select **Run as administrator**.
4. Open the `NetWorker_install_dir\bin\nsrnmo.bat` file in the text editor.
5. Edit and save the `nsrnmo.bat` file.

## Scheduled backup reporting

After a successful scheduled NMO backup (including the backup of the NWORA resource file), the savegroup completion report correctly flags the scheduled backup result. However, the savegroup completion report also includes the following incorrect information about the backup of the NWORA resource file:

```
hostname: WARNING! The NWORA resource file 'save' process output error messages.
```

Ignore this warning message about the NWORA resource file backup.

Whenever you make changes to the NWORA resource file, back up the file *manually*.

---

## Oracle Data Guard support

NMO 4.5 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.

## Fixed problems

Table 2 on page 16 provides a list of the major bug fixes implemented in NMO release 4.5.

- ◆ When you contact Customer Service about an issue, use the issue number listed for Customer Service.
- ◆ When you search for an issue in Powerlink, use the issue number listed for Issue Tracker.

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

**Table 2 Fixed bugs in NMO release 4.5 (page 1 of 2)**

Issue number for Customer Service	Issue number for Issue Tracker	Product feature	Problem summary
LGTpa72875	72875nmo	Configuration wizard	The NMO configuration wizard produced an error if you attempted to use the wizard to configure a scheduled backup of an NMO client on HP-UX.
LGTpa75590	75590nmo	Configuration wizard	The NMO configuration wizard produced an error if you attempted to use the wizard to connect to an NMO client located on a Tru64 system.
LGTpa78911	78911nmo_c	Backup	During a scheduled backup, the NMO program <b>nsrnmstart</b> attempted to use a connection port that was not in the allowable range of connection ports defined in the NetWorker server for the system firewall.
LGTpa78988	78988nmo	Restore	A rollback restore of a proxy Oracle backup became suspended if the rollback restore failed due to an error.
LGTpa79783	79783nmo_c	Backup	The NMO program <b>nsrnmoinfo</b> attempted to use a connection port that was not in the allowable range of connection ports defined in the NetWorker server for the system firewall.
LGTpa79882	79882nmo	Backup, Restore	With Oracle10g, proxy restores of archived redo logs failed, and proxy backups of archived redo logs failed with certain RMAN scripts.
LGTpa80590	80590nmo_c	Backup	NMO backups became suspended on HP-UX if MC/ServiceGuard was installed.
LGTpa85515	85515nmo	Restore	A rollback restore of a proxy Oracle backup failed if the value specified for the RESTORE_TYPE_ORDER parameter was not all lowercase.
LGTpa86823	86823nmo_c	Backup	NMO backups failed with a licensing error on Linux AMD64/EM64T.
LGTpa88063	88063nmo	Restore	Regular and proxy restores of raw volumes on Windows both failed if the raw volumes were backed up through the FLIB (file-logical image backup) type of proxy backups.
LGTpa88245	88245nmo_c	Backup	NMO backup data was compressed if the NSR_CHECKSUM parameter was set to TRUE.

Table 2 Fixed bugs in NMO release 4.5 (page 2 of 2)

Issue number for Customer Service	Issue number for Issue Tracker	Product feature	Problem summary
LGTpa92104	92104nmo	Backup	When a proxy backup was deleted from the RMAN catalog, only the rolled over copy of the backup was deleted from the NetWorker media database. The corresponding point-in-time copy was <i>not</i> deleted from the media database. However, the NMO catalog did not show an entry for the proxy backup.
LGTsc06210	06210nmo_c	Backup, Restore	On all platforms where 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 an error.

## Environment and system requirements

Details on the versions of operating systems, Oracle Server, NetWorker, PowerSnap Module, and other NetWorker Module software that NMO release 4.5 supports are available from the following sources:

- ◆ *EMC Information Protection Software Compatibility Guide* on Powerlink
- ◆ *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Installation Guide*

NMO 4.5 supports specific Oracle9i and Oracle10g releases, but does *not* support Oracle 8.x releases. NMO 3.x, 4.0, and 4.1 support specific Oracle 8.x releases.

Details on the environment and system configurations required to operate the NMO 4.5 software are available in the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*.

### Oracle RAC and cluster software

NMO 4.5 supports the following Real Application Cluster (RAC) configurations:

- ◆ Oracle RAC configurations that use raw volumes or Cluster File Systems supported by Oracle.
- ◆ Oracle RAC configurations on Oracle OSD clusterware and other clusterware systems listed in the *EMC Information Protection Software Compatibility Guide* on Powerlink.

The Oracle documentation provides more information on the supported configurations with specific Cluster File Systems and Oracle OSD clusterware.

## Known problems and limitations

This section describes known problems and limitations that apply to the NMO release 4.5 software:

- ◆ [“Problems and limitations discovered in NMO release 4.5” on page 18](#)
- ◆ [“Problems and limitations discovered in releases other than NMO 4.5” on page 22](#)

## Problems and limitations discovered in NMO release 4.5

Table 3 on page 18 identifies problems and limitations discovered in NMO release 4.5 that continue to be applicable.

**Note:** Some limitations in NMO release 4.5 originated in other releases. Table 4 on page 22 identifies the limitations discovered in other releases.

**Table 3** Limitations discovered in NMO release 4.5 (page 1 of 4)

Number	Description	Operating system
<a href="#">"LGTpa91081, LGTpa91655, LGTpa93691" on page 27</a>	Due to the Oracle bug 5870989, if NMO attempts to restore an Oracle tablespace backup but the backup is inaccessible, the restore might become suspended or produce an error when it attempts to fail over to a previous backup of the tablespace.	Linux, UNIX, Microsoft Windows
<a href="#">"LGTpa93474" on page 27</a>	Monitoring of scheduled NMO backups on Solaris AMD64/EM64T might fail with NetWorker Management Console release 7.4.	Solaris
<a href="#">"LGTpa94301" on page 28</a>	Due to the Oracle bug 3627132, an NMO backup fails in a non-English locale when the character sets of the user locale and Oracle database are different and a non-ASCII filename or path is specified for the NSR_DEBUG_FILE parameter.	Linux, UNIX, Microsoft Windows
<a href="#">"LGTpa94842, LGTpa94846" on page 28</a>	If you create a copy of an Oracle datafile or archived log to the flash recovery area, and then perform a successful proxy backup of that copy in the recovery area, a rollback restore of the proxy backup fails to restore the Oracle datafile or archived log to its original location outside of the recovery area.	Linux, UNIX, and Microsoft Windows
<a href="#">"LGTpa95041" on page 29</a>	Due to a NetWorker 7.4 limitation on Windows, NMO does not support a localized date value for the NSR_SAVESET_BROWSE or NSR_SAVESET_RETENTION parameter.	Microsoft Windows
<a href="#">"LGTpa95951" on page 29</a>	Due to the Oracle bug 5887447, save set bundling and enforcement of policy uniformity both fail with Oracle9i.	Linux, UNIX, Microsoft Windows
<a href="#">"LGTsc01009" on page 29</a>	Duplicate database recovery fails if you use the NMO configuration wizard to generate an RMAN script to recover a duplicate database and then run the script with Oracle9i.	Linux, UNIX, Microsoft Windows
<a href="#">"LGTsc01178" on page 30</a>	A button used to change the date of the timestamp option on two of the NMO wizard screens has an incorrect default setting.	Solaris, Microsoft Windows
<a href="#">"LGTsc03137" on page 30</a>	Duplicate copyright information appears during the NMO 4.5 installation on Solaris.	Solaris
<a href="#">"LGTsc04633" on page 30</a>	Non-English characters are displayed incorrectly on Linux Intel in the following two cases: <ul style="list-style-type: none"> <li>If non-English characters are included in a pathname specified by the parameter NSR_RMAN_ARGUMENTS</li> <li>If non-English characters are written to a debug file specified by the parameter NSR_SB_DEBUG_FILE</li> </ul>	Linux
<a href="#">"LGTsc04963" on page 30</a>	Non-English characters might be displayed incorrectly in the localized version of the NMO configuration wizard on Solaris.	Solaris
<a href="#">"LGTsc04989" on page 31</a>	When you run the NMO 4.5 installer program on Windows Intel and select <b>Custom</b> in the <b>Setup Type</b> dialog box, the listed size of the Japanese language pack is incorrect.	Microsoft Windows

Table 3 Limitations discovered in NMO release 4.5 (page 2 of 4)

Number	Description	Operating system
"LGTsc05336" on page 31	When localized NMO is installed in a Japanese environment on AIX and MANPATH includes the pathname of the Japanese man pages, the <b>man</b> command does <i>not</i> display the NMO man pages in Japanese.	AIX
"LGTsc05579" on page 32	A warning message appears during the NMO installation on HP-UX Itanium.	HP-UX
"LGTsc05749" on page 32	When you select archived redo logs for restore in the NMO wizard, the <b>SCN</b> and <b>Log sequence</b> fields are disabled by default on the <b>Specify the Archived Redo Log List for Restore</b> screen.	Solaris, Microsoft Windows
"LGTsc05754" on page 32	When you select duplicate database recovery in the NMO wizard, and specify a nonexistent parameter file on the <b>Specify Duplicate Database Options (Part 1 of 3)</b> screen, the wizard displays an incorrect error message.	Solaris, Microsoft Windows
"LGTsc05760" on page 33	When you use the NMO wizard to generate an RMAN restore script, and specify the restore and relocation of a partial tablespace along with the restore of one or more other tablespaces, the wizard displays unnecessary information in the <b>Review and Create an RMAN Script</b> screen.	Solaris, Microsoft Windows
"LGTsc05874" on page 33	In the internationalized NMO wizard in a Japanese environment on Windows, the online help for labels on specific wizard screens contains text that is truncated.	Microsoft Windows
"LGTsc06110" on page 33	When a scheduled NMO backup is run in a Japanese environment and the output from RMAN or from a preprocessing or postprocessing script (used for the backup) is <i>not</i> UTF8 text, the Japanese NMO backup information displayed in the NetWorker Management Console might appear incorrectly as box or question mark characters.	Linux, UNIX, Microsoft Windows
"LGTsc06281" on page 34	The software distribution feature on a remote NetWorker 7.4 server does not support update and inventory procedures involving language packs.	Linux, UNIX, Microsoft Windows
"LGTsc06316" on page 34	With Oracle9i, when you use the NMO configuration wizard to create a point-in-time recovery script, the wizard does not accept a value in any of the <b>SCN</b> fields.	Solaris, Microsoft Windows
"LGTsc06357" on page 34	When you use the NMO configuration wizard to generate an RMAN recovery script that includes a log sequence number, and then run the script with Oracle9i, the recovery fails with a syntax error.	Linux, UNIX, Microsoft Windows
"LGTsc06388" on page 35	When save set bundling is enabled and a scheduled NMO backup is performed on UNIX or Linux with an Oracle database username that includes Japanese characters, the save set bundling operation fails.	Linux, UNIX
"LGTsc06451" on page 35	When NSR_SAVESET_BROWSE is set and NSR_SAVESET_RETENTION is <i>not</i> set during an NMO backup, the retention policy is changed to the value specified by NSR_SAVESET_BROWSE but the browse policy itself is <i>not</i> changed.	Linux, UNIX, Microsoft Windows
"LGTsc07287" on page 35	When the NLS_LANG value in the <b>nsrnm</b> script on UNIX or Linux contains a space and is <i>not</i> surrounded by double quotes, the scheduled NMO backup fails.	Linux, UNIX
"LGTsc07586" on page 36	When you select archived redo logs for restore in the NMO wizard, and then select the <b>Timestamp</b> radio button on the <b>Specify the Archived Redo Log List for Restore</b> screen, the restore script generated by the wizard contains a command to restore <i>all</i> archived logs, instead of the expected command to restore archived logs for a specified period of time.	Solaris, Microsoft Windows

Table 3 Limitations discovered in NMO release 4.5 (page 3 of 4)

Number	Description	Operating system
"LGTsc07711" on page 37	In a French environment on Windows, when a pre- or post-command file path contains a French special character (for example, an accent), and the pre- or post-command file path is included in an <b>nsrnmo.bat</b> file that is created with the NMO wizard, the following occurs during the scheduled NMO backup with the <b>nsrnmo.bat</b> file: <ul style="list-style-type: none"> <li>• If the backup attempts to invoke the pre-command, the pre-command fails.</li> <li>• If the backup attempts to invoke the post-command <i>only</i>, the backup itself succeeds but the post-command fails.</li> </ul>	Microsoft Windows
"LGTsc07791" on page 37	On Windows, when you install a non-Japanese NMO 4.5 language pack <i>first</i> and then install the Japanese language pack, the Japanese language pack is disabled. As a result, Japanese NMO localization is not supported.	Microsoft Windows
"LGTsc07792" on page 38	On Windows, when you uninstall the NMO 4.5 Japanese language pack according to the instructions in the NetWorker Module for Oracle Installation Guide, other language packs installed on the same computer become disabled. As a result, NMO localization is no longer supported for the other languages.	Microsoft Windows
"LGTsc07856" on page 38	In a non-English environment on Windows, when you run the installation program <b>setup.exe</b> in maintenance mode, the repair option does <i>not</i> function properly to repair missing or corrupted NMO files.	Microsoft Windows
"LGTsc08475" on page 38	In a Chinese, Japanese, or Korean environment on Solaris, the table rows and browse buttons are not sized properly on three of the NMO wizard screens.	Solaris
"LGTsc08880" on page 39	When NetWorker release 7.3.x or earlier is installed on the NMO client, an NMO backup fails and the messages in the NMO log file, <code>nmo.messages.raw</code> , are unreadable.	Linux, UNIX, Microsoft Windows
"LGTsc09096" on page 39	In a French environment, NMO backups translate the values TRUE and FALSE to the French values VRAI and FAUX, respectively. However, the NMO software should <i>not</i> translate the values TRUE and FALSE; these values should always appear in English <i>only</i> .	Linux, UNIX, Microsoft Windows
"LGTsc09556" on page 40	During an NMO backup, if a failure occurs in closing a save session with the NetWorker server, an incorrect error is reported as follows:  The NMO error message has been lost. Please set <code>NSR_DEBUG_FILE</code> and run NMO.	Linux, UNIX, Microsoft Windows
"LGTsc10426" on page 40	When you use the NMO 4.5 wizard to configure a backup of an HP-UX (PA-RISC) client that contains NetWorker 7.3.x or earlier client software, and you specify the client on the <b>Specify the NetWorker Client</b> screen, the wizard fails with an error.	HP-UX
"LGTsc10485" on page 40	During a scheduled NMO backup, with NetWorker 7.2.x client installed on the NMO host, the Currently Running section of the group details window in NetWorker Management Console 7.3.1 and later <i>cannot</i> report the running backup session. After a successful scheduled NMO backup, the NMO save set name is reported as the RMAN script pathname instead of <code>RMAN:backup_piece_name</code> :	Linux, UNIX, Microsoft Windows
"LGTsc10670" on page 40	With NetWorker server release 7.2.x, if you attempt to use the NMO 4.5 wizard to configure a backup, the wizard fails at the <b>Specify the Target Database Credentials</b> screen.	Solaris, Microsoft Windows
"LGTsc10884" on page 41	When NetWorker 7.3.x or earlier client is installed on a Solaris 10 sparse zone host, launching the NMO 4.5 wizard console on the sparse zone host is <i>not</i> supported.	Solaris

Table 3 Limitations discovered in NMO release 4.5 (page 4 of 4)

Number	Description	Operating system
<a href="#">"LGTsc10887" on page 41</a>	When you use the NMO wizard to configure a backup of a Solaris sparse zone host, and the wizard console is not on the sparse zone host, the wizard performs the configuration without any error messages, but the resulting configuration has the following problems: <ul style="list-style-type: none"> <li>In the Client resource, the Backup Command attribute is blank.</li> <li>The <b>nsrnmno</b> script is <i>not</i> created in the <code>/usr/sbin</code> directory on the Solaris sparse zone host.</li> </ul>	Solaris, Microsoft Windows
<a href="#">"LGTsc11968" on page 42</a>	On Windows, an NMO proxy restore that involves a PowerSnap Module might require twice as much disk space as expected when temporary files are not deleted during the restore.	Microsoft Windows
<a href="#">"LGTsc12226" on page 43</a>	If a scheduled NMO backup fails but a postcommand (postprocessing script) containing the NetWorker <b>save</b> command succeeds at the end of the scheduled backup, the failed backup savegroup is reported as successful. A failed savegroup should be reported as unsuccessful, whether or not the postcommand succeeds.	Linux, UNIX, Microsoft Windows
<a href="#">"LGTsc14744" on page 44</a>	If the NetWorker user group Users does <i>not</i> specify <code>*@*</code> , an NMO backup might fail with a NetWorker authentication error.	Linux, UNIX, Microsoft Windows
<a href="#">"LGTsc14858" on page 44</a>	NMO 4.5 backs up the NWORA resource file, <code>nwora.res</code> , at the end of each scheduled backup. If the <code>nwora.res</code> file backup fails, the main scheduled backup process, <b>nsrnmstart</b> , might core dump.	Linux, UNIX, Microsoft Windows
<a href="#">"LGTsc15383" on page 45</a>	An NMO backup might become suspended after printing a "JOB NAME" line in the debug file.	Linux, UNIX, Microsoft Windows
<a href="#">"LGTsc18427" on page 45</a>	NMO 4.5 supports proxy operations on English and Japanese operating systems only. Proxy operations on Japanese operating systems support only the platforms that the PowerSnap Modules support, with specific limitations as described in <a href="#">"Limitations exist in NMO 4.5 proxy operations on a Japanese operating system" on page 45</a> .	Linux, UNIX, Microsoft Windows
<a href="#">"LGTsc19273" on page 46</a>	The <b>nsroraclecat</b> binary is missing from the NMO 4.5 software on Windows AMD64/EM64T. Without the binary, the automatic catalog synchronization feature cannot be used for proxy backups.	Microsoft Windows
<a href="#">"LGTsc19856" on page 46</a>	During a proxy backup with PowerSnap 2.4 SP2, if the parameter <code>NSR_ENCRYPTION_PHRASES</code> is set to multiple encryption phrases and the parameter setting is in a user-defined configuration file (specified through the parameter <code>NSR_PROXY_PFILE</code> ), the proxy backup fails.	Linux, UNIX, Microsoft Windows
<a href="#">"LGTsc22741" on page 47</a>	With NetWorker server 7.4.3 or later, the group details window in NetWorker Management Console (NMC) might report incorrect details about the Oracle save sets in scheduled backups on a UNIX NMO client.	Linux, UNIX
<a href="#">"NW105093" on page 47</a>	When NetWorker client 7.5 or later is installed on a UNIX or Linux NMO host, the successful installation of NMO 4.5 on the host might produce the following warning: <code>/usr/sbin/nsr/nsrscsd: No such file or directory</code>	Linux, UNIX

## Problems and limitations discovered in releases other than NMO 4.5

Table 4 on page 22 identifies problems and limitations discovered in releases other than NMO 4.5 that continue to be applicable.

**Table 4** Limitations discovered in releases other than NMO 4.5 (page 1 of 2)

Number	Description	Operating system
"LGTpa53921" on page 23	If an Oracle RMAN session fails on Windows, any <b>nrsbctn.exe</b> processes that are still running must be terminated manually in the Task Manager.	Microsoft Windows
"LGTpa72448" on page 23	When you click <b>Finish</b> in the final window of the NMO configuration wizard, the wizard exits without displaying a confirmation message.	Solaris, Microsoft Windows
"LGTpa72726" on page 24	Due to an Oracle bug in Oracle10g, when two or more channels are allocated and <i>all</i> 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.	Linux, UNIX, Microsoft Windows
"LGTpa72924" on page 24	In the NMO configuration wizard with Oracle10g on Windows, if you specify an invalid username and password for the target database or catalog database, the wizard does <i>not</i> validate the database credentials.	Microsoft Windows
"LGTpa80288, LGTpa81336" on page 24	Proxy backups of archived redo logs fail to roll over to NetWorker backup media, such as tape.	Linux, UNIX, Microsoft Windows
"LGTpa80670" on page 25	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.	Linux, UNIX, Microsoft Windows
"LGTpa88636" on page 25	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.	Linux, UNIX, Microsoft Windows
"LGTpa89482, LGTpa89546" on page 26	If more than one RMAN channel is used for generated copies of an NMO backup, parameter values set with the <b>send</b> command or option are passed by RMAN to the first backup channel <i>only</i> . Due to this limitation, NMO does <i>not</i> support the use of RMAN backup copies commands during scheduled backups.	Linux, UNIX, Microsoft Windows
"LGTpa90977" on page 27	If the /lib directory is not linked to /usr/lib on a Solaris system, you <i>cannot</i> use the linking commands listed for Solaris in the NetWorker Module for Oracle Installation Guide.	Solaris
"LGTpa92641" on page 27	After a PIT proxy restore of a datafile, the timestamp is changed so that the restored datafile has a different timestamp.	Linux, UNIX, Microsoft Windows
"LGTsc05694" on page 32	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	Linux, UNIX, Microsoft Windows
"LGTsc07389" on page 36	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, <b>cmviewcl</b> .	HP-UX
"LGTsc11340" on page 41	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.	Linux, UNIX, Microsoft Windows

Table 4 Limitations discovered in releases other than NMO 4.5 (page 2 of 2)

Number	Description	Operating system
"LGTsc11491" on page 42	NetWorker file system backups and NetWorker Module backups might fail on Windows with NetWorker 7.1 to 7.4.1 and Oracle11g if the Oracle VSS Writer service is running and the Oracle database contains at least one datafile on a raw partition identified by a drive letter.	Microsoft Windows
"LGTsc11501" on page 42	The NWORA resource file ( <i>NetWorker_install_path\nsr\res\nwora.res</i> 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.	Microsoft Windows
"LGTsc11575" on page 42	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.	Linux, UNIX, Microsoft Windows
"LGTsc12549" on page 43	Each of the following NMO limitations is caused by an Oracle11gR1 bug: <ul style="list-style-type: none"> <li>"Automatic catalog synchronization fails with deletion of proxy archive log backup in Oracle11gR1 (Oracle bug ID 6658567)"</li> <li>"Backup channel failover fails with Oracle11gR1 on Windows (Oracle Bug ID 6733394)"</li> <li>"Failover and duplication fails with Oracle11gR1 in non-English environment (Oracle bug ID 6658479)"</li> <li>"Oracle11gR1 multisection backup with small section size might not be restorable"</li> <li>"Proxy backup of archived logs fails in specific scenario with Oracle11gR1 (Oracle bug ID 6656875)"</li> </ul>	Linux, UNIX, Microsoft Windows
"LGTsc15184" on page 44	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.	Linux, UNIX, Microsoft Windows
"LGTsc16852" on page 45	Either a conventional or PIT proxy restore might fail on HP-UX Itanium.	HP-UX Itanium
"LGTsc23577" on page 47	When using Oracle Managed Files (OMF), an Oracle proxy restore might fail due to an unexpected argument change with specific Oracle SBT calls.	Linux, UNIX, Microsoft Windows

## Backup process termination is 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 configuration wizard exits without a confirmation message

### LGTpa72448

When you click **Finish** in the final window of the NMO configuration 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 configuration wizard does not validate database credentials with Oracle10g on Windows

### LGTPa72924

In the NMO configuration wizard with Oracle10g on Windows, when you specify an invalid username and password for the target database or catalog database, the wizard does *not* validate the database credentials. The wizard should properly validate the username 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 username and password for a database in the NMO configuration wizard.

---

## Proxy backups of archived redo logs fail to roll over to backup media

### LGTPa80288, LGTPa81336

Proxy backups of archived redo logs fail to roll over to NetWorker backup media, such as tape.

As a workaround, perform a regular NetWorker backup of the archived log directory, or place the archived logs on a nonsnapshot storage volume.

---

## 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.

---

## 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 send command or option are not passed to more than the first channel

### 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 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 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 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 installation on Solaris, the library file **libnwor.a.so** 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 for Solaris in the NetWorker Module for Oracle Installation Guide. In this case, use the following commands instead to link the NMO library file:

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

---

## Restore failover might fail for Oracle tablespace backup

### LGTPa91081, LGTPa91655, LGTPa93691

Due to the Oracle bug 5870989, if NMO attempts to restore an Oracle tablespace backup but the backup is inaccessible (for example, because the backup encryption key is not available), the restore might become suspended or produce an error when it attempts to fail over to a previous backup of the tablespace. Restore failover to a previous backup of the tablespace should succeed.

As a workaround, ensure that the Oracle tablespace backup is accessible before attempting an NMO restore of the backup.

---

## 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.

---

## Monitoring of scheduled backups on Solaris AMD64/EM64T might fail with NetWorker Management Console

### LGTPa93474

Monitoring of scheduled NMO backups on Solaris AMD64/EM64T might fail with NetWorker Management Console release 7.4. Information about the scheduled NMO backups is *not* displayed in the Monitoring window (Groups and Sessions tabs) of the NetWorker Management Console. The following error is written to the NSR\_SB\_DEBUG\_FILE log file:

```
A connection to a jobs daemon could not be made. Falling back to
pre-7.3.2 functionality."
```

Information about the jobs daemon is not recorded in the NetWorker daemon.raw log file.

As a workaround, change the first line in the **nsrnm** script that is used for the scheduled backup on Solaris AMD64/EM64T. The first line in the script originally appears as follows:

```
#!/bin/sh
```

Change this line in the script to the following:

```
#!/bin/ksh
```

---

## Backup fails due to non-ASCII value of NSR\_DEBUG\_FILE in non-English locale

### LGTPa94301

Due to the Oracle bug 3627132, an NMO backup fails in a non-English locale when the following conditions exist:

- ◆ NMO internationalization is set up.
- ◆ The character sets of the user locale and Oracle database are different.
- ◆ A non-ASCII filename or path is specified for the NSR\_DEBUG\_FILE parameter.

As a result, NMO 4.5 does *not* support a non-ASCII filename or path in the NSR\_DEBUG\_FILE parameter setting when the character set of the user locale (set through the NLS\_LANG environment variable) differs from the character set of the Oracle database in a non-English locale.

---

## Rollback restore fails for proxy backup in flash recovery area

### LGTPa94842, LGTPa94846

If you create a copy of an Oracle datafile or archived log to the flash recovery area, and then perform a successful proxy backup of that copy in the recovery area, a rollback restore of the proxy backup fails to restore the Oracle datafile or archived log to its original location outside of the recovery area. The rollback restore produces the following RMAN error:

```
ORA-27037: unable to obtain file status
```

---

**Note:** The flash recovery area is a directory where RMAN places all of the disk type backups it creates (backups not created with NMO). NMO can back up the backups from the recovery area.

---

For example, you create a datafile copy and proxy backup as follows:

1. Use the **backup as copy datafile** command to create a datafile copy of the file /fs1/test1.dbf to the recovery area located at /fs2. The datafile copy is created as /fs2/datafile/o1\_mf\_test1\_2nnplt1z\_.dbf.
2. Use the **backup proxy recovery area** command to perform a proxy NMO backup of the datafile copy in the recovery area.

Then if you perform a rollback restore of this proxy backup, the restore occurs to /fs2. The restore produces the RMAN error because RMAN expects the backed-up file to be restored to /fs1, the original file location.

As a workaround, use the additional command **restore...from datafilecopy** to restore from the datafile copy in the recovery area to the original datafile location.

---

## Backup fails due to localized date value of NSR\_SAVESET\_BROWSE or NSR\_SAVESET\_RETENTION

### LGTpa95041

Due to a NetWorker 7.4 limitation on Windows, NMO does *not* support a localized date value for the NSR\_SAVESET\_BROWSE or NSR\_SAVESET\_RETENTION parameter.

For example, in a non-English Windows environment, if you set NSR\_SAVESET\_BROWSE or NSR\_SAVESET\_RETENTION to a date in Japanese format (such as 2008/06/28), the NMO backup fails with one of the following errors:

The NSR\_SAVESET\_BROWSE parameter was set to an invalid value.

The NSR\_SAVESET\_RETENTION parameter was set to an invalid value.

As a workaround on Windows, set the date value for NSR\_SAVESET\_BROWSE and NSR\_SAVESET\_RETENTION in the form *MM/DD/YY* or *MM/DD/YYYY*.

---

## Save set bundling and policy uniformity fail with Oracle9i

### LGTpa95951

Due to the Oracle bug 5887447, save set bundling and enforcement of policy uniformity both fail with Oracle9i.

- ◆ With Oracle9i, NMO 4.5 save set bundling operations fail to create the required bundles during scheduled backups.
- ◆ With Oracle9i, NMO 4.5 fails to ensure that the dependent save sets in the same scheduled backup cycle or same save set bundle receive the same browse and retention policies.

As a result, NMO 4.5 does *not* support save set bundling and policy uniformity with Oracle9i.

NMO 4.5 supports save set bundling and enforcement of policy uniformity with Oracle10g and later.

---

## Duplicate database recovery fails with wizard-generated script for Oracle9i

### LGTsc01009

If you use the NMO configuration wizard to generate an RMAN script to recover a duplicate database, and then run the script with Oracle9i, the duplicate database recovery fails with the following error:

```
RMAN-01008: the bad identifier was: tempfile
```

If you run the same wizard-generated script for duplicate database recovery with Oracle10g, the recovery succeeds.

As a workaround for Oracle9i, after using the configuration wizard to generate an RMAN script for duplicate database recovery, delete the **set newname for tempfile** command from the script before you run the script to recover the duplicate database.

---

## Button in NMO configuration wizard has incorrect default setting

### LGTsc01178

A button used to change the date of the timestamp option on two of the NMO wizard screens has an incorrect default setting. The screens appear after you select to generate an RMAN recovery script in the wizard:

- ◆ **Specify Duplicate Database Options (Part 3 of 3)** — This screen appears if you select duplicate database recovery in the wizard.
- ◆ **Specify RMAN Recovery Options** — This screen appears if you unselect duplicate database recovery in the wizard.

On both of these screens, the down arrow button is deactivated by default beside the date of the timestamp option. Both the down and up arrow buttons should be activated by default.

As a workaround, activate the down arrow button beside the timestamp date by clicking the up arrow button above it.

---

## Duplicate copyright information appears during NMO install on Solaris

### LGTsc03137

During the NMO 4.5 installation on Solaris, the following copyright information appears twice:

```
Copyright (c) 1990-2007, EMC Corporation
```

The duplicate information can be ignored. The duplication does not affect the success of the NMO installation.

---

## Non-English characters are displayed incorrectly in two cases on Linux Intel

### LGTsc04633

Non-English characters are displayed incorrectly on Linux Intel in the following two cases only:

- ◆ If non-English characters are included in a pathname specified by the parameter `NSR_RMAN_ARGUMENTS` in the `nsrnm` file, the characters are displayed incorrectly in the pathname of the file that is created during the scheduled backup.
- ◆ If non-English characters are written to a debug file specified by the parameter `NSR_SB_DEBUG_FILE` in the `nsrnm` file, the characters in the debug file are displayed incorrectly when you view the file contents after the scheduled backup.

---

## Non-English characters might be displayed incorrectly in localized NMO wizard on Solaris

### LGTsc04963

The NMO configuration wizard uses the Arial font by default. Non-English characters might be displayed incorrectly in the localized version of the NMO configuration wizard on Solaris.

As a workaround, improve the character display in the localized NMO wizard by changing the font type and size specified by the variables `NSR_WIZARD_FONT` and `NSR_WIZARD_FONT_SIZE`, respectively. Specify the font type and size in one of the following ways:

- ◆ To specify the font values used by all subsequent invocations of the NMO wizard, set the variables in the `/usr/bin/nwwiz` script.

For example, set the variables in the script for the Japanese NMO wizard as follows:

```
NSR_WIZARD_FONT=Mincho
NSR_WIZARD_FONT_SIZE=14
```

- ◆ To specify the font values used by a specific invocation of the wizard, set the variables in the shell where you will run the `nwwiz` program and then start the wizard.

For example, set the variable values in the shell and start the Japanese NMO wizard as follows:

```
NSR_WIZARD_FONT=Mincho; export NSR_WIZARD_FONT
NSR_WIZARD_FONT_SIZE=14; export NSR_WIZARD_FONT_SIZE
nwwiz -s server_name
```

---

## Incorrect size displayed for Japanese language pack in NMO installer on Windows Intel

### LGTsc04989

When you run the NMO 4.5 installer program on Windows Intel and select **Custom** in the **Setup Type** dialog box, the size of the Japanese language pack is displayed as 8 KB in the Feature Description section of the **Custom Setup** dialog box. The size of the Japanese language pack should be displayed as approximately 14 MB.

---

## NMO man pages are not displayed in Japanese on AIX

### LGTsc05336

When localized NMO is installed in a Japanese environment on AIX and `MANPATH` includes the pathname of the Japanese man pages, the `man` command does *not* display the NMO man pages in Japanese. The `man` command on AIX displays the NMO man pages in English *only*. For example, the `man nsrnmoadmin` command on AIX displays the `nsrnmoadmin` man page in English only.

As a workaround, use the command `nroff -man NMO_command` on AIX to display an NMO man page in Japanese. For example, use the command `nroff -man nsrnmo` on AIX to display the `nsrnmo` man page in Japanese.

---

## Warning appears during NMO installation on HP-UX Itanium

### LGTsc05579

During the NMO 4.5 installation on HP-UX Itanium, the following warning message appears:

```
The software "NMO,r=4.5,a=HP-UX_11.XX_64,v=" was successfully
marked, but it depends on the following software items which could
not be found in the source. However, these items may already be in
the target. This will be checked during the Analysis Phase:
NetWorker.nwr-cbin
```

This warning message can be ignored. The message does not affect the success of the NMO installation.

---

## 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.

---

## Fields for archived log restore in NMO configuration wizard have incorrect default settings

### LGTsc05749

When you select archived redo logs for restore in the NMO wizard, the **SCN** and **Log sequence** fields are disabled by default on the **Specify the Archived Redo Log List for Restore** screen. The **SCN** and **Log sequence** fields should be enabled by default.

As a workaround, to enable either the **SCN** or **Log sequence** field, clear the **End** checkbox for the **Timestamp** field.

---

## NMO configuration wizard displays incorrect error for nonexistent parameter file of duplicate database

### LGTsc05754

When you select duplicate database recovery in the NMO wizard, and specify a nonexistent parameter file on the **Specify Duplicate Database Options (Part 1 of 3)** screen, the wizard displays the following incorrect error message:

```
Duplicate Database Configuration file not found. Please enter a
valid configuration file name.
```

The error message should state "parameter file" instead of "configuration file".

---

## NMO configuration wizard displays unnecessary information in a specific restore scenario

### LGTsc05760

When you use the NMO wizard to generate an RMAN restore script, and specify the restore and relocation of a partial tablespace along with the restore of one or more other tablespaces, the wizard displays unnecessary information in the **Review and Create an RMAN Script** screen.

Ignore the unnecessary information displayed in the **Review and Create an RMAN Script** screen.

---

## Online help contains truncated text in internationalized NMO wizard on Windows

### LGTsc05874

In the internationalized NMO wizard in a Japanese environment on Windows, the online help for labels on the following wizard screens contains text that is truncated:

- ◆ **Specify the Type of Configuration**
  - ◆ **Specify the RMAN Script Location**
- (In the recovery wizard:)
- ◆ **Specify the RMAN Catalog Database Credentials**
  - ◆ **Select the Object Types**
  - ◆ **Select the Database Objects**
  - ◆ **Specify RMAN Recovery Options**
  - ◆ **Specify Relocation of Datafiles (Optional)**

(In the duplicate database workflow:)

- ◆ **Specify Duplicate Database and RMAN Catalog Credentials**
- ◆ **Specify Duplicate Database Options (Part 1 of 3)**
- ◆ **Specify Duplicate Database Options (Part 2 of 3)**

---

## Japanese NMO information might be displayed incorrectly in NetWorker Management Console

### LGTsc06110

When a scheduled NMO backup is run in a Japanese environment and the output from RMAN or from a preprocessing or postprocessing script (used for the backup) is *not* UTF8 text, the Japanese NMO backup information displayed in the NetWorker Management Console might appear incorrectly as box or question mark characters.

As a workaround, perform the following:

- ◆ Use the NSR\_RMAN\_OUTPUT parameter (or NSR\_RMAN\_ARGUMENTS with Oracle10g) to redirect the RMAN output to a specified log file.
- ◆ Specify "echo off" in any preprocessing and postprocessing scripts used for the scheduled NMO backup.

## Software distribution feature does not support update or inventory with language packs

### LGTsc06281

The software distribution feature on a remote NetWorker 7.4 server does not support update or inventory procedures involving language packs:

- ◆ When you use the software distribution feature on the remote server to update NMO release 4.2 to 4.5 on an NMO client running UNIX or Linux, any language packs included with the NMO 4.5 release are *not* installed during the update.

As a workaround, install any required language packs for the NMO 4.5 release separately on the local NMO client.

- ◆ The inventory process fails on clients that were updated to NMO 4.5, NMSQL 5.1, or NME 5.1 because the software distribution feature does not support the language packs including with the NetWorker Module packages.

## iNMO configuration wizard fails to accept an SCN value for an Oracle9i recovery script

### LGTsc06316

With Oracle9i, when you use the NMO configuration wizard to create a point-in-time recovery script, the wizard does not accept a value in any of the SCN fields. If you attempt to enter a value in an SCN field, the wizard displays the following error:

```
SCN must not be greater than database SCN
```

With Oracle9i, you cannot enter a value in the SCN field in the following wizard screens:

- ◆ **Specify Duplicate Database Options (Part 3 of 3)** — This screen appears if you select duplicate database recovery in the wizard.
- ◆ **Specify the Archived Redo Log List for Restore** — This screen appears if you unselect duplicate database recovery and select archived redo logs for recovery in the wizard.
- ◆ **Specify RMAN Recovery Options** — This screen appears if you unselect duplicate database recovery and select database recovery in the wizard.

As a workaround for Oracle9i, perform one of the following:

- ◆ Use the NMO wizard to create a recovery script. After you exit the wizard, manually modify the recovery script to include the required System Change Number.
- ◆ Manually create the point-in-time recovery script (*without* using the NMO wizard), and include the required System Change Number in the script.

## Recovery fails with Oracle9i when wizard-generated script includes log sequence number

### LGTsc06357

When you use the NMO configuration wizard to generate an RMAN recovery script that includes a log sequence number, and then run the script with Oracle9i, the recovery fails with a syntax error.

When you run the same wizard-generated script with Oracle10g, the recovery succeeds.

The log sequence number in the recovery script is generated when you enter a value in the **Log sequence** field in one of the following wizard screens:

- ◆ **Specify Duplicate Database Options (Part 3 of 3)** — This screen appears if you select duplicate database recovery in the wizard.
- ◆ **Specify RMAN Recovery Options** — This screen appears if you unselect duplicate database recovery and select database recovery in the wizard.

As a workaround for Oracle9i, manually edit the recovery script, and add **thread=1** after each instance of **sequence=n** (where *n* is an integer) in the script.

For example, a recovery script generated with the NMO wizard contains the following line:

```
restore ( database ) until sequence=210;
```

For the workaround, edit the script and change the line to the following:

```
restore ( database ) until sequence=210 thread=1;
```

---

## Save set bundling fails on UNIX and Linux due to Japanese characters in Oracle username

### LGTsc06388

When save set bundling is enabled and a scheduled NMO backup is performed on UNIX or Linux with an Oracle database username that includes Japanese characters, the backup itself succeeds but the save set bundling operation fails. The save set bundling failure generates the following error in the backup log file:

```
Could not connect to the Oracle database
```

As a workaround, do *not* include non-ASCII characters in the Oracle database username that is specified for a scheduled NMO backup when save set bundling is enabled.

---

## Setting NSR\_SAVESET\_BROWSE without NSR\_SAVESET\_RETENTION changes the retention policy

### LGTsc06451

When NSR\_SAVESET\_BROWSE is set and NSR\_SAVESET\_RETENTION is *not* set during an NMO backup, the retention policy is changed to the value specified by NSR\_SAVESET\_BROWSE but the browse policy itself is *not* changed.

As a workaround, if you set NSR\_SAVESET\_BROWSE during an NMO backup, ensure that NSR\_SAVESET\_RETENTION is also set. The backup then changes the retention policy to the expected value of NSR\_SAVESET\_RETENTION.

---

## Scheduled backup fails on UNIX and Linux due to space in NLS\_LANG value in nsrnmo script

### LGTsc07287

When the NLS\_LANG value in the **nsrnmo** script on UNIX or Linux contains a space and is *not* surrounded by double (") quotes, the scheduled NMO backup fails. For example, the scheduled backup fails if NLS\_LANG in the **nsrnmo** script is set to the following value that contains a space:

```
NLS_LANG=SIMPLIFIED CHINESE_CHINA.ZHS16GBK
```

As a workaround, before the scheduled backup starts, ensure that NLS\_LANG value in the **nsrnm** script is surrounded by double quotes if it contains a space:

- ◆ If you do *not* use the configuration wizard to configure the backup, *manually* set NLS\_LANG in the **nsrnm** script, and include double quotes around the value if it contains a space. For example:

```
NLS_LANG="SIMPLIFIED CHINESE_CHINA.ZHS16GBK"
```

- ◆ If you use the configuration wizard to configure the backup:

1. Before running the wizard, set the NSR\_ORACLE\_NLS\_LANG value with the **nsrnmoadmin** command, and include double quotes around the value if it contains a space. For example, type the following command:

```
nsrnmoadmin -r add NSR_ORACLE_NLS_LANG  
"SIMPLIFIED CHINESE_CHINA.ZHS16GBK"
```

Later when you run the wizard, it sets NLS\_LANG in the **nsrnm** script to the same value as NSR\_ORACLE\_NLS\_LANG, *excluding* any double quotes. For example, the wizard uses the value from the preceding **nsrnmoadmin** command to set NLS\_LANG without quotes in the **nsrnm** script:

```
NLS_LANG=SIMPLIFIED CHINESE_CHINA.ZHS16GBK
```

2. After running the wizard to configure the backup, edit the **nsrnm** script and *manually* add double quotes around the NLS\_LANG value if it contains a space. For example, add the following quotes:

```
NLS_LANG="SIMPLIFIED CHINESE_CHINA.ZHS16GBK"
```

The NetWorker Module for Oracle Administration Guide provides more information about setting the required parameters for a scheduled backup.

---

## 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**.

---

## Selection of timestamp button in wizard produces an incorrect script for archived log restore

### LGtsc07586

When you select archived redo logs for restore in the NMO wizard, and then select the **Timestamp** radio button on the **Specify the Archived Redo Log List for Restore** screen, the restore script generated by the wizard contains the following command to restore *all* archived logs, instead of the expected command to restore archived logs for a specified period of time:

```
restore archivelog ALL
```

As a workaround, to generate a script to restore archived logs for a specified time period, perform the following on the **Specify the Archived Redo Log List for Restore** screen:

1. Do *not* select the **Timestamp** radio button.
2. Specify the required time in the **Start** field for **Timestamp**.
3. Select the **End** checkbox for **Timestamp**.
4. Specify the required time in the **End** field for **Timestamp**.

## Pre- or post-command fails on Windows when file path contains French special character

### LGTsc07711

In a French environment on Windows, when a pre- or post-command file path contains a French special character (for example, an accent), and the pre- or post-command file path is included in an **nsrnmobat** file that is created with the NMO wizard, the following occurs during the scheduled NMO backup with the **nsrnmobat** file:

- ◆ If the backup attempts to invoke the pre-command, the pre-command fails with the following error:

```
file path cannot be found
```

When the pre-command fails, the backup itself fails.

- ◆ If the backup attempts to invoke the post-command *only*, the backup itself succeeds but the post-command fails with the following error:

```
file path cannot be found
```

As a workaround, perform *either* of the following:

- ◆ Create or edit the **nsrnmobat** file with Wordpad, and use the Save As Type option to save the file in "Text Document - MS-DOS" format. This method saves the **nsrnmobat** file in the required MS-DOS OEM format, which causes the file to run correctly during scheduled backups. If you reopen the file, always specify the MS-DOS format.
- ◆ Edit the **nsrnmobat** file with any Windows editor, and add the following line to the top of the file:

```
chcp 1252
```

## Install of non-Japanese language pack disables subsequent Japanese language pack install on Windows

### LGTsc07791

On Windows, when you install a non-Japanese NMO 4.5 language pack *first* and then install the Japanese language pack, the Japanese language pack is disabled. As a result, Japanese NMO localization is not supported.

Do *not* install any non-Japanese language packs on Windows before installing the Japanese language pack.

To enable Japanese NMO localization, the Japanese language pack must be installed *first*, before any other language packs. Follow the Windows install instructions in the NetWorker Module for Oracle Installation Guide.

---

## Uninstall of Japanese language pack disables other language packs on Windows

### **LGTsc07792**

On Windows, when you uninstall the NMO 4.5 Japanese language pack according to the instructions in the NetWorker Module for Oracle Installation Guide, other language packs installed on the same computer become disabled. As a result, NMO localization is no longer supported for the other languages.

As a workaround, after uninstalling the Japanese language pack on Windows, re-install any other required language packs on the same computer according to the Windows install instructions in the NetWorker Module for Oracle Installation Guide.

---

## Windows installation repair is not supported in non-English environment

### **LGTsc07856**

In a non-English environment on Windows, when you run the installation program **setup.exe** in maintenance mode, the repair option does *not* function properly to repair missing or corrupted NMO files. The NetWorker Module for Oracle Installation Guide provides information on running the installation program in maintenance mode.

As a workaround, to repair missing or corrupted NMO files in a non-English environment on Windows, perform the following steps according to the NetWorker Module for Oracle Installation Guide:

1. Uninstall the NMO software and language packs.
2. Re-install the NMO software and language packs in the correct order.

---

## Screen elements are not sized properly in NMO wizard in Asian environment on Solaris

### **LGTsc08475**

In a Chinese, Japanese, or Korean environment on Solaris, the table rows and browse buttons are not sized properly on three of the NMO wizard screens. The screens appear after you select to generate an RMAN recovery script in the wizard:

- ◆ **Specify Duplicate Database Options (Part 2 of 3)** — This screen appears if you select duplicate database recovery (to either a local or remote host) in the wizard.
- ◆ **Specify Relocation of Datafiles (Optional)** — This screen appears if you select recovery of the database, tablespaces, and datafiles in the wizard.

On these screens, the vertical size of table rows and browse buttons appears too small, and the corresponding text is not clear.

As a workaround, use the mouse to drag and resize each row and button to improve the text display.

## NMO backup fails and log messages are unreadable with NetWorker 7.3.x or earlier client

### LGtsc08880

When NetWorker release 7.3.x or earlier is installed on the NMO client, an NMO backup fails and the messages in the NMO log file, `nmo.messages.raw`, are unreadable. The failed backup generates the following error:

The version of the NetWorker client application that is installed is not supported. Please see NMO documentation for more details.

NMO generates messages in the `nmo.messages.raw` file in a binary form that is readable by the `nsr_render_log` program, which is only provided with NetWorker 7.4 and later software.

As a workaround, apply the patch binary, `nsr_render_log(.exe)`, from the following site:

`ftp://ftp.legato.com/pub/NetWorker/Updates/render_logs/platform`

where *platform* is the folder for the operating system of the NMO client.

The Support Solution esg92218, available through the Powerlink website at <http://Powerlink.EMC.com>, provides details on this patch and where to install it on the NMO client.



### IMPORTANT

**Before you upgrade to NetWorker release 7.4 or later on a Windows NMO client where you have applied this LGtsc08880 patch, manually delete the `nsr_render_log.exe` file in the NetWorker bin directory.**

## TRUE and FALSE are improperly translated in a French environment

### LGtsc09096

In a French environment, NMO backups translate the values TRUE and FALSE to the French values VRAI and FAUX, respectively. However, the NMO software should *not* translate the values TRUE and FALSE; these values should always appear in English *only*.

The NMO software translates TRUE and FALSE to French in the following cases:

- ◆ During a manual backup, the French values appear in onscreen error messages.
- ◆ During a manual or scheduled backup, the French values appear in information that is read from the `nmo.messages.raw` file.

**Note:** The `nmo.messages.raw` file replaces the `nmo.messages` file used in previous NMO releases. NMO generates messages in the `nmo.messages.raw` file in a language-independent binary form, readable by the `nsr_render_log` program, as described in the NetWorker Administration Guide.

---

## Incorrect error is reported when an NMO backup fails in closing a save session

### LGTsc09556

During an NMO backup, if a failure occurs in closing a save session with the NetWorker server, an incorrect error is reported as follows:

```
The NMO error message has been lost. Please set NSR_DEBUG_FILE and run NMO.
```

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

---

## NMO wizard fails with NetWorker 7.3.x or earlier client on HP-UX

### LGTsc10426

When you use the NMO 4.5 wizard to configure a backup of an HP-UX (PA-RISC) client that contains NetWorker 7.3.x or earlier client software, and you specify the client on the **Specify the NetWorker Client** screen, the wizard fails with the following error:

```
Error loading library /opt/networker/lib/libnmodc32.sl or locating function nmhc_init. Verify that the library is installed.
```

As a workaround, configure an NMO 4.5 backup manually on an HP-UX (PA-RISC) client that contains NetWorker 7.3.x or earlier client software.

---

## NMC group details report is not supported for scheduled backups with NetWorker client 7.2.x

### LGTsc10485

During a scheduled NMO backup, with NetWorker 7.2.x client installed on the NMO host, the Currently Running section of the group details window in NetWorker Management Console (NMC) 7.3.1 and later *cannot* report the running backup session. (The group details window is accessible through the Groups tab of the NMC Monitoring window.)

After a successful scheduled NMO backup, both of the following report the NMO save set name as the RMAN script pathname instead of `RMAN:backup_piece_name`:

- ◆ Completed Successfully section of the NMC group details window
- ◆ Output of the `mminfo` command run on the operating system command line

With NetWorker client 7.2.x on an NMO 4.5 host, the NMC group details report is *not* supported for scheduled NMO backups.

---

## NMO wizard fails with NetWorker server 7.2.x

### LGTsc10670

With NetWorker server release 7.2.x, if you use the NMO 4.5 wizard to configure a backup, the wizard fails at the **Specify the Target Database Credentials** screen with the following error:

```
invalid username/password; logon denied
```

As a workaround, configure an NMO 4.5 backup manually when the NetWorker server release is 7.2.x.

---

## NMO wizard fails with NetWorker 7.3.x or earlier client on Solaris sparse zone host

### LGTsc10884

When NetWorker 7.3.x or earlier client is installed on a Solaris 10 sparse zone host, launching the NMO 4.5 wizard console on the sparse zone host is *not* supported.

As a workaround, launch the NMO 4.5 wizard console on a machine that is not running in a Solaris sparse zone.

---

## NMO wizard fails to properly configure a backup of Solaris sparse zone host

### LGTsc10887

When you use the NMO wizard to configure a backup of a Solaris sparse zone host, and the wizard console is not on the sparse zone host, the wizard performs the configuration without any error messages, but the resulting configuration has the following problems:

- ◆ In the Client resource, the Backup Command attribute is blank.
- ◆ The **nsrnm** script is *not* created in the `/usr/sbin` directory on the Solaris sparse zone host.

As a workaround:

1. Manually create the required **nsrnm** script in the `/usr/sbin` directory on the Solaris global zone host.
2. Specify the name of the **nsrnm** script in the Backup Command attribute of the Client resource.

The NetWorker Module for Oracle Administration Guide provides more information on the Client resource and **nsrnm** script requirements for scheduled NMO backups.

---

## 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 7.4.1 (and earlier) 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 release on the Oracle11g host is prior to release 7.4.2.
- ◆ 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. On Microsoft Windows with Oracle11g and a NetWorker client release prior to 7.4.2, when the Oracle VSS Writer service is running, the resource file backup fails at the end of a scheduled NMO backup.

As a workaround, stop the corresponding Windows service. Refer to Oracle documentation for details on how to stop the Oracle VSS Writer.

---

## 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.

---

## Proxy restore on Windows might require twice the expected disk space

### LGTsc11968

On Windows, an NMO proxy restore that involves a PowerSnap Module might require twice as much disk space as expected when temporary files are not deleted during the restore.

## Successful postcommand causes a failed savegroup to be reported as successful

### LGTsc12226

If a scheduled NMO backup fails but a postcommand (postprocessing script) containing the NetWorker **save** command succeeds at the end of the scheduled backup, the failed backup savegroup is reported as successful. A failed savegroup should be reported as unsuccessful, whether or not the postcommand succeeds.

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

## 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 archive log backup in Oracle11gR1 (Oracle bug ID 6658567)

If automatic catalog synchronization is enabled and you delete a proxy archive log 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 archive log 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] [] [] [] []
```

---

### **NMO backup might fail with a NetWorker authentication error**

#### **LGTsc14744**

If the NetWorker user group Users does *not* specify `*@*`, an NMO backup might fail with the following authentication error:

```
SBT-21619 date time lnm_index_cfx_pconn: The NW authentication for client 'client_name' was refused by server 'server_name' because 'Permission denied, user '' on 'hostname' requires 'Recover local data' privilege for recovery or 'Backup local data' privilege for backup.
```

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

---

### **Failure of the NWORA resource file backup might cause a core dump**

#### **LGTsc14858**

NMO 4.5 backs up the NWORA resource file, `nwora.res`, at the end of each scheduled backup. If the `nwora.res` file backup fails, the main scheduled backup process, `nsrnmstart`, might core dump.

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.

---

## NMO backup might become suspended with a “JOB NAME” line in the debug file

### LG Tsc15383

An NMO backup might become suspended after printing the following lines in the debug file:

```
(pid = process_id) (date = date time) lnm_nw_sess_create_job:
Entering.
(pid = process_id) (date = date time) THE JOB NAME IS NetWorker
Module for Oracle
```

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

---

## Proxy restore might fail on HP-UX Itanium

### LG Tsc16852

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.

---

## Limitations exist in NMO 4.5 proxy operations on a Japanese operating system

### LG Tsc18427

NMO 4.5 supports proxy operations on English and Japanese operating systems only. Proxy operations on Japanese operating systems support only the platforms that the PowerSnap Modules support.

With Oracle on a Japanese operating system, NMO 4.5 proxy operations have the following limitations:

- ◆ Proxy operations do *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.
- ◆ Proxy operations do *not* support Japanese characters in the following:
  - 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.
- 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.

---

### The nsroraclecat binary is missing on Windows AMD64/EM64T

#### LGTsc19273

The **nsroraclecat** binary is missing from the NMO 4.5 software on Windows AMD64/EM64T. Without the binary, the automatic catalog synchronization feature cannot be used for proxy backups.

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

---

### Proxy backup fails if NSR\_ENCRYPTION\_PHRASES set to multiple phrases in configuration file

#### LGTsc19856

During a proxy backup with PowerSnap 2.4 SP2, if the parameter **NSR\_ENCRYPTION\_PHRASES** is set to multiple encryption phrases and the parameter setting is in a user-defined configuration file (specified through the parameter **NSR\_PROXY\_PFILE**), the proxy backup fails with the following error:

```
ORA-27203: skgfpqb: sbtpcquerybackup returned error
ORA-19511: Error received from media manager layer, error text:
SBT error 7501 in function sbtpcquerybackup - sbterror did
not return error message
```

To prevent this issue during a proxy backup with PowerSnap 2.4 SP2, set the parameter `NSR_ENCRYPTION_PHRASES` to multiple encryption phrases with the `send` command in the RMAN script *only*.

---

### NMC group details for scheduled backups might be incorrect with NetWorker server 7.4.3 and later

#### LGTsc22741

With NetWorker server 7.4.3 or later, the group details window in NetWorker Management Console (NMC) might report incorrect details about the Oracle save sets in scheduled backups on a UNIX NMO client. (The group details window is accessible through the Groups tab of the NMC Monitoring window.)

This issue is caused by broken reporting between the `nsrnmstart` program and the NetWorker server when the standard shell (`/bin/sh`) closes and makes use of file descriptor 19 for internal purposes on certain UNIX platforms.

As a workaround, edit the `nsrnm` shell script on the UNIX client, and change `/bin/sh` in the script to the appropriate value:

- ◆ `/bin/bash`, if it exists on the UNIX client
- ◆ `/bin/ksh`, if `/bin/bash` does *not* exist on the UNIX client

---

### 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.

---

### NMO installation might produce a warning on UNIX or Linux with NetWorker 7.5 or later

#### NW105093

When NetWorker client 7.5 or later is installed on a UNIX or Linux NMO host, the successful installation of NMO 4.5 on the host might produce the following warning:

```
/usr/sbin/nsr/nsrscsd: No such file or directory
```

This warning message can be ignored. The warning does *not* affect the success of the NMO installation. The message is due to the fact that the NMO 4.5 wizard is *not* supported with NetWorker client 7.5 or later.

## Technical notes

Review the following sections for important notes and tips on the use of the NMO release 4.5 software.

### 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 NMO configuration wizard

If you use the NMO 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. The appropriate Oracle documentation provides more information.

---

## Proxy backups and restores

NMO release 4.5 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. The appropriate NetWorker PowerSnap Module documentation provides details on the supported platforms.

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 (unscheduled) proxy backup, you receive an error message.

---

To enable proxy backups:

- ◆ 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 4.5 and the PowerSnap Modules do *not* support proxy backups and restores of archived redo logs with Oracle10g and later. [“Proxy backups of archived redo logs fail to roll over to backup media” on page 24](#) provides details.

The NetWorker Module for Oracle Administration Guide provides more information on proxy backups and restores.

## Discrepancy between NetWorker resource and RMAN backup configurations for proxy backups

As mentioned in the NetWorker Module for Oracle Administration 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 nonexistent 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 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.

The NetWorker Module for Oracle Administration Guide provides more information on automatic catalog synchronization.

## Catalog synchronization after 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. The NetWorker Module for Oracle Administration Guide provides more information on this parameter resource.

To reestablish catalog synchronization for the relabeled volume, use the instructions in the appropriate section, depending on the `NSR_REMOVE_ON_FAILURE` setting:

- ◆ [“If `NSR\_REMOVE\_ON\_FAILURE` is set to `TRUE`” on page 51](#)
- ◆ [“If `NSR\_REMOVE\_ON\_FAILURE` is set to `FALSE`” on page 51](#)

#### 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.

The appropriate Oracle documentation provides more information on the RMAN **crosscheck** command.

#### 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.

The NetWorker Module for Oracle Administration Guide provides more information on the **nsrnmoadmin** command.

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.

The appropriate Oracle documentation provides more information on the RMAN **crosscheck** command.

---

### 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. The NetWorker Module for Oracle Administration Guide provides more information.

---

### 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 CLARiiON
- ◆ 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 4.5.

---

### 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 NetWorker Module for Oracle release 4.5 documentation set:
  - Administration guide
  - Installation guide
  - Release notes
  - Command reference guide
- ◆ The NetWorker documentation set:
  - Administration guide
  - Installation guide
  - Release notes
  - Command reference guide
  - Disaster recovery guide
- ◆ Other EMC documentation:
  - NetWorker PowerSnap Module documentation
  - UNIX man pages

The guides are available at <http://Powerlink.EMC.com>, **Support > Technical Documentation and Advisories**.

---

**Note:** The most up-to-date product issues for NMO release 4.5 are detailed online in the EMC Issue Tracker, available on the Powerlink website: <http://Powerlink.EMC.com>

The following additional documentation may be useful:

- ◆ Oracle Server documentation
- ◆ Oracle database backup and recovery documentation

## Documentation errata

The following sections describe documentation corrections or additions for NMO release 4.5.

### 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.

### Information on I18N support with proxy operations must be changed

In the section “NMO I18N features” on page 38 of the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*, the following Note must be changed:

**Note:** NMO I18N is *not* supported with proxy Oracle backups and restores. NMO *cannot* perform proxy backups of tablespaces or files with names that contain non-ASCII characters.

Change the Note to the following:

**Note:** With proxy Oracle operations, limited NMO I18N support is provided on a Japanese operating system only, as described in the section “[Limitations exist in NMO 4.5 proxy operations on a Japanese operating system](#)” in the NMO 4.5 Release Notes.

### Information on setting up I18N support must be changed

In the section “How to set up NMO I18N” on page 40 of the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*, change steps 4a and 4b to the following:

- a. On UNIX *only*, log in as the root user, then shut down the NetWorker services, set the environment variable LC\_ALL to the appropriate locale, and restart the NetWorker services.

For example, in a Japanese locale on UNIX, set LC\_ALL as follows:

```
# nsr_shutdown
# export LC_ALL=JA_jp.eucJP
# /etc/init.d/networker start
```

- b. Set the environment variable NLS\_LANG to the character set supported by the operating system and Oracle database, and then restart the Oracle Server.

The Oracle Globalization Support documentation provides details on the NLS\_LANG variable.

For example, to ensure that Oracle properly returns Japanese text in a Japanese locale, set NLS\_LANG as follows:

```
export NLS_LANG=JAPANESE_JAPAN.JA16EUC
% lsnrctl stop
% lsnrctl start
% sqlplus /nolog
SQL*Plus: Release 10.1.0.2.0 - Production on Thu Apr 26 15:12:03
```

```

Copyright (c) 1982, 2004, Oracle. All rights reserved.
SQL> connect sys/oracle as sysdba;
SQL> shutdown;
SQL> startup;
SQL> quit;

```

### Information on the crosscheck and delete commands must be clarified

In the section “Retention policies” at the top of page 51 in the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration 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;

### PRECMD and POSTCMD settings in the nsrnm script must be clarified

The settings of the PRECMD and POSTCMD parameters in the `nsrnm` script must be clarified in Chapter 4 of the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*.

- ◆ In the section “PRECMD” on page 70, 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 71, 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`.

## Parameter settings must be clarified for save set bundling and policy uniformity

The parameter settings required for save set bundling and policy uniformity must be clarified in the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*.

In the section “How to enable and disable save set bundling” on page 81, add the following bullet to the bulleted list of requirements to enable save set bundling:

- ◆ If the connection strings are included as a command file in the RMAN script (for example, *@connection\_file*), ensure that the parameter `NSR_ORACLE_CONNECT_FILE` is set in the NWORA resource file (`nwora.res`) and the parameter `ORACLE_SID` is set in the `nsrnm` script.

These parameter settings are required because NMO *cannot* retrieve the connection strings from the RMAN script when the connection strings are included as a command file in the script. In this case, NMO must retrieve the connection strings from the connection file specified by the parameter in the NWORA resource file.

In the section “How to enable and disable browse and retention policy uniformity” on page 83, add the following bullet to the bulleted list of requirements to enable policy uniformity:

- ◆ If the connection strings are included as a command file in the RMAN script (for example, *@connection\_file*), ensure that the parameter `NSR_ORACLE_CONNECT_FILE` is set in the NWORA resource file (`nwora.res`) and the parameter `ORACLE_SID` is set in the `nsrnm` script.

These parameter settings are required because NMO *cannot* retrieve the connection strings from the RMAN script when the connection strings are included as a command file in the script. In this case, NMO must retrieve the connection strings from the connection file specified by the parameter in the NWORA resource file.

## Information for RAC systems must be changed

In Chapter 6 of the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*, change the following information for RAC systems:

- ◆ In the section “NetWorker software configuration” on page 103, change step 1 to the following:
  1. Ensure that the system is set up properly:
    - In the NetWorker Client resource of each host, the Save Set attribute is set to:  
`RMAN:RMAN_script_pathname`
    - In the directory that contains the `savefs` program file, there is an empty file named `pathownerignore`. Create the `pathownerignore` file if it does not exist.  
  
The NetWorker Installation Guide provides more information on the default directory for the `savefs` program.
- ◆ In the section “Roadmap for backup/restore configuration in a RAC system” on page 105, add step 8:
  8. To set up a local storage node for each RAC node involved in a backup, follow the instructions in [“Setting up RAC nodes as NetWorker storage nodes” on page 106](#).

- ◆ Insert the following two new sections before the section “Connect-time failover” on page 106:

### Setting up RAC nodes to back up to a local storage node

To set up RAC nodes to back up to a local storage node, perform the following:

1. Ensure that the NetWorker storage node software is installed on each RAC node to be used for the NMO backup.
2. On the NetWorker server, create a NetWorker Storage Node resource for each RAC node to be used for the NMO backup. The NetWorker Administration Guide provides details on storage node configuration.
3. Create a NetWorker Device resource for the device on each RAC node to be used for the NMO backup. The NetWorker Administration Guide provides details on device resource configuration.
4. Ensure that Groups and the selection criteria (such as Clients) of the media pool used for the devices match the settings in the NMO backup configuration.
5. Label and mount a NetWorker volume on each storage node.
6. Select one of the RAC nodes to store the NetWorker indexes for the NMO backup and to initiate the backup.
7. For the RAC node that will initiate the NMO backup, create a NetWorker Client resource with the attribute settings required for the backup, as described in “[NetWorker software configuration](#)” on page 103.
  - The Remote Access attribute must include the hostnames of all the *other* RAC nodes.
  - The Storage Nodes attribute must contain `curphyhost`, followed by `nsrserverhost`. The Storage Nodes attribute must be set to the following:
 

```
curphyhost
nsrserverhost
```
8. For each of the other RAC nodes that will *not* initiate the NMO backup, create a basic Client resource. (Settings in these other Client resources do *not* affect the NMO backup.)
9. On the RAC node that will initiate the NMO backup, create the required `nsrnmo` script and RMAN backup script. The RMAN script must include the `NSR_CLIENT` setting, as described in “[NSR\\_CLIENT](#)” on page 102.

The following example shows how to set up three RAC nodes as storage nodes for NMO backups.

#### Example 21 Setting up RAC nodes as storage nodes

A RAC system contains three nodes named A, B, and C. Each node has a Linux operating system, and an attached tape drive to be used for NMO backups. NetWorker storage node software is installed on each node.

In the NMC interface, a Storage Node resource is created for each node by right-clicking **Storage Nodes** in the **Devices** pane and selecting **New**.

After the Storage Node resources are created, a Device resource is created for each tape drive. Each Device resource is created in NMC by right-clicking **Devices** in the **Devices** pane and selecting **New**. Since the tape devices are attached to storage nodes, the device names must have the format `rd=host_name:device_name`. For example:

- Tape device `/dev/rmt/tape0` is attached to node A. In the Device resource, the device name is `rd=A:/dev/rmt/tape0`.
- Tape device `/dev/rmt/tape3` is attached to node B. In the Device resource, the device name is `rd=B:/dev/rmt/tape3`.

In the tape device on each node, a volume is labeled and mounted. All of the volumes are assigned to the Default pool in this example.

Node A is selected to store the index entries for the NMO backups and initiate the backups. (The choice of node A was arbitrary; node B or node C could have been chosen instead.) In all the RMAN backup and restores scripts, `NSR_CLIENT` must be set to the hostname of node A.

In the NetWorker Client resource for node A:

- The Remote Access attribute is set to the hostnames of nodes B and C.
- The Storage Nodes attribute is set to:
 

```
curphyhost
nsrserverhost
```
- The remaining attributes are set, as required. For example:
  - The Backup Command attribute is set to the `nsrnm` script name.
  - The Group attribute is set to the backup group name.
  - The Save Set attribute is set to the RMAN script pathname.

The following RMAN script uses all three nodes to perform the backup. Each node backs up data to its local tape drive.

```
connect target sys/oracle@connect_identifier;
run {
  allocate channel t1 type 'SBT_TAPE'
  connect 'sys/oracle@Net_service_name_of_instance_A';
  allocate channel t2 type 'SBT_TAPE'
  connect 'sys/oracle@Net_service_name_of_instance_B';
  allocate channel t3 type 'SBT_TAPE'
  connect 'sys/oracle@Net_service_name_of_instance_C';
  send channel t1 'NSR_ENV=(NSR_CLIENT=A)';
  send channel t2 'NSR_ENV=(NSR_CLIENT=A)';
  send channel t3 'NSR_ENV=(NSR_CLIENT=A)';
  backup database;
  release channel t1;
  release channel t2;
  release channel t3;
}
```

To enable restores, `NSR_CLIENT` must be set to the hostname of node A. For example, the following RMAN script restores the database. The script can be run on any host.

```
connect target sys/oracle@connect_identifier;
run {
  allocate channel t1 type 'SBT_TAPE';
  allocate channel t2 type 'SBT_TAPE';
  send channel t1 'NSR_ENV=(NSR_CLIENT=A)';
  send channel t2 'NSR_ENV=(NSR_CLIENT=A)';
```

```

restore database;
release channel t1;
release channel t2;
}

```

- ◆ In the section “Backup failover” on page 107, add the following information:  
On a RAC system, traditional cluster failover is *not* available. If an instance or node fails in RAC, another node detects the failure and recovery occurs automatically. As a result, if a system failure occurs on the RAC node used to initiate an NMO backup, the backup fails. In this case, manual intervention is required to configure and restart the backup on a different RAC node that is available:
  1. On the available RAC node, ensure that the following software is installed:
    - NetWorker client
    - NetWorker storage node (optional)
    - NMO
  2. Configure the Client resource for the available RAC node.
  3. Replace the original Client resource with the new Client resource from [step 2](#) for the NMO backup.

### Information on deferred live backup must be changed

In the section “Deferred live backup” on page 120 of the *NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*, the second bullet in the first paragraph is incorrect. A deferred live backup *cannot* be run manually by using the `nsrsnapadmin` command.

Change the first paragraph on page 120 to the following:

A deferred live backup runs automatically as part of a scheduled backup, as specified by the Backup Snapshots attribute of the Snapshot Policy resource. The NetWorker PowerSnap Module documentation provides more information.

### 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 128 of the *NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration 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
```

### Information on PowerSnap parameter settings must be changed

In Example 24, “Parameter settings,” on page 129 of the *NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*, change the first bullet (under Notes) to the following:

- ◆ A parameter setting in the configuration file takes *precedence* over a parameter setting in the **send** command.  
If the same PowerSnap parameter is set to different values in the configuration file and **send** command, the value in the configuration file is the one used for the proxy operation.

### 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 4.5, Multiplatform Version, Administration Guide*:

- ◆ Add the following paragraph to the end of the section “With a group configured for proxy backups” on page 132:  
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 134, 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.

**Note:** The information in the section “NWORA resource file backup” on page 134 also applies to regular scheduled backups with NMO 4.5, *not* just to proxy 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 139 of the *NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration 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 step is required prior to any NMO 4.5 backups

The *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide* should be updated to state that you must use the **nsrnmoadmin** command to create the NWORA resource file *before* you can perform any type of NMO backups.

- ◆ If you have already used the **nsrnmoadmin** command at least once (for example, during setup of internationalization or configuration of save set bundling or proxy Oracle operations), the NWORA resource file already exists. In this case, use the **nsrnmoadmin** command to review and configure the contents of the resource file, as required for your environment.
- ◆ If you will *not* be performing operations that involve internationalization, save set bundling, or proxy Oracle backups, and you have *not* used the **nsrnmoadmin** command at least once, log in as either the root user on UNIX or as a user with Administrator privilege on Windows, and type the following command to create a default NWORA resource file:

```
nsrnmoadmin -r list
```

After you type this command, you can perform a manual or scheduled NMO backup.

The NMO 4.5 administration guide provides more information on the NWORA resource file and how to use the **nsrnmoadmin** command.

### Additional information is required in the Parameters appendix

Add the following information to Table 7 in Appendix A of the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*:

- ◆ Add the following definition of the NSR\_MMDB\_RETRY\_TIME parameter:

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>

- ◆ For NSR\_SAVESET\_BROWSE, add the following to the start of the Note in the Description column:  
NSR\_SAVESET\_BROWSE must be set through the RMAN **send** command *only*.
- ◆ For NSR\_SAVESET\_RETENTION, add the following to the start of the Note in the Description column:  
NSR\_SAVESET\_RETENTION must be set through the RMAN **send** command *only*.

### NSR\_AES\_ENCRYPTION definition must be changed

In Table 7 in Appendix A of the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*, the NSR\_AES\_ENCRYPTION definition must be changed to remove information that states the parameter is supported only for non-proxy backups.

Change the second paragraph in the Description column to the following:

NSR\_AES\_ENCRYPTION is supported for NMO backups with NetWorker server 7.3 or later. NSR\_AES\_ENCRYPTION and NSR\_ENCRYPTION must *not* be set at the same time.

### Additional information is required in the Troubleshooting appendix

Add the following information to Appendix C of the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*:

- ◆ Add the following information to step 5 in the “Troubleshooting tips” section:  
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
```

- ◆ Add the following error message to Table 11, “Error messages from the libnworra library”:

Error message	Description	Resolution
ORA-19511: Error received from media manager layer, error text: Could not create the NWORA resource lock file (13) (103:105:13)	An NMO backup failed because a valid NWORA resource file does not exist or is not unavailable. All NMO backups require the existence of a valid NWORA resource file.	Perform one of the following: <ul style="list-style-type: none"> <li>• If you have already used the <b>nsrnmoadmin</b> command at least once (for example, during setup of internationalization or configuration of save set bundling or proxy Oracle operations), the NWORA resource file already exists. In this case, use the <b>nsrnmoadmin</b> command to review and configure the contents of the resource file, as required for your environment.</li> <li>• If you will <i>not</i> be performing operations that involve internationalization, save set bundling, or proxy Oracle backups, and you have <i>not</i> used the <b>nsrnmoadmin</b> command at least once, log in as either the root user on UNIX or as a user with Administrator privilege on Windows, and type the following command to create a default NWORA resource file: <b>nsrnmoadmin -r list</b> After you type this command, you can perform a manual or scheduled NMO backup.</li> </ul> <p>Chapters 2, 4, and 7 of this Administration Guide provide information on the NWORA resource file and how to use the <b>nsrnmoadmin</b> command.</p>

### Scheduled backup information stored in the media database is changed in NMO release 4.5

In NMO release 4.5, the save set information stored in the media database for scheduled backups is changed from earlier NMO releases. As a result, the following sections must be modified in the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Administration Guide*.

#### Task 2: Create an RMAN script for the manual backup

In this section of Chapter 3, add the following bullet to the bulleted list at the end of page 54:

- ◆ [“Backup information in the NetWorker indexes” on page 88](#) describes the information stored for a manual backup in the NetWorker indexes.

#### Task 5: Configure the Client resource for a scheduled Oracle backup

In this section of Chapter 4, replace the first Note in step 1 with the following:

**Note:** If you schedule the backup by using the NetWorker Configuration Wizard, the wizard automatically adds the prefix RMAN: to the script name in the Save Set attribute. The save set information stored for the scheduled backup in the NetWorker indexes is described in [“Backup information in the NetWorker indexes” on page 88](#).

#### Scheduled backup information in the NetWorker indexes

At the end of Chapter 4, change the section title from “Scheduled backup information in the NetWorker indexes” to “Backup information in the NetWorker indexes” and replace the content of the section with the following information.

The NetWorker server maintains information about each backup in its online indexes. [Chapter 1, “Introduction,”](#) provides more information about the online indexes.

- ◆ The NetWorker client file index contains the filename *backup\_piece\_name* for the save set name for either a manual or scheduled NMO backup.

- ◆ The NetWorker media database contains the following information, depending on the type of backup and which NetWorker server version was used to perform the backup:
  - For a manual backup, the name `RMAN:backup_piece_name` for the save set name
  - For a scheduled backup with a NetWorker server release prior to 7.3.2, the value from the Save Set field of the NetWorker Client resource for the save set name
  - For a scheduled backup with NetWorker server release 7.3.2 or later, the name `RMAN:backup_piece_name` for the save set name

Query the online NetWorker indexes by using the NetWorker commands, **nsrinfo** and **mminfo**.

- ◆ To query the client file index, use the **nsrinfo** command. For example:

```
nsrinfo -n oracle -s NetWorker_server_hostname  
Oracle_Server_hostname
```

- ◆ To query the media database, use the **mminfo** command. For example:

```
mminfo -v -s NetWorker_server_hostname -c Oracle_Server_hostname
```

The NetWorker Command Reference Guide and the UNIX man pages provide more information on these NetWorker commands.

The following examples show the command output for a manual or scheduled NMO backup, where the backup piece is named `1hiu83f4_1_1` and the scheduled backup is performed with NetWorker server release 7.3.2 or later:

- ◆ The client file index includes the backup piece name for the save set:

```
nsrinfo -n oracle -s ca-oracle1 ca-oracle1  
1hiu83f4_1_1, date=1192133159 Thu Oct 11 16:05:59 2007
```

- ◆ The media database includes the prefix `RMAN:` with the backup piece name for the save set:

```
mminfo -v -s ca-oracle1 -c ca-oracle1  
  
volume      client      date      time      size  
NMO.001      ca-oracle1   10/11/07   16:05:59   145 MB  
  
ssid       fl         level     name  
4212032038  cb          full       RMAN:1hiu83f4_1_1
```

**Note:** The media database also includes information about the bootstrap, index, and NWORA resource file backups that occur as part of each scheduled backup. The preceding **mminfo** command sample does *not* show the bootstrap, index, and NWORA resource file information for the scheduled backup.

Cross-check the client file index and media database by using the save time. For example:

```
mminfo -c ca-oracle1 -t 1192133159  
nsrinfo -n oracle -t '10/11/07 16:05:59' ca-oracle1
```

### NMO update information must be changed in the Installation Guide

Replace the information in the section “How to update locally from NMO release 3.x or 4.x” in Chapter 2 of the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Installation Guide* with the following information:

To update from NMO release 3.x or 4.x on the local NMO client host:

1. Verify that *no* Oracle database backups with NMO are running on the Oracle Server host.
2. Update the NMO software by one of the following methods:
  - If you do *not* want to automatically update from NMO 4.2 on Windows Intel:
    - a. Uninstall NMO release 3.x or 4.x by using the instructions in the NetWorker Module for Oracle Installation Guide for that software release.
    - b. Install and enable NMO release 4.5 on the Oracle Server host by using the instructions in [Chapter 3, “Preparing to Install.”](#)
  - To automatically update from NMO 4.2 on Windows Intel:
    - a. Start the NMO 4.5 installer program, **setup.exe**, by following the instructions in [“Installing on a single Oracle Server host”](#) on page 44.
    - b. When the **Welcome to the Upgrade** dialog box appears, click **Upgrade**, and follow the instructions in the subsequent screens.
    - c. Perform the final steps from [page 49](#) (end of the section [“How to install on all Windows platform except Itanium”](#)) to verify the PATH variable, reboot, enable the NMO 4.5 software, and so on.
3. To enable proxy Oracle operations if required, complete the update by installing and enabling the required NetWorker PowerSnap Module on *both* of the following:
  - Oracle Server host
  - A separate proxy client host or NetWorker storage node, as required

Follow the instructions in the NetWorker PowerSnap Module documentation.

### Linux relocation information must be clarified in the Installation Guide

In the section “How to install on Linux” in Chapter 4 of the *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Installation Guide*, the information about relocating the software must be clarified.

For each supported Linux platform, the information that describes how to relocate the NMO software should state that the NMO software must be relocated *only* if the NetWorker client software has been installed in a *nondefault* location on the Linux platform.

## Software media, organization, and files

The *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Installation Guide* provides details on the NMO release 4.5 software media, organization, and files.

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## Installation

The *EMC NetWorker Module for Oracle, Release 4.5, Multiplatform Version, Installation Guide* provides details on how to install, update, uninstall, and license the NMO 4.5 software.

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

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### Coexistence of NMO software

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

- ◆ NMO releases 3.x and 4.5
- ◆ NMO releases 4.x and 4.5

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### NMO reinstall after NetWorker software update

If the NetWorker client installation directory is relocated (for example, during a NetWorker software update) on the Oracle Server host where the NMO release 4.5 software is installed, you must uninstall and reinstall the NMO software.

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### 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.

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## 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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