



# Space Manager with LiveReorg™ 8.1.2

## Release Notes

Friday, December 18, 2015

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## About Space Manager with LiveReorg

Dell™ Space Manager with LiveReorg™ is Dell Software's solution for optimizing space use and performance in Oracle® databases. It provides DBAs with a comprehensive set of tools for making the most of storage resources. These tools allow you to collect statistics, visualize space use, detect space-use problems, reorganize and resize objects to reclaim wasted space, create tablespaces, partition objects, and resize datafiles. Space Manager's powerful reorganization functionality makes it possible to reorganize and restructure large, volatile databases while tables are online.

As you manage capacity with Space Manager, you can monitor it with Capacity Manager for Oracle. Capacity Manager is Dell Software's solution for tracking and planning capacity across multiple Oracle databases. Designed to report on collective space use in databases, Capacity Manager lets you evaluate current allocation, forecast future growth, and identify emerging issues. To resolve these issues, you can run Space Manager from Capacity Manager. Launch points are provided throughout the Capacity Manager interface.

Together, Space Manager and Capacity Manager provide the information and control you need to efficiently maintain and plan your database resources. Capacity Manager uses the Space Manager license and can be installed when you install Space Manager.

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# New Features

Space Manager with LiveReorg includes the following new features and enhancements.

## Space Manager 8.1.2

### Support for Oracle 12c

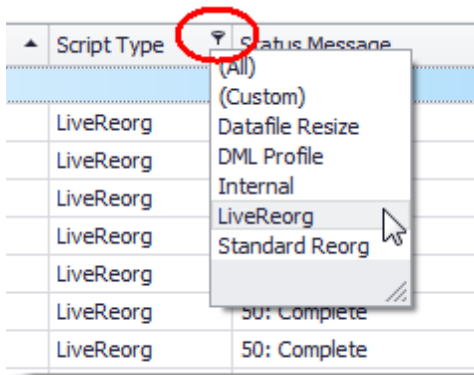
This release of Space Manager includes support for the following Oracle Database 12c features:

- Support for Identity columns (tables with an Identity column)

### Job Monitor

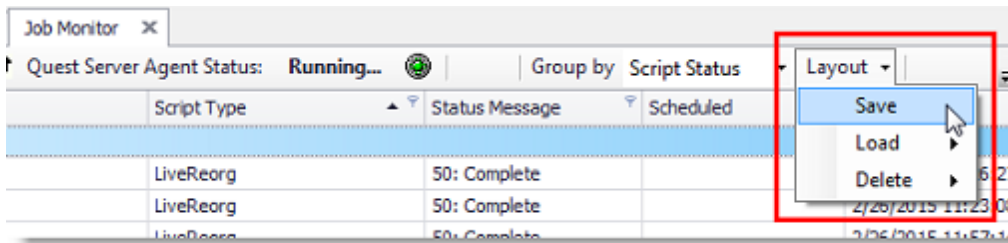
The Job Monitor has a new look and improved functionality for customizing your display.

- You can now quickly filter by column values. Click the filter icon in a column header and select a value or select **Custom** to create an advanced filter.



- You can now create and save custom Layouts for the Job Monitor. Create a customized display by using *group*, *filter*, and *sort* actions.

Then save your customized display as a named Layout to reuse later (**Layout | Save**). Save a number of different layouts to use depending on which scripts you want to view. To use one of your saved layouts, select **Layout | Load**.



### Object Properties

The Object Properties window has been redesigned. You will find some additional attributes and statistics displayed and a few new features.

- You can now view information for the individual partitions of a partitioned object.
- You can view the DDL script for the object in the **DDL** tab of Object Properties.

In addition, some actions have been removed from Object Properties.

- The **Analyze** button used to initiate Instant Analysis has been removed from the Object Properties window. Instant Analysis functionality is now provided automatically by Oracle and by the Space Manager Repository

Update Job, so this feature is no longer necessary.

- You can no longer edit object attributes through the Object Properties window and the **Alter** button has been removed.

## Space Manager 8.1.1

### Support for Oracle 12c

This release of Space Manager includes support for the following Oracle Database 12c features:

- Advanced index compression (indexes that use advanced index compression)
- Default values for explicitly inserting NULL
- Partial indexes for partitioned tables
- Invisible columns (tables with an invisible column)

### Datafile Resize

The Datafile Resize wizard includes a number of enhancements, including improvements to the wizard workflow and improved error handling.

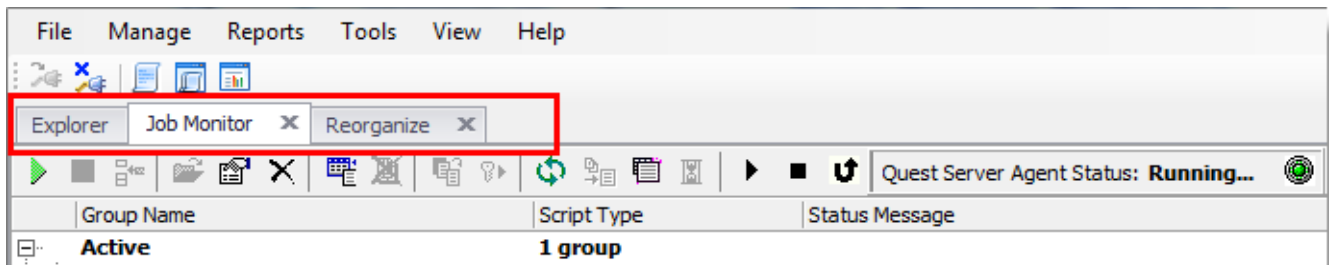
## Space Manager 8.1

### Space Manager Workspace

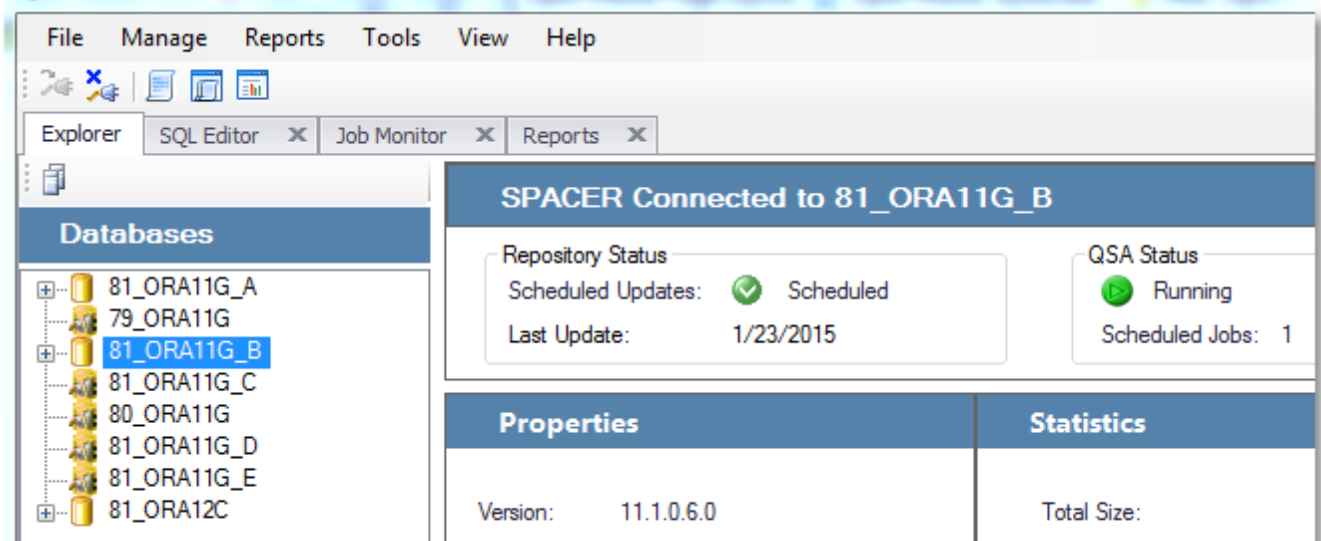
The Space Manager workspace includes several new enhancements.

**Tabbed windows:** All open windows are now displayed as tabbed windows.

- Easily navigate between open windows by selecting the desired tab.



**Explorer:** The Explorer window opens upon launch of the application and displays your current database connection profiles. Select a database in the list to open that connection. The Explorer window persists while additional windows are open. Select the Explorer tab at any time to navigate back to the Explorer.



**Space Manager Main Menu:** The main menu has been reorganized and simplified.

- The main menu configuration persists, no matter which module or window is active.
- Menu items and commands specific to a module or tool have been moved to the local menu or toolbar within the window. In some cases, the commands are conveniently found in the context-sensitive right-click menus.
- The new streamlined workflow allows you to launch the Reorg Manager or Partitioning Wizard directly from the Explorer window, so the **Reorganize** sub-menu has been removed. Select the objects you want to reorganize in the Explorer. Then right-click to launch the Reorg Manager.
- Because all open windows are now displayed as tabbed windows, the **Window** menu is no longer necessary.
- You will find the Script/Job Monitor under the **Manage** menu now.

## Connections

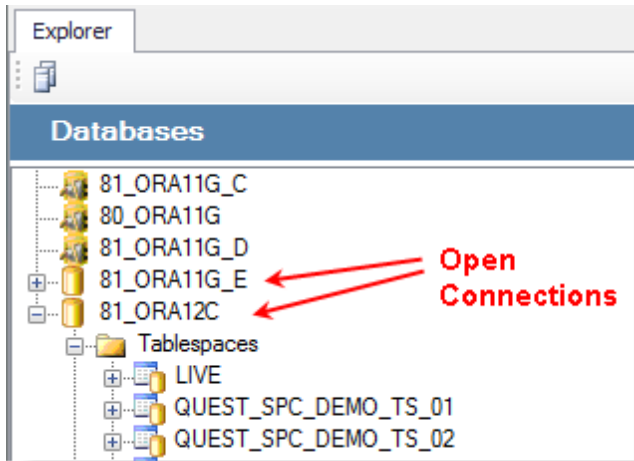
### Password Encryption

In release 8.1, password encryption has changed. If you upgrade to 8.1 from a previous release, after installation you may need to re-enter (and save) the passwords for previously-created database connection profiles. Space Manager assists you by prompting you the first time you attempt to open an existing connection after installation.

### All Connections Display Simultaneously in the Explorer Tree-List

Space Manager now displays all your currently-defined database connections in a tree-list in the left pane of the Explorer.

- The list displays all open and closed database connections (in previous releases, only open connections were displayed).

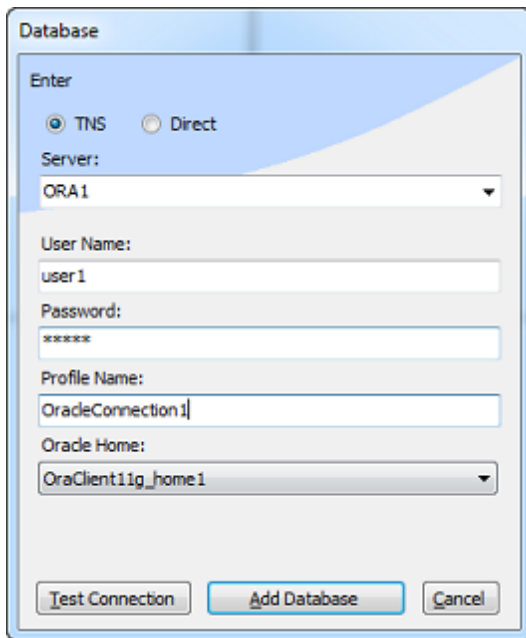


- To open a connection, click the connection name in the tree-list.
- To modify a connection profile, right-click a connection in the tree-list and select **Edit Connection Parameters**.

### New Connection Dialog

The dialog for creating a new connection is now easier to use.

- To create a new connection, select **File | Add New Connection**. Choose TNS or Direct, and then enter the connection information.



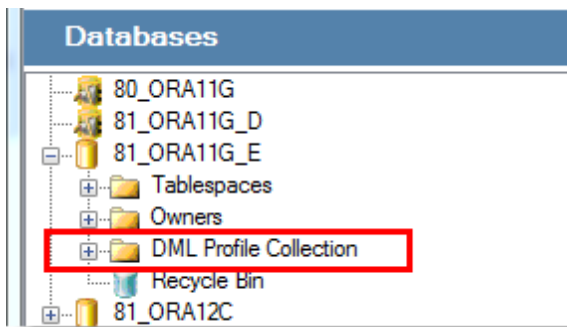
## Explorer

The Explorer window provides some new enhancements to help you easily navigate between and within databases.

### Databases Tree-List

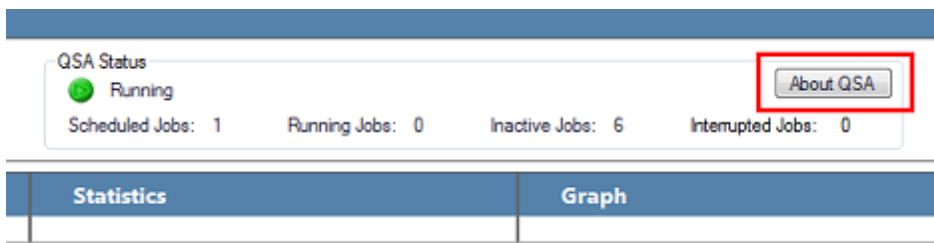
- The Explorer now displays all your current database connections in a tree-list along the left side. Easily navigate between database connections by selecting one from the tree-list.

- Click a connection in the tree-list to open the connection. The connection node automatically expands to display the list of tablespaces. Also displayed is the list of current issues for that database (in the Issues List).
- For a database, the "Users" node is renamed to "Owners."
- A DML Profile Collection node now displays for each database. Expand the node to view all current profile collections by owner and object. Right-click an object to view its DML profile report.



### About QSA

- To view information (like version and build number) for your database's currently-installed QSA Server Agent, select the database in the Databases tree-list and then click the **About QSA** button in the QSA Status panel.



## Reorg Manager

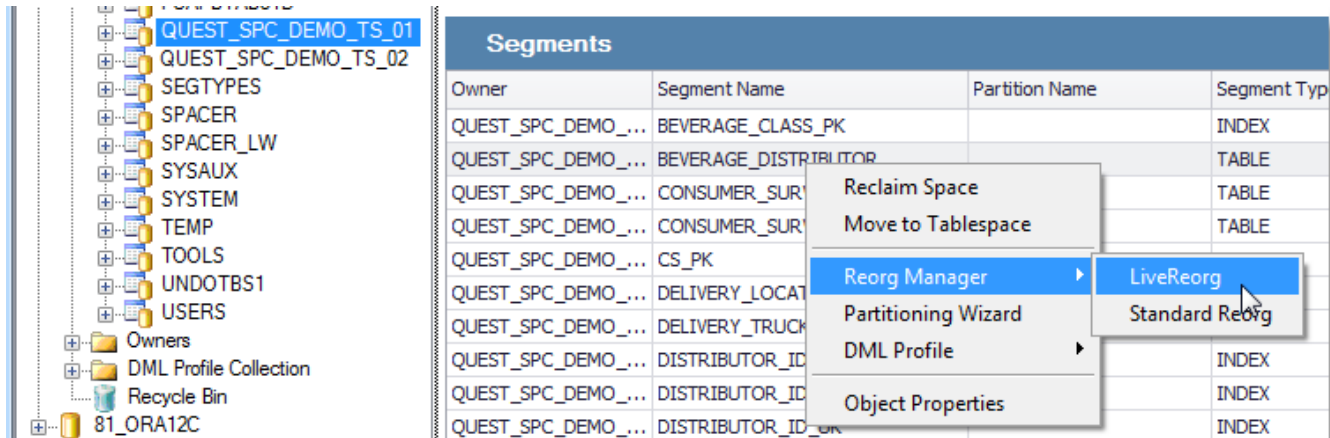
The Reorg Manager has been redesigned. It has a new look and several enhancements designed to streamline the process of creating a reorganization script.

### User Interface Enhancements

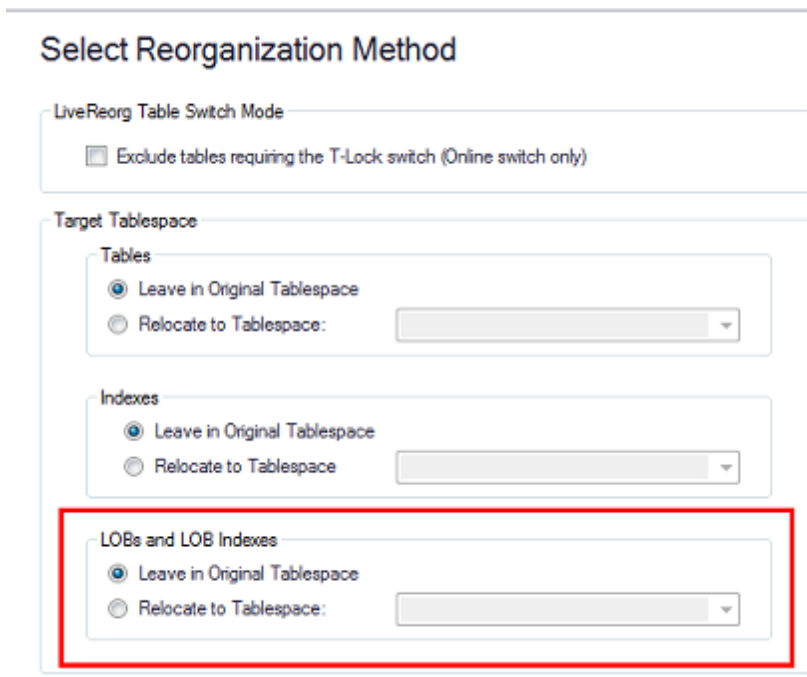
- For convenience, some of the more commonly-used settings are now automatically included in the reorganization script. The options for selecting these parameters have been removed from the Reorg Manager interface to simplify the reorg script creation process.
  - For example, the *Record for History Report* option is now automatically included in a reorganization script.
- Some redundant and seldom-used options have been removed from the Reorg Manager interface, again to simplify the reorg setup process.
- **Data movement method:** When Space Manager performs a LiveReorg or Standard Reorg, SQL is used for tables without LONGs, and FastCopy is used for supported tables with LONGs. The option to specify *SQL only* or *FastCopy only* as the data movement method is no longer available.
- **Switch mode:** (Live Reorg only) The online switch is automatically used for all tables supported by this switch mode. The T-Lock switch mode is automatically used for objects that are not supported by the online switch mode.
  - However, you can select to exclude from the reorganization all tables that require the T-Lock switch mode.

## Workflow Enhancements

- Launching the Reorg Manager and selecting objects is now much easier. Start by selecting the object or objects in the Explorer that you want to reorganize (use the Search field to easily find objects). Next, right-click the object/objects and select **Reorg Manager**. Select a reorganization method from the sub-menu to launch the Reorg Manager.



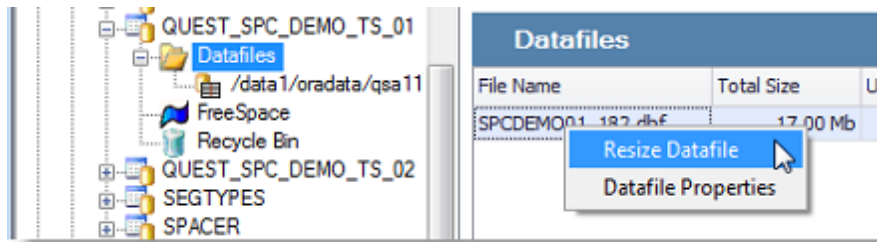
- **Tablespace for LOBs and LOB indexes:** You can now specify a separate tablespace globally for all LOBs and LOB indexes in the Target Tablespace section of the Reorg Manager. You are no longer required to use the Customize Object Allocations page to specify a separate tablespace for each LOB object, although the option is still available.



- **Selecting a partition reorg method:** When two or more partitions or subpartitions from the same table or index are included in a reorganization, Space Manager now automatically asks you if you want to reorganize the parent object. If you select **Yes**, the parent and all related objects are added to the reorganization.

## Resize Datafile

Now you can resize a datafile prior to running a reorganization script. Select a datafile to resize from the Datafiles node for a tablespace in the Explorer. Right-click the selected datafile in the Datafiles grid to launch the Datafile Resize wizard.



**Note:** Now that you can resize datafiles prior to a reorganization, the Script Pause feature of the Reorg Manager is not necessary and has been removed in this release of Space Manager.

### Statistics Collection

You no longer need to run Analysis Groups to keep statistics up-to-date prior to creating a reorganization script. The Reorg Manager now uses estimates based on data in the Repository. The ability to create Analysis Groups has been removed in this release of Space Manager.

**Note:** You can no longer create *new* Analysis Groups, however you can continue to run Analysis Group scripts created in a previous version of Space Manager. For example, you might use these to do Oracle analysis that includes chained rows.

### Online Redefinition

Space Manager no longer provides the Online Redefinition reorganization method. If you previously used the Online Redefinition option, use LiveReorg with an online switch.

- The LiveReorg method has many advantages over online Redefinition. For example, with LiveReorg, you can approve the switch. In addition, LiveReorg supports many more object types than the Online Redefinition method supports.

## Partitioning Wizard

### User Interface Enhancements

The Partitioning Wizard has been enhanced to simplify the process of creating a partitioning script.

- For convenience, some of the more commonly-used settings are now automatically included in the partitioning script. These options have been removed from the Partitioning Wizard interface to simplify the script creation process.

### Workflow Enhancements

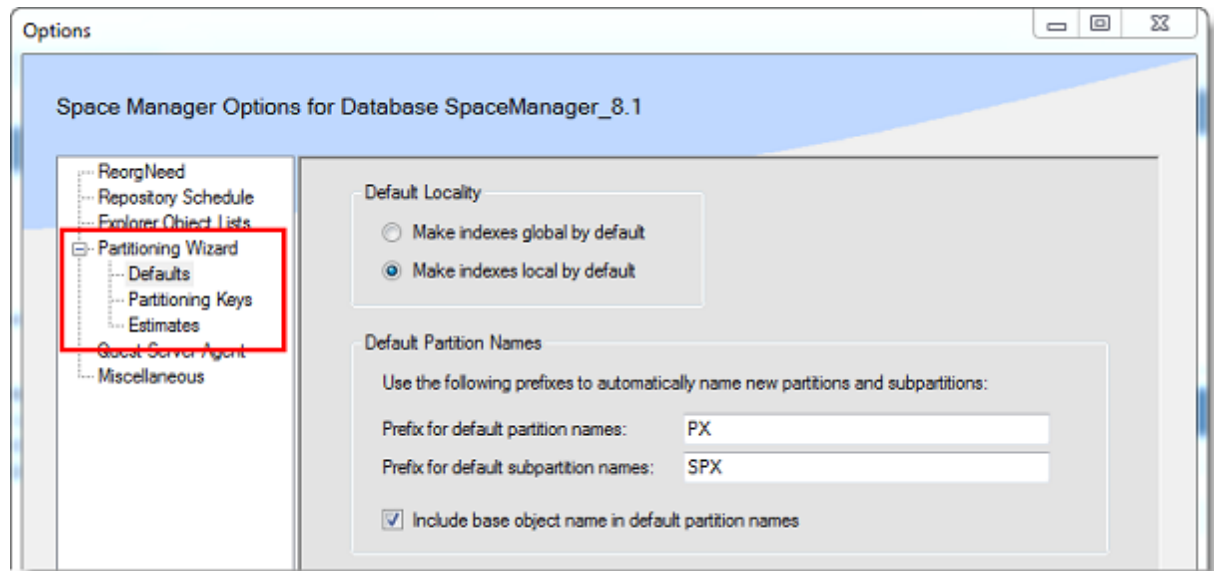
Launching the Partitioning Wizard is now much easier. Start by selecting the object or objects in the Explorer that you want to partition. Next, right-click the object/objects and select **Partitioning Wizard** to launch the wizard.

### Save Partitioning Wizard Default Values

- Default values for the Partition Wizard options are now specified through the Space Manager Options dialog (**Tools | Options | Partitioning Wizard**). This provides the user with one convenient location to specify

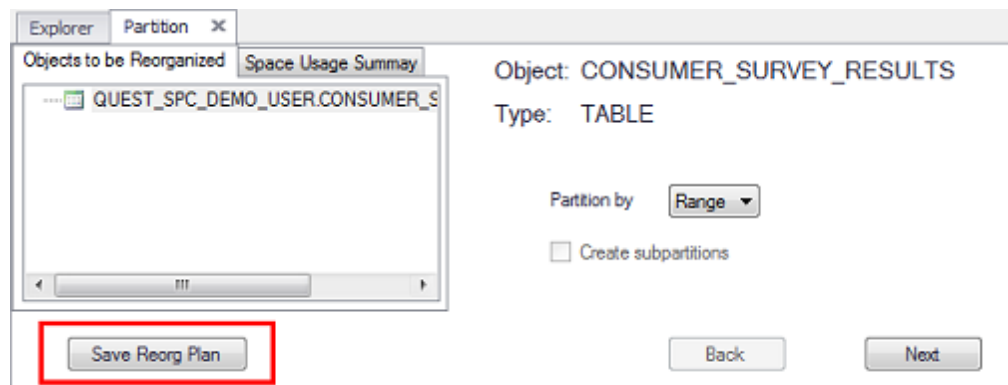


many of the Space Manager default options.



### Save Partitioning Wizard Settings

- Now you can save your Partitioning Wizard settings as a Reorg Plan. Save the settings at any stage in the wizard by clicking the **Save Reorg Plan** button. A Save As dialog opens allowing you to save the settings as an XML file. To launch the Partitioning Wizard with the saved settings applied, open the XML file by selecting **File | Open Saved Reorg Plan**. You can save and reuse multiple Reorg Plans. This feature is also available in the Reorg Manager.

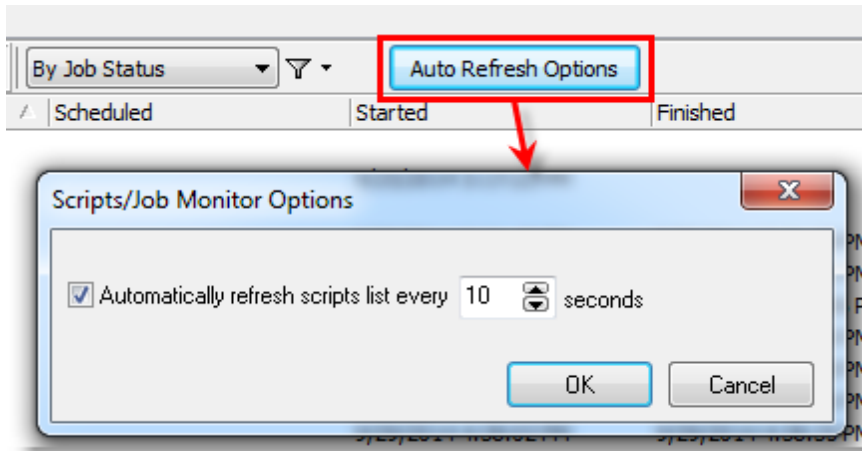


### Use Interval Partitioning

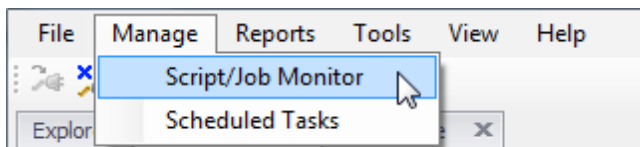
You can now specify an interval when you use the Range partitioning method. Select *Range* as the partitioning method, select the partitioning key column, then specify an interval. Oracle enables interval partitioning based on the interval value you specify.

## Script/Job Monitor

- The Script/Job Monitor toolbar now includes a button to quickly access the Script/Job Monitor Options dialog where you can specify a refresh frequency for the scripts list.

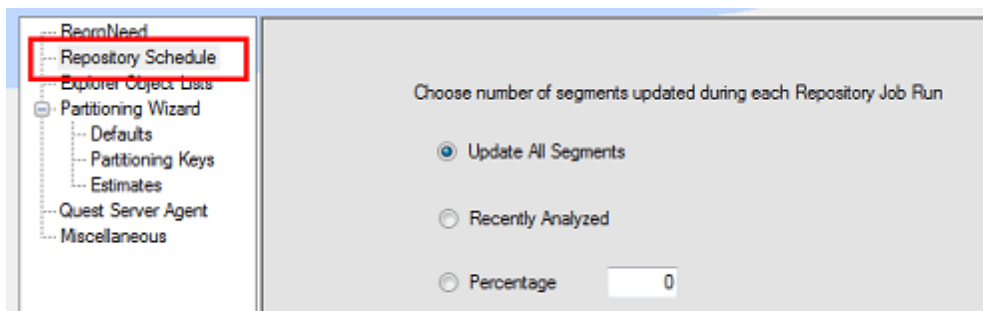


- To specify a refresh frequency for QSA Server Agent status, you can now use the Space Manager Options dialog (Tools | Options | QSA Server Agent).
- You now open the Script/Job Monitor window from the Manage menu.



## Space Manager Repository

- Now you can specify the number of segments to update during each scheduled Repository update job.



## DML Profiles

- To create a DML profile, you now launch the DML Profile Collection dialog directly from the object you want to profile in the Explorer window. Right-click a table in the Explorer and select **DML Profile | Create/Modify Collection**.
- You now view and manage DML Activity scripts directly from the Script/Job Monitor window. The Explore DML Activity window has been removed in this release of Space Manager.
- From the Scrip/Job Monitor you can reschedule, cancel, or delete DML Activity scripts. You can also review the script and script execution logs.
- To view the current DML profile collections for a database, expand its DML Profile Collection node in the Databases tree-list. Collections are listed by owner.

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# Resolved Issues

## Space Manager 8.1.2

The following is a list of issues addressed in Space Manager 8.1.2.

Feature	Enhancement / Resolved Issue	Defect ID
Reorg Manager	Enhancement: You can now instruct Space Manager to always use the T-Lock switch. Go to Tools   Options   Reorg Manager. The setting is applied to the database currently-selected in the Explorer.	451771
Reorg Manager	An issue caused scripts to include the online switch for eligible tables even if the partitioning option was not enabled in the database and there was no partitioning override in the registry. This issue is now resolved.	451289

## Space Manager 8.1.1

The following is a list of issues addressed in Space Manager 8.1.1.

Feature	Enhancement / Resolved Issue	Defect ID
Administration Functions	When prompted for credentials for a SYSDBA account while installing Space Manager objects, the dialog now includes a helpful explanation.	417910
Connections	SID column now displays the correct information in the Oracle Connection History.	430271
Reorg Manager	Resolved an issue that caused an error in a standard reorganization of a single table sub-partition in Oracle 9i where the "Use Alter Table Move where possible" option is selected.	426942
Reorg Manager	Corrected scripting for float data type in clustered tables. Example error: "ORA-01727: numeric precision specifier is out of range (1 to 38)."	440335
Reorg Manager	Resolved an issue that caused an "ORA-14136: ALTER TABLE EXCHANGE" error during online switch of a table with a security policy.	440592
Reorg Manager	Corrected scripting of non-standard names in trigger syntax.	440854
Reorg Manager	Improved Reorg Manager performance for objects with many partitions or subpartitions.	441872
Resize Datafile	After you submit a datafile resize job, a progress bar now displays and shows the status of the resize process.	422165
Resize Datafile	An issue that caused an "ORA-01031: insufficient privileges ORA-06512" error when attempting to run a scheduled resize datafile job in Oracle 12c is now resolved.	430068
Resize Datafile	Improved error reporting in Datafile Resize when objects are not supported.	430566

# Space Manager 8.1

The following is a list of issues addressed in Space Manager 8.1.

Feature	Enhancement / Resolved Issue	Defect ID
Installation	Resolved an installation issue encountered when there are multiple rows in the history table.	322951
QSA	You can now monitor and manage QSA jobs from the server shell.	315392
Reorg Manager	An issue that caused an error when attempting to search by "Extents from repository" or "High Water Mark from repository" in Reorg Manager wizard, Select Objects to Reorganize screen is resolved. The new Reorg Manager workflow eliminates the need for this screen.	330926
Reorg Manager	An issue that caused an "ORA-1733: virtual column not allowed here" error during a reorganization in some Oracle 11 installations is resolved.	341770
Reorg Manager	Re-introduced multiple index creation threads in reorganization script.	318194
Repository	The nightly repository job (repository update) now finds wasted space in manual segment space management (MSSM) tablespaces.	342445
Repository	You no longer encounter an error if a table in the repository has chained rows greater than zero and a row count of zero.	322953

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## Known Issues

The following is a list of issues known to exist at the time of this release.

Feature	Known Issue and Workaround (if applicable)	Defect ID
General	<p>Some wizard screens do not display correctly on Windows 7 if your text size setting is greater than 100%.</p> <p><b>Workaround:</b></p> <p>Set text size to 100%.</p> <ol style="list-style-type: none"><li>1. Select <b>Start   Control Panel   Appearance and Personalization</b>.</li><li>2. Select <b>Make text and other items larger or smaller</b> in the Display section.</li><li>3. Select <b>Smaller - 100% (default)</b>.</li><li>4. Click <b>Apply</b>.</li></ol>	N/A
Oracle 12c Support	<p>Space Manager provides limited support for Oracle 12.1.0.1.0. The following 12c features are not supported:</p> <ul style="list-style-type: none"><li>• Multitenant architecture (container database holding many pluggable databases) is not supported. The QSA server agent cannot be installed in a pluggable database.</li><li>• Attribute clustering (attribute-clustered tables)</li></ul>	N/A

Feature	Known Issue and Workaround (if applicable)	Defect ID
Oracle 9i Support	<ul style="list-style-type: none"> <li>• Tables with in-memory column store</li> <li>• Temporal validity for tables</li> </ul> <p>Space Manager does not support Oracle database releases later than 12.1.0.1.0.</p>	N/A
Domain Indexes	<p><b>Tablespaces using Oracle-managed files.</b> When you add datafiles to tablespaces with Oracle-managed files, be aware that Tablespace Properties will automatically put ORA_ at the beginning of each new file name. However, tablespaces using Oracle-managed files can only have one datafile named ORA_%. If you leave ORA_ in place for a new file, the following error will occur when you run the script to add it.</p> <p>“ORA-01276. Cannot add a file with an Oracle Managed Files file name.”</p> <p>To avoid the error, remove ORA_ from the beginning of a new file name before you run the script.</p> <p><b>Reorganizing tables with Domain indexes.</b> Space Manager provides limited support for Domain indexes when performing reorganizations and warns that you might encounter a problem because of the Domain index. Space Manager scripts the reorganization of the domain index correctly. However, the underlying implementation of the index type may be very complex, and some unforeseen dependencies may cause runtime errors.</p> <p><b>Important:</b> It is recommended that you test the reorganization of a table with a Domain index on a non-production version of the table to make sure Space Manager reorganizes both the table and index correctly before you reorganize your production table.</p>	ST48257

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# System Requirements

Before installing Space Manager and Capacity Manager, ensure that your system meets the following minimum hardware and software requirements.

## Requirements for the Client Computer

The Space Manager and Capacity Manager clients must be installed on the same computer, and their requirements are the same unless otherwise specified. The computer must meet the following requirements:

Item	Requirement
Oracle® Client	Supported by both Space Manager and Capacity Manager: <ul style="list-style-type: none"><li>• Oracle Net version 9.2, 10g, 11g, 12c (32-bit)</li></ul> <b>Note:</b> Space Manager and Capacity Manager do not support the 64-bit version of the Oracle Client.
Operating System	Supported by both Space Manager and Capacity Manager: <ul style="list-style-type: none"><li>• Windows Vista® (FDCC compliant)</li><li>• Windows® 7</li><li>• Windows Server® 2008</li><li>• Citrix® Metaframe XP</li><li>• Windows® 8</li><li>• Windows Server® 2012</li></ul>
Processor	1 GHz Processor (recommended minimum)
Memory	2 GB of RAM
Display Settings	A resolution of 1024 x 768; true color or high color; small fonts
Disk Space	Space Manager: Approximately 800 MB Capacity Manager: Approximately 13 MB
.NET Framework	Microsoft® .NET Framework 4 (including update 4.0.3) <b>Note:</b> The .NET Framework 4 Full Profile is required. The Client Profile is not sufficient.

## Requirements for Databases

Each database being managed with Space Manager must meet the following requirements:

Item	Requirement
Oracle Database	Supported by both Capacity and Space Manager: <ul style="list-style-type: none"><li>• Oracle 9.2</li><li>• Oracle 10.2</li><li>• Oracle 11g</li><li>• Oracle 11g R2</li><li>• Oracle 12.1.0.1.0. Space Manager provides limited support for new Oracle 12c features. See <a href="#">Known Issues</a> for more information.</li></ul>

Item	Requirement
	<b>Note:</b> Space Manager supports Oracle Enterprise Edition and Standard Edition databases.
Database Server Operating System	<p>Space Manager supports the following operating systems:</p> <ul style="list-style-type: none"> <li>• HP-UX 11 and 11i on PA_RISC</li> <li>• HP-UX 11i on Itanium</li> <li>• Sun Solaris 2.8, 2.9, 10, and 11</li> <li>• IBM® AIX 5.1, 5.2, 5.3, 6.1, and 7.1</li> <li>• Red Hat® Linux Advanced Server 3.0, 4.0, and 5.1</li> <li>• Oracle® Linux® 4, 5, and 6</li> <li>• Oracle Linux 5 with Unbreakable Enterprise Kernel</li> <li>• SuSE Linux Enterprise Server 9, 10, and 11 SP2</li> <li>• Windows Server 2008</li> <li>• Windows Server 2012</li> </ul> <p><b>Note:</b> When using Oracle 11.1 or earlier on 64-bit systems, the installing user must be configured to use the Oracle 32-bit client libraries. For Oracle 11.2 or later on 64-bit systems, the installing user can use the Oracle 64-bit client libraries.</p>
Disk Space	<p>Disk-space requirements are:</p> <ul style="list-style-type: none"> <li>• 80 MB for statistics tables</li> <li>• 20 MB for scripts tables</li> <li>• 20 MB contiguous free space for LiveReorg objects in the LiveReorg tablespace (set with QSA's LW_TABLESPACE parameter)</li> <li>• 40 MB in the filesystem for QSA executables and logs</li> </ul>
Oracle Packages	<p><b>Space Manager:</b> DBMS_SQL, DBMS_PIPE, DBMS_LOCK, DBMS_SPACE_ADMIN  <b>QSA:</b> DBMS_SQL, DBMS_PIPE, DBMS_OUTPUT, DBMS_APPLICATION_INFO  <b>Find Long LONGs feature:</b> UTL_RAW  <b>Email notifications:</b> UTL_SMTP</p>
Oracle's Partitioning Option	Required for the Online Switch (a feature available for live reorganizations) and the Partitioning Wizard; Partitioning Option must be installed and licensed.
XDB Schema	Required for XMLType datatypes.

## Requirements for the Capacity Manager Repository

The database used for the Capacity Manager repository must meet the following requirements:

Item	Requirement
Oracle Database	<p>Supported for the repository:</p> <ul style="list-style-type: none"> <li>• Oracle 9.2</li> <li>• Oracle 10.2</li> <li>• Oracle 11g</li> <li>• Oracle 11g R2</li> </ul>
Disk Space	8 MB recommended per monitored database assigned to a repository (accommodates one year of growth in repository objects)

Item	Requirement
Job Scheduler	<p data-bbox="509 254 1406 310">One of the following schedules is needed for snapshot jobs, report scheduling, and Windows scheduling:</p> <ul data-bbox="558 323 1406 464" style="list-style-type: none"> <li data-bbox="558 323 1406 380">• Oracle DBMS_JOBS is used for scheduling snapshot jobs on Oracle8i and Oracle9i.</li> <li data-bbox="558 392 1406 420">• Oracle DBMS_SCHEDULER is used for scheduling snapshot jobs on Oracle10g.</li> <li data-bbox="558 432 1406 464">• A third-party job scheduler can be used instead of an Oracle DBMS package.</li> </ul>
Oracle Initialization Parameters	<p data-bbox="509 485 1122 512">Oracle initialization parameters should be set as follows:</p> <ul data-bbox="558 525 1419 772" style="list-style-type: none"> <li data-bbox="558 525 1419 611">• OPEN_LINKS—The value for OPEN_LINKS initialization parameter should be equal to or greater than the number of monitored databases assigned to a repository. The default value for this parameter is 4; the maximum is 255.</li> <li data-bbox="558 623 1419 772">• JOB_QUEUE_PROCESSES—The value for the JOB_QUEUE_PROCESSES initialization parameter should be greater than zero in Oracle 9.2 databases. For optimal performance of snapshot jobs, it should be equal to or greater than the number of monitored databases assigned to a repository. The maximum is 1,000.</li> </ul>
Character Set	<p data-bbox="509 793 1338 850">Must be a superset of the character sets for all monitored databases. A UTF8 character set is recommended.</p>
Activity Level	<p data-bbox="509 871 721 898">Light activity level.</p>

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# Product Licensing

## To activate a trial license

1. In the License Key dialog, enter your Authorization Key.
2. Enter the Site Message included with your Authorization Key.

## To activate a purchased commercial license

1. In the License Key dialog, enter your Authorization Key.
2. Enter the Site Message included with your Authorization Key.

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# Getting Started

## Contents of the Release Package

Space Manager with LiveReorg 8.1.2 and Capacity Manager for Oracle 1.3 include the following documentation:

- Space Manager online help and user guide
- Capacity Manager online help

**Note:** The *Installation Guide* and Release Notes are not included in the setup executable and need to be downloaded separately. These documents are also available from the Dell Software Support Portal.

## Installation Instructions

The clients for Space Manager with LiveReorg 8.1.2 and Capacity Manager for Oracle 1.3 can be installed together using the Installer. The installer is identified as the Space Manager with LiveReorg 8.1.2 Installer. The executable for the installer is available at our Support Portal at <https://support.software.dell.com/> and on the installation CD for Space Manager with LiveReorg.

After installing the Space Manager client, you install server components and the QSA Server Agent. Each database you plan to manage with Space Manager must have server components and an agent. Job scheduling and LiveReorg require an agent. After installing the Capacity Manager client, you install the repository and assign monitored databases to the repository. Each database you plan to manage with Capacity Manager must be assigned to the repository.

QSA Server Agent version 8.1.2 is included in this release of Space Manager with LiveReorg 8.1.2.

Refer to the *Space Manager with LiveReorg Installation Guide* for more information about installing Space Manager.

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# Upgrade and Compatibility

When you upgrade to Space Manager 8.1.2, you can also install or upgrade to Capacity Manager for Oracle 1.3. The clients for both applications are installed with the Installer. For more information, see [Getting Started](#) in these release notes.

After you upgrade the Space Manager client, when you connect to a database with Space Manager server objects already installed, you are prompted to upgrade server components and the QSA Server Agent.

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# Globalization

This section contains information about installing and operating this product in non-English configurations, such as those needed by customers outside of North America. This section does not replace the materials about supported platforms and configurations found elsewhere in the product documentation.

This release supports any single-byte or multi-byte character set. In this release, all product components should be configured to use the same or compatible character encodings and should be installed to use the same locale and regional options. This release is targeted to support operations in the following regions: North America, Western Europe and Latin America, Central and Eastern Europe, Far-East Asia, Japan.

## For More Information

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### Email:

[info@software.dell.com](mailto:info@software.dell.com)

## Technical Support Resources

Technical support is available to customers who have purchased Dell software with a valid maintenance contract and to customers who have trial versions. To access the Support Portal, go to <http://software.dell.com/support/>.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. In addition, the portal provides direct access to product support engineers through an online Service Request system.

The site enables you to:

- Create, update, and manage Service Requests (cases)
- View Knowledge Base articles
- Obtain product notifications
- Download software. For trial software, go to [Trial Downloads](#).
- View how-to videos
- Engage in community discussions
- Chat with a support engineer

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