

Novell Data Synchronizer 1.1 Connector for Mobility

Readme

Novell®

February ??, 2011

1 Overview

The Novell Data Synchronizer Connector for Mobility is the component of the Data Synchronizer Mobility Pack that connects your GroupWise system with mobile devices.

The Mobility Connector can also be used to connect mobile devices to other applications for which Data Synchronizer connectors are available.

For device-specific information, see the [Novell Data Synchronizer Mobility Connector Wiki](http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Connector) (http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Connector).

For a list of the enhancements and bug fixes provided since the original release of the Mobility Pack, see the [Novell Data Synchronizer Mobility Pack 1.1 Readme](http://www.novell.com/documentation/datasynchronizer1/datasync11_readme_mobility/data/datasync11_readme_mobility.html) (http://www.novell.com/documentation/datasynchronizer1/datasync11_readme_mobility/data/datasync11_readme_mobility.html).

2 System Requirements

The general system requirements for the Mobility Connector are the same as for the Data Synchronizer Mobility Pack, as listed in “Data Synchronizer System Requirements” in the *Novell Data Synchronizer Mobility Pack Installation Guide*.

Mobile device requirements for the Mobility Connector are listed in the *Mobility Connector Installation and Configuration Guide*.

3 Mobility Connector Installation

The Mobility Connector is automatically installed as part of the Data Synchronizer Mobility Pack, as described in the *Novell Data Synchronizer Mobility Pack Installation Guide*.

For device-specific setup instructions, see the [Novell Data Synchronizer Mobility Connector Wiki](http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Connector) (http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Connector)

4 Mobility Connector Issues

- ♦ [Section 4.1, “SSL Connections with Mobile Devices,” on page 2](#)
- ♦ [Section 4.2, “Mobility Connector Startup,” on page 2](#)
- ♦ [Section 4.3, “User Deletion Issue,” on page 2](#)
- ♦ [Section 4.4, “Failed Initial Synchronization,” on page 3](#)
- ♦ [Section 4.5, “Expired LDAP Password,” on page 3](#)

- ♦ [Section 4.6, “Inaccurate Synchronization Status,” on page 3](#)
- ♦ [Section 4.7, “Multiple Device IDs for a Single Mobile Device,” on page 3](#)
- ♦ [Section 4.8, “Reminder Note Synchronization Default Issue,” on page 3](#)
- ♦ [Section 4.9, “SLES Update Issue,” on page 4](#)
- ♦ [Section 4.10, “BlackBerry Support,” on page 4](#)
- ♦ [Section 4.11, “S/MIME Not Supported,” on page 4](#)

For general connector issues, see [“General Connector Issues”](#) in the [“Novell Data Synchronizer Mobility Pack Update 2”](#).

4.1 SSL Connections with Mobile Devices

During Mobility Pack installation, you can choose whether to use an SSL connection between the Mobility Connector and mobile devices. Using a non-secure connection can simplify initial testing, but secure SSL connection should be used in a production environment.

By default, the Mobility Connector rejects SSLv2, which reportedly has several cryptographic flaws and has been deprecated for several years. SSLv3 and TLSv1 are automatically accepted.

For instructions to reconfigure the security protocol for the Mobility Connector, see [“Selecting a Specific Version of SSL”](#) in [“Securing a Synchronizer System”](#) in the *Novell Data Synchronizer Administration Guide*.

4.2 Mobility Connector Startup

Make sure that the GroupWise Connector is running before you start the Mobility Connector. The Mobility Connector needs to access the GroupWise Address Book through the GroupWise Connector in order to start successfully. If the GroupWise Connector is not already running, you see an error such as:

```
Couldn't sync GAL: None
Couldn't sync GAL: Connector currently unavailable: groupwise_connector_name
```

NOTE: GAL stands for Global Address List.

The Mobility Connector tries again in 30 minutes to contact the GroupWise Connector. If the GroupWise Connector is running at that time, the address book lookups begin.

4.3 User Deletion Issue

If you delete a user from the Mobility Connector, then immediately re-add the same user, the user might not be successfully added to the Mobility Connector.

Deleted users are cleaned up in the Mobility Connector database every 30 seconds. If you re-add the user to the Mobility Connector in less than 30 seconds, the re-added user is deleted from the database, even though the user is still listed in Synchronizer Web Admin. As a result, mobile device synchronization fails, even though it looks like the user has been added to the Mobility Connector.

If this situation occurs, delete the user from the Mobility Connector in Synchronizer Web Admin, then wait at least 30 seconds before re-adding the user.

4.4 Failed Initial Synchronization

If initial synchronization fails for a user, the Mobility Connector automatically retries three times. Often, the retry process is successful. You can check the status of the retry process in the Mobility Connector log file (`default.pipeline1.mobility-AppInterface.log`) in the following directory:

```
/var/log/datasync/connectors
```

If the three automatic retries fail, you can try deleting and re-adding the user. If initial synchronization still fails, see “[Mobility Connector Troubleshooting](#)” in the *Mobility Connector Installation and Configuration Guide* for assistance.

4.5 Expired LDAP Password

If a user’s LDAP password expires, the Mobility Connector does not allow the user’s mobile device to connect to the Synchronizer system until the user resets the LDAP password and configures the mobile device with the new password. This functionality prevents mobile devices from consuming grace logins and locking the user out.

4.6 Inaccurate Synchronization Status

In Synchronizer Web Admin, the Mobility Connector Monitoring Information page might show that a user’s device has successfully completed initial synchronization, but the user is not seeing the expected results on the mobile device.

To verify synchronization status, click the username in the User Status box on the Mobility Connector Monitoring Information page to display synchronization statistics for synchronized items, events, and folders. If initial synchronization has failed, see “[Mobility Connector Troubleshooting](#)” in the *Mobility Connector Installation and Configuration Guide* for assistance.

4.7 Multiple Device IDs for a Single Mobile Device

In Synchronizer Web Admin, the Mobility Connector Monitoring Information page might list two device IDs for one mobile device. Some mobile devices have one device ID for e-mail and contact information and a second device ID for calendar information. This is working as designed.

4.8 Reminder Note Synchronization Default Issue

When you configure the GroupWise Connector, you select the items to synchronize. For the *GroupWise Items to Sync* option, even if you deselect *Reminder Note*, reminder notes are still included during initial synchronization, although they are not synchronized after initial synchronization.

To prevent reminder notes from being included during initial synchronization:

- 1 In Synchronizer Web Admin, click the Mobility Connector to display the Mobility Connector Settings page, then click *Edit XML Source*.
- 2 Locate the following line:

```
<notes>1</notes>
```

IMPORTANT: If you see `<Note>1</Note>` rather than `<notes>1</notes>`, you are editing the XML for the GroupWise Connector, not the Mobility Connector. It is the Mobility Connector setting that is overriding your selection for the GroupWise Connector, so you need to make sure that you are editing the Mobility Connector XML to resolve the problem.

- 3 Change 1 to 0 (zero), then click *Save Custom Settings*.
- 4 Click *Home* to return to the main Synchronizer Web Admin page, then stop and start the Mobility Connector to put the change into effect.

This change affects users who are added to the GroupWise Connector and the Mobility Connector after you have changed the configuration of the Mobility Connector. When you add users during installation of the Mobility Pack, reminder notes are synchronized by default.

4.9 SLES Update Issue

If you install the Mobility Pack and then install updates to the SUSE Linux Enterprise Server (SLES) operating system, you might see errors in the Mobility Connector log during the SLES update. After the update has finished, restart the server, then restart the Synchronizer services to successfully complete the update.

4.10 BlackBerry Support

The Mobility Connector does not support BlackBerry devices. Instead, you can use [BlackBerry Enterprise Server for GroupWise](http://na.blackberry.com/eng/services/business/server/full/) (<http://na.blackberry.com/eng/services/business/server/full/>). ActiveSync clients for BlackBerry devices are not supported for use with the Mobility Connector.

If a GroupWise user has multiple devices, multiple synchronization solutions can access the same GroupWise account without causing any conflicts.

4.11 S/MIME Not Supported

S/MIME is not currently supported by the Mobility Connector. You can open encrypted messages in GroupWise, but not on your mobile device.

5 Item Synchronization Issues

- ♦ [Section 5.1, “New Contacts,” on page 5](#)
- ♦ [Section 5.2, “Copied Contacts,” on page 5](#)
- ♦ [Section 5.3, “Contacts with Categories,” on page 6](#)
- ♦ [Section 5.4, “Contacts with Pictures,” on page 6](#)
- ♦ [Section 5.5, “Organizations,” on page 6](#)
- ♦ [Section 5.6, “Personal Address Books,” on page 6](#)
- ♦ [Section 5.7, “Shared Address Books,” on page 6](#)
- ♦ [Section 5.8, “Draft Items,” on page 6](#)
- ♦ [Section 5.9, “Forwarded Items,” on page 7](#)
- ♦ [Section 5.10, “Moved Items,” on page 7](#)
- ♦ [Section 5.11, “HTML Formatted Messages,” on page 7](#)

- ◆ Section 5.12, “Appointments on Windows Phone 7 Devices,” on page 7
- ◆ Section 5.13, “Appointment Modifications,” on page 7
- ◆ Section 5.14, “Rescheduled Appointments,” on page 7
- ◆ Section 5.15, “Declined Appointments,” on page 7
- ◆ Section 5.16, “Personal Calendars,” on page 8
- ◆ Section 5.17, “Shared Calendars,” on page 8
- ◆ Section 5.18, “Shared Folders,” on page 8
- ◆ Section 5.19, “Find Results Folders,” on page 8
- ◆ Section 5.20, “Attachments,” on page 8
- ◆ Section 5.21, “Notes,” on page 8
- ◆ Section 5.22, “Tasks,” on page 8
- ◆ Section 5.23, “Phone Messages,” on page 9
- ◆ Section 5.24, “Reply/Forward Icons,” on page 9
- ◆ Section 5.25, “Picture Quality,” on page 9

5.1 New Contacts

If you create a new contact on your mobile device, and if you do not assign it to a specific address book (perhaps called a “group” or a “category” on your mobile device) or if you assign it to an address book that does not exist in GroupWise, it might not synchronize back to GroupWise as you expect.

By default, an unassigned new contact synchronizes to your default personal address book in GroupWise. However, the default personal address book in GroupWise is your Frequent Contacts address book, which is not synchronized to your mobile device by default. So an unassigned new contact from your mobile device might not synchronize to GroupWise where you expect it, or it might not synchronize at all.

To assure that new contacts created on your mobile device synchronize to GroupWise as expected, always assign them to a mobile device address book (or “group” or “category”) that is synchronized with a specific GroupWise personal address book. Or, make sure that you change your default personal address book in GroupWise to a personal address book that synchronizes with your mobile device.

Your default personal address book in GroupWise is the address book that displays when you click the *Contacts* tab in the GroupWise client. When you change your default personal address book in the GroupWise client, the change takes effect for your mobile device the next time the GroupWise Connector is restarted.

5.2 Copied Contacts

If you copy a contact from one GroupWise address book to another, the contact is not synchronized to your mobile device in the destination address book. The GroupWise client links the original contact into the destination address book. Such links are not currently synchronized to your mobile device. However, on some mobile devices, you can search for contacts, regardless of which address book they are located in.

If the original contact is in an address book that is not synchronized to your mobile device, such as the Frequent Contacts address book, the copied contact does not appear on your mobile device, even when you are synchronizing the address book that it was copied into. If you want a copied contact to appear on your mobile device, delete the original contact from the original address book. This creates the contact as a normal contact in the address book that is being synchronized.

5.3 Contacts with Categories

On some mobile devices, contacts with categories appear to be duplicated. If this is a problem, remove the category from the contacts.

5.4 Contacts with Pictures

If you create a contact on your mobile device and add a picture to it, the contact might not synchronize to GroupWise if the picture that you added to the contact on your mobile device exceeds the GroupWise picture size limit. For more information, see [Section 5.25, “Picture Quality,” on page 9](#).

5.5 Organizations

Organizations currently do not synchronize to mobile devices.

5.6 Personal Address Books

When your default personal address book synchronizes to your mobile device, it is named Contacts rather than the name that you see in GroupWise.

The default GroupWise personal address book is your Frequent Contacts personal address book. If you change your personal address book in GroupWise, this change does not synchronize to your mobile device. As a result, if you add new contacts to the new default personal address book in GroupWise, those new contacts synchronize to your original default personal address book on your mobile device. Restarting the GroupWise Connector resolves the problem, so that new contacts synchronize to the correct personal address book.

On some mobile devices, personal address books with categories appear to be duplicated. If this is a problem, remove the category from the personal address books.

5.7 Shared Address Books

Shared address books are synchronized to the owner’s mobile device, but not to the mobile devices of those with whom the address book has been shared.

5.8 Draft Items

If you create a draft item on your mobile device, it does not synchronize to your Work in Progress folder in the GroupWise client. If you create a draft item in the GroupWise client, it does synchronize to your mobile device, but you cannot modify it on your mobile device.

5.9 Forwarded Items

On some mobile devices, items that are forwarded as attachments in GroupWise are not accessible.

5.10 Moved Items

If you move an item from one folder to another in the GroupWise client, it might not immediately move from the original folder to the destination folder on your mobile device. If the moved item still appears in the original folder, or if it does not appear in the destination folder, manually refresh the folder on your mobile device. Use the mobile device's Sync or Refresh option to see that the item has successfully moved from the original folder to the destination folder on your mobile device.

5.11 HTML Formatted Messages

Messages that display with HTML formatting in GroupWise are synchronized as text-only messages to your mobile device. The Mobility Connector currently uses ActiveSync version 2.5, which does not support HTML formatting. A future version of the Mobility Connector will support a more recent version of ActiveSync.

5.12 Appointments on Windows Phone 7 Devices

On Windows Phone 7 devices, the Mobility Connector does not correctly accept and decline appointments. Therefore, users of Windows Phone 7 devices should not accept or decline appointments on their devices. This issue will be corrected in a future update.

5.13 Appointment Modifications

If you send an appointment to multiple users in the GroupWise client, then modify the appointment on your mobile device by changing the time, subject, location, or message text, your changes are not synchronized back to GroupWise.

For some mobile devices, when you modify an appointment on your mobile device, the modified appointment synchronizes correctly to GroupWise, but the original appointment is not removed from GroupWise, resulting in duplicate appointments in GroupWise.

5.14 Rescheduled Appointments

If you reschedule an appointment into the future in the GroupWise Calendar, it also reschedules to the new date on your mobile device. However, the original appointment on the original date remains as a duplicate on your mobile device. On some devices, subsequent synchronizations update both appointments. On other devices, subsequent synchronizations cause both appointments to disappear from the mobile device.

5.15 Declined Appointments

If you decline an appointment and include a comment, the comment does not synchronize to the appointment sender's mobile device.

5.16 Personal Calendars

In the GroupWise client, you can select the personal calendars from which you want appointments displayed in the main GroupWise Calendar. However, when calendar data is synchronized to your mobile device, all appointments are synchronized into the main calendar on the mobile device, regardless of which personal calendars you have selected in GroupWise. This is working as designed at present.

If you create a personal calendar under your main Calendar folder in the GroupWise client, it might synchronize to your mobile device as a regular folder rather than a Calendar folder. If this happens, rename the personal calendar to cause it to display as a Calendar folder.

5.17 Shared Calendars

Shared calendars are synchronized to the owner's mobile device, but not to the mobile devices of those with whom the calendar has been shared. If shared calendars are important to users, shared calendar owners can post them to the Internet using the GroupWise Calendar Publishing Host, as described in “[Publishing Personal Calendars on the Internet](#)” in “[Calendar](#)” in the *GroupWise 8 Windows Client User Guide*. After the owner publishes the calendar, other users can view the calendar URL in the Web browser on their mobile devices.

5.18 Shared Folders

Shared folders synchronize to your mobile device if you are the folder owner. Users with whom the folders are shared do not see the shared folders on their mobile devices.

5.19 Find Results Folders

Find Results folders do not synchronize to your mobile device. A Find Results folder is a view of search results, not an actual folder in GroupWise.

5.20 Attachments

On some mobile devices, items that have attachments are available on your mobile device before the attachments themselves have synchronized. When this happens, you might see the item on your mobile device without attachments, then the item disappears briefly and reappears complete with attachments. This is working as designed.

5.21 Notes

Reminder notes are synchronized to your device as all day events. If you create an all day event on your mobile device, it synchronizes to GroupWise as an all day event. If you create a note on your mobile device, it does not synchronize to GroupWise.

5.22 Tasks

Tasks are not currently synchronized to your mobile device.

5.23 Phone Messages

Phone messages are not currently synchronized to your mobile device.

As a workaround, you can set up a rule to forward phone message items to yourself as e-mail messages, which then synchronize to your mobile device.

5.24 Reply/Forward Icons

If you reply to or forward an item on your mobile device, the typical *Reply* or *Forward* icon does not display when you view the item in a GroupWise client. The mobile device does not provide the necessary indicator to cause the GroupWise client to display the appropriate icon.

5.25 Picture Quality

GroupWise personal address books limit contact pictures to 64x64 pixels and less than 2K in size. Mobile devices often handle pictures with more pixels and a larger file size.

When pictures are synchronized from your mobile device to GroupWise, GroupWise makes two attempts to optimize the picture to fit within the GroupWise limits of 64x64 pixels and 2K file size. The resulting picture might not display as well as expected in the GroupWise personal address book. You can use an image editing program to manually adjust the original picture to fit within the GroupWise limits, then synchronize it from your mobile device to GroupWise.

When pictures are synchronized from GroupWise to your mobile device, they might not display as well as expected on the mobile device because the GroupWise limit is retained on the mobile device.

6 Device-Specific Issues

See the [Novell Data Synchronizer Mobility Connector Wiki \(http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Connector\)](http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Connector) to check for issues related to your particular mobile device.

7 GroupWise 8.0.2 Issues

The Mobility Connector depends on the GroupWise Connector and the GroupWise POA for much of its functionality. GroupWise 8.0.2 is required for use with the GroupWise Connector. However, GroupWise 8.0.2 was released with some issues that impact GroupWise Connector functionality. For a list of GroupWise 8.0.2 issues, see the [GroupWise Connector Readme for Data Synchronizer Mobility Pack 1.1 \(http://www.novell.com/documentation/datasynchronizer1/mobility_pack_1.1/http://www.novell.com/documentation/datasynchronizer1/datasync11_readme_mobility/data/datasync11_readme_mobility.html\)](http://www.novell.com/documentation/datasynchronizer1/mobility_pack_1.1/http://www.novell.com/documentation/datasynchronizer1/datasync11_readme_mobility/data/datasync11_readme_mobility.html).

IMPORTANT: GroupWise 8.0.2 Hot Patch 2 resolves all of these GroupWise 8.0.2 issues.

8 International Issues

- ◆ [Section 8.1, “Extended Characters in Domain and Post Office Names,” on page 10](#)

8.1 Extended Characters in Domain and Post Office Names

The representation of extended characters in event IDs has changed between GroupWise 8.0.1 and 8.0.2. The change affects GroupWise mobile device users in domains and post offices where the domain or post office name includes extended characters. It affects these users regardless of the synchronization application they have been using (GroupWise Mobile Server, BlackBerry Enterprise Server, or the Data Synchronizer Mobility Pack).

Perform the following procedure when updating to GroupWise 8.0.2 in order to accommodate the change in the representation of external characters:

- 1** Identify the users who have been synchronizing data using GroupWise Mobile Server, BlackBerry Enterprise Server, or Novell Data Synchronizer, and who belong to domains or post offices whose names include extended characters.
- 2** Remove the affected users from the synchronization applications.
- 3** Run GWCheck for each user to see if the user database currently contains any event records:
 - 3a** In the *Database Path* field, browse to and select the path to the user's post office.
 - 3b** In the *Object Type* box, select *User/Resource*, then specify the user's GroupWise user ID.
The *Analyze/Fix Databases* action is selected by default, as well as the *Structure* and *Fix problems* options.
 - 3c** Select *Index Check* and *Contents*.
 - 3d** On the *Logging* tab, select *Verbose logging*.
 - 3e** On the *Results* tab, specify any users in addition to the GroupWise administrator that you want the log file sent to.
The log file is created in the *post_office_directory\wpcout\ofs* directory, then e-mail to the specified users.
 - 3f** Click *Run* to check the user database and generate the log file.

- 4** Review the log file for lines similar to the following:

```
Starting scan of EVENT (and EVENT configuration) records
Located EVENT configuration record (drn=58517; key='string')
Finished scan of EVENT (and EVENT configuration) records
```

The key *string* varies depending on the synchronization application. For example, if the user has been synchronizing through Synchronizer, the key *string* would look similar to:

```
default.pipeline1.gw_Trusted App_C29AC0403_userid
```

If the user has been using multiple synchronization applications, there might be multiple event records, each with a different key *string*.

- 5** (Conditional) If the log file shows no event records for the user, repeat [Step 3](#) and [Step 4](#) for the next affected user.
- 6** For each affected user:
 - 6a** Identify the key *string* for the user's synchronization application.
 - 6b** Rerun GWCheck as described in [Step 3](#), and on the *Misc* tab, specify the following option in the *Support Options* field:
`cleanupgwevntskey=string`

This removes all event records for the associated synchronization application.

6c (Conditional) If the user has been using multiple synchronization applications, repeat [Step 6](#) for each synchronization application.

7 After all event records have been removed for all affected users, stop the POA.

8 Update the POA to GroupWise 8.0.2.

9 Add the affected users back to their synchronization applications.

This process is necessary because item IDs include domain and post office names. Because extended characters are represented differently in GroupWise 8.0.2, event records for items that contain the old representations of extended characters must be removed, so that subsequent synchronization of events for existing items can function correctly.

9 Documentation

Novell Data Synchronizer Mobility Pack documentation is available at the [Novell Data Synchronizer Documentation Web site \(http://www.novell.com/documentation/datasynchronizer1\)](http://www.novell.com/documentation/datasynchronizer1):

- ♦ Novell Data Synchronizer Mobility Pack Readme
- ♦ Novell Data Synchronizer installation and administration guides

Novell Data Synchronizer connector documentation is available at the [Novell Data Synchronizer Connector Documentation Web site \(http://www.novell.com/documentation/datasync_connectors1\)](http://www.novell.com/documentation/datasync_connectors1)

- ♦ Connector Readmes
- ♦ Connector Quick Starts
- ♦ Connector installation and configuration guides

In addition to the Data Synchronizer product documentation, the following resources provide additional information about Data Synchronizer and connectors:

- ♦ [Novell Support and Knowledgebase \(http://www.novell.com/support\)](http://www.novell.com/support)
- ♦ [Data Synchronizer Support Forum \(http://forums.novell.com/novell-product-support-forums/data-synchronizer\)](http://forums.novell.com/novell-product-support-forums/data-synchronizer)
- ♦ [Data Synchronization Cool Solutions \(http://www.novell.com/communities/coolsolutions/datasynchronizer\)](http://www.novell.com/communities/coolsolutions/datasynchronizer)
- ♦ [Data Synchronizer Mobility Pack Best Practices Wiki \(http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Pack_Best_Practices\)](http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Pack_Best_Practices)
- ♦ [Novell Data Synchronizer Mobility Connector Wiki \(http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Connector\)](http://wiki.novell.com/index.php/Data_Synchronizer_Mobility_Connector)
- ♦ [Data Synchronizer Connector Marketplace \(http://www.novell.com/products/data-synchronizer/connectors\)](http://www.novell.com/products/data-synchronizer/connectors)

10 Legal Notices

Novell, Inc. makes no representations or warranties with respect to the contents or use of this documentation, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc. reserves the right to revise this publication and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes.

Further, Novell, Inc. makes no representations or warranties with respect to any software, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc. reserves the right to make changes to any and all parts of Novell software, at any time, without any obligation to notify any person or entity of such changes.

Any products or technical information provided under this Agreement may be subject to U.S. export controls and the trade laws of other countries. You agree to comply with all export control regulations and to obtain any required licenses or classification to export, re-export, or import deliverables. You agree not to export or re-export to entities on the current U.S. export exclusion lists or to any embargoed or terrorist countries as specified in the U.S. export laws. You agree to not use deliverables for prohibited nuclear, missile, or chemical biological weaponry end uses. Please refer to the [Novell International Trade Services Web page \(http://www.novell.com/info/exports/\)](http://www.novell.com/info/exports/) for more information on exporting Novell software. Novell assumes no responsibility for your failure to obtain any necessary export approvals.

Copyright © 2010-2011 Novell, Inc. All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the publisher.

For Novell trademarks, see [the Novell Trademark and Service Mark list \(http://www.novell.com/company/legal/trademarks/tmlist.html\)](http://www.novell.com/company/legal/trademarks/tmlist.html).

All third-party trademarks are the property of their respective owners.