

# Troubleshooting Novell Data Synchronizer Mobility Pack Lab

GW07

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## Section 1

The purpose of these Exercises are to make you familiar with the tools used by Novell Technical Support to trouble-shoot and diagnose problems with the Novell Data Synchronizer Mobility Pack.

## 1.1 Exercise: The WebAdmin Console

The purpose of this exercise is to become familiar with WebAdmin Console and how it can be used for troubleshooting issue with the Data Synchronizer Mobility pack.

### Objectives:

Task I: Create Mail between Users  
Task II: Add a user to the Connectors  
Task III: Check the Connector Monitors  
Task IV: Look at GroupWise-AppInterface log  
Task V: Fix and Verify Solution

### Before starting this lab, follow these steps to start the VMs:

If not already started, start the VMWare Workstation by clicking **Start > All Programs > VMWare > VMWorkstation**.

Open the DA1L-GW VM by clicking **File > Open** and browse to and select the **c:\vms\gw05\DA1L-GW\SLES10SP2.vmx** file.

Power on the VM by pressing **Power on this Virtual Machine**.

Once DA1L is loaded, log in to the server as **root** with a password of **n0v3ll**

Open the DA2L – DataSync VM by clicking **File > Open** and browse to and select the **c:\vms\gw05\DA2L-DataSync\DA2L-Datasync.vmx** file.

Power on the VM by pressing **Power on this Virtual Machine**.

- Once DA2L is loaded, log in to the server as **root** with a password of **n0v3ll**

### Task I: Create Mail between Users

In this task you will create and send mail to Mobility users from a non-mobility user. These items will be used during the different labs and will show the Data Synchronizer working.

1. Switch to the DA1L-GW virtual machine.
2. Launch the GroupWise client.
3. Login as **msteele** with a password of **novell**.
4. Create and send mail to the users Marie Perry and George Sanders.
5. Logout of the GroupWise client
6. Launch the GroupWise client again.
7. Log in as **mperry** (password **novell**)
8. Verify that mail exists in the inbox.
9. Close the GroupWise client.

---

## Task II: Add a user to the Connectors

This task adds the user George Sanders to the Data Synchronizer Mobility pack server.

1. Switch to the DA2L-DATASYNC virtual machine.
2. Launch Firefox
3. Browse to the Novell Data Synchronizer Mobility Pact WebAdmin Console.  
Should be the Home Page. If not browse to:  
<https://172.17.8.102:8120/admin/login/>
4. Login as admin
  - Username: **admin**
  - Password: **n0v3ll**
5. Click on the GroupWise connector
6. Click on Users
7. Click on “Add Users to Connector”.
8. Type “**gsanders**” in the search window and click on the Search button.
9. Select the Check Box for Sanders and click on the Add button.
10. Return to the WebAdmin Home (click on “Home”)
11. Click on the Mobility connector
12. Click on Users
13. Click on “Add Users to Connector”.
14. Type “**gsanders**” in the search window and click on the Search button.
15. Select the Check Box for Sanders and click on the Add button.
16. Return to the WebAdmin Home (click on “Home”)

## Task III: Check the Connector Monitors

This task checks on the progress of the synchronization of George Sanders.

1. Click on the GroupWise Connector monitor icon (looks like a monitor)
2. Look for George Sanders in the bottom “User Status” section.  
Note: George does not show up.
3. Return to the WebAdmin Home (click on “Home”)
4. Click on the Mobility Connector monitor icon (looks like a monitor)
5. Look for George Sanders in the bottom “User Status” section.  
Note: George shows “Failed” under Sync Status.
6. Click on the user link of “Gsanders” in the User Status section.
7. Look in the Folder List section.

Note: There is no /Contact/George Sanders folder. Also, note that only generic folder names have been pulled in. This is a good indicator that no data has actually come from GroupWise.

8. Return to the WebAdmin Home (click on “Home”)

## Task IV: Look at GroupWise-AppInterface log

This task looks at the log files in default logging level to see if we can determine what happened to George Sanders.

1. On the DA2L-DataSync virtual machine
2. Right click on the desktop and click on “Open In Terminal”
3. Maximize the Terminal window.
4. Change to the “/var/log/datasync/connectors” directory.  
“**cd /var/log/datasync/connectors**”
5. Display the “default.pipeline1.groupwise-AppInterface.log” file.  
“**cat default.pipeline1.groupwise-AppInterface.log**”

Note: that is a lot of stuff, huh?

6. Display only lines with “gsanders” in them from the “default.pipeline1.groupwise-AppInterface.log” file.  
“**cat default.pipeline1.groupwise-AppInterface.log |grep -i gsanders**”

Note: Still a lot of data, but now we see lines that read: “User gsanders does not exist on the Post Office”

Question: Does “George Sanders (gsanders)” exist in GroupWise?

## Task V: Fix and Verify Solution

This task fixes and verifies the fix.

1. Switch to the DA1L-GW virtual machine.
2. Load ConsoleOne
3. Login to the eDirectory Tree  
Login name: **Admin**  
Password: **n0v3ll**  
Tree: **172.17.8.101**  
Context: **slc.da**
4. Highlight the DA-CORP tree
5. From the top menu, select Tools | GroupWise System Operations | Select Domain
6. Click the OK button to accept the /mail/slcdom path.

- 
7. Highlight the “GroupWise System”  
If the Users are not shown, change the drop down at the top to Users.
  8. Locate the user “George Sanders” and verify the GroupWise Userid.  
Note: George Sanders userid is: gasanders
  9. Switch to DA1L-DATASYNC virtual machine
  10. Return to Firefox and the Novell Data Synchronizer WebAdmin Console.
  11. Click on the GroupWise connector
  12. Select the User tab
  13. In the “Application User Name” column, note that George Sanders userid is **gsanders** and not **gasanders**.
  14. Click on **gsanders** and change the name to **gasanders** and press Enter.
  15. Return to the WebAdmin Home (click on “Home”)
  16. Click on the GroupWise connector Monitor icon.  
Note: George Sanders now shows up in the User Status section.
  17. Return to the WebAdmin Home (click on “Home”)
  18. Click on the Mobility connector Monitor icon.
  19. In the User Status section in the Action column, click on the “Re-initialize User” button.
  20. Select the “Re-initialize User” button in the pop up dialog.
  21. Select “Ok” to the question “The user “Gsanders” will be re-initialized” box.
  22. By waiting and/or refreshing you will eventually see that George Sanders will show a “Sync State” of “Synced”.

---

This exercise is now complete.

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**(End of Exercise)**

## 1.2 Exercise: Trouble-shooting with the Log Files

At this time, the only place to do really deep trouble-shooting is by working through log files to see what is happening at any given time. In this Exercise you will change the logging level to diagnostic and then track a message through the various log files looking to duplicate an existing problem.

## Objectives:

Task I: Change the logging level to Diagnostic

Task II: View a Message send via the Logs

Task III: Identify / Duplicate the Problem

Task IV: Fix the Problem.

## Special Instructions and Notes:

Have DA1L-GW running and logged in as root.

Have DA2L-DATASYNC running and logged in as root.

## Task I: Change the logging level to Diagnostic

In this Task you will reconfigure the Log level for both the groupwise and mobility connectors. This greatly increases the information displayed within the log files.

1. On DA2L-Datasync load Firefox
2. Browse to the Novell Data Synchronizer Mobility Pack WebAdmin Console.  
Should be the Home Page. If not browse to:  
<https://172.17.8.102:8120/admin/login/>
3. Login as **admin** with a password of **n0v3ll**.
4. Click on the GroupWise connector
5. Scroll to the very bottom.
6. Change the "Set Logging Level " field to Debug and select Verbose.
7. Click Save Log Settings.
8. Click "Edit XML Source" on the top right and search for the section that looks similar to following and change it to

```
<log>
  <failures>on</failures>
  <verbose>diagnostic</verbose>
  <file>default.pipeline1.groupwise.log</file>
  <level>debug</level>
</log>
```

9. Click Save Custom Settings.
10. Click Home button on the top left.
11. Stop and start the GroupWise Connector.
12. Click Mobility Connector.
13. Scroll to the very bottom.
14. Change the "Set Logging Level " field to Debug and select Verbose.

- 
15. Click Save Log Settings.
  16. Click "Edit XML Source" on the top right and search for section that looks similar to following and change it to

```
<log>
  <failures>on</failures>
  <verbose>diagnostic</verbose>
  <file>default.pipeline1.mobility.log</file>
  <level>debug</level>
</log>
```
  17. Click Save Custom Settings.
  18. Click Home button on the top left.
  19. Stop and start the Mobility Connector.
  20. Exit the Novell Data Synchronizer Webadmin console.
  21. Close Firefox.

## Task II: View a Message send via the Logs

In this Task you will simply see what a good message send looks like from within the log files. This is very helpful so as to understand better when something fails.

1. On DA2L-DATASYNC virtual machine
2. Load the Android device emulator as the user Marie Perry  
Note: I like to do this on a different Workspace.
3. Unlock the device by using the mouse to swipe.
4. Click on the Email application.  
Note: You should see the email you sent earlier listed.
5. Read the email by clicking on it.
6. Click on the dot in front of Mark Steele's name on the From line.
7. Click on OK to Add Contact.
8. Select Create New Contact.
9. Click on Done
10. Close the email.
11. Right click on DA2L-DATASYNC's desktop and select "Open in Terminal"  
Note: I like to change to a different workspace on the machine. Also making the terminal window wide but only taking up the top half of the Desktop.
12. Change to the "/var/log/datasync/connectors" directory.  
"cd /var/log/datasync/connectors"

13. Now “Tail” the GroupWise AppInterface log in a continuous manner.  
“tail -f default.pipeline1.groupwise-AppInterface.log”
14. Press Enter 5 or 6 times to create a space between the last text and any new text.
15. Open a second Terminal window by right clicking on the desktop and select “Open in Terminal”  
Note: Do this on the same workspace of the machine as the first terminal window. Also making the terminal window wide but only taking up the bottom half of the Desktop.
16. Change to the “/var/log/datasync/connectors” directory.  
“cd /var/log/datasync/connectors”
17. Now “Tail” the Mobility AppInterface log in a continuous manner.  
“tail -f default.pipeline1.mobility-AppInterface.log”
18. Press Enter 2 or 3 times to create a space between the last text and any new text.
19. Switch to the DA1L-GW virtual machine.
20. Start the GroupWise client and login as “**msteale**” with a password of “**novell**”, if not already running.
21. Send a new email, with a unique subject line, to Marie Perry
22. Switch back to the DA2L-DATASYNC virtual machine.
23. You can now scroll up through the log files and see all the detail that is put in even for just one message. It is a lot of data, huh? Can we shrink it down?  
Note: You can add to the tail command the grep command to filter the output. We will do that later in the is exercise.
24. Check the Android emulator to see if the message came in.
25. Read the message and check the logging.
26. Reply to the message from the Android and check the logging.
27. Switch back to your Terminal Windows and press Control+C to stop the tail command. Do this in both Terminal windows but do not close them.

### **Task III: Identify / Duplicate the Problem**

In this Task you will experience a problem with the devices no longer synchronizing and by using the log files identify the problem.

1. On DA2L-DATASYNC virtual machine in any Terminal window, type  
“trouble1.sh” and press Enter.  
Once the Terminal window prompt re-appears you will be ready to move on.
2. Change into the top Terminal window and type:

- 
- “tail -f default.pipeline1.groupwise-AppInterface.log |grep -i unique”
3. Press Enter 5 or 6 times to create a space between the last text and any new text.
  4. Change into the bottom Terminal window and type:  
“tail -f default.pipeline1.mobility-AppInterface.log |grep -i unique”
  5. Press Enter 5 or 6 times to create a space between the last text and any new text.
  6. Switch to the DA1L-GW virtual machine.
  7. Start the GroupWise client and login as “**msteale**” with a password of “**novell**”, if not already running.
  8. Send a new email, with “Unique” on the subject line, to Marie Perry
  9. Switch back to the DA2L-DATASYNC virtual machine.
  10. Look at the Terminal windows and the two log files and see what happened.  
Note that the mobility-AppInterface.log did not change but the groupwise-AppInterface log did change. From this we know that the message got to the GroupWise connector. What other logs are in between these two?
  11. Right click on DA2L-DATASYNC's desktop and select “Open in Terminal”  
Note: You can arrange these windows on the desktop any way you want that will make it easier for you to follow the flow.
  12. Change to the “/var/log/datasync/connectors” directory.  
“cd /var/log/datasync/connectors”
  13. Search the default.pipeline1.groupwise.log for the “unique” subject line by typing:  
“cat default.pipeline1.groupwise.log |grep -i unique”  
Do you see any lines come up with the subject line? Yes
  14. Search the default.pipeline1.mobility.log for the “unique” subject line by typing:  
“cat default.pipeline1.mobility.log |grep -i unique”  
Do you see any lines come up with the subject line? Yes
  15. Where is the Problem? The only log not responding it the mobility-appinterface.  
Message flow:
    1. GroupWise POA → (groupwise-appinterface.log) → GroupWise connector
    2. GroupWise connector → (groupwise.log) → Datasync Engine
    3. Datasync Engine → (mobility.log) → Mobility connector
    4. Mobility connector → (mobility-appinterface.log) → DeviceNote: Since we see the message in the default.pipeline1.mobility.log it means that sync engine tried to send it to Mobility Connector. Since we don't see the message in the default.pipeline1.mobility-AppInterface.log it means that the

message never reached the Mobility Database so it would never reach the device. Is the Mobility connector running?

16. In the Terminal window, change to the “/var/log/datasync/syncengine” directory:

“cd /var/log/datasync/syncengine”

17. Tail the “connectorManager.log” file.

“tail connectorManager.log”

What is the PID number for the Mobility connector?

Example: default.pipeline1.mobility, pid XXXX

18. Check to see if the process is running by typing:

“ps -eaf |grep XXXX”

Does the “[python]” process show “<defunct>”?

19. Close the extra Terminal window.

20. Switch back to your Terminal Windows and press Control+C to stop the tail command. Do this in both Terminal windows but do not close them.

21. Check the Android emulator to see if the message came in.

Do you see a problem?

Looks like the Mobiltiy connector is down!

### Task IV: Fix the Problem.

Based on the above task, we can determine that the problem is with the Mobility connector. Now we must figure out what is wrong with the connector and fix the problem.

1. On DA2L-Datasync load Firefox
2. Browse to the Novell Data Synchronizer Mobility Pack WebAdmin Console.  
Should be the Home Page. If not browse to:  
<https://172.17.8.102:8120/admin/login/>
3. Login as **admin** with a password of **n0v3ll**.  
What do we see about the Mobility connector?
4. Try just Starting the Mobility connector  
What happens?
5. Click OK to clear the error dialog.
6. Exit the WebAdmin Console.
7. Switch to a Terminal Window.
8. Type the command “rcdatasync restart” and press Enter.
9. Once that is done type the command “rcdatasync status” and press Enter.  
This verifies that everything did indeed reload and not fail shortly after loading.

- 
10. Load Firefox (if not already loaded).
  11. Browse to the Novell Data Synchronizer Mobility Pack WebAdmin Console.  
Should be the Home Page. If not browse to:  
<https://172.17.8.102:8120/admin/login/>
  12. Login as **admin** with a password of **n0v3ll**.  
Note: The connectors should show as running.
  13. Exit the WebAdmin Console.
  14. Switch to the DA1L-GW virtual machine.
  15. Start the GroupWise client and login as “**msteale**” with a password of “**novell**”, if not already running.
  16. Send a new email, with a unique subject line, to Marie Perry
  17. Switch back to the DA2L-DATASYNC virtual machine.
  18. Check the Android emulator to see if the message came in.  
Note: you may need to exit the Email App and restart to see the new email.

---

In this exercise you have become familiar with working in the main log files that are used for trouble-shooting Novell Data Synchronizer Mobility Pack issues.

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**(End of Exercise)**

## 1.3 Exercise Post Office Agent Logging & SOAP

This exercise focuses on the Logging happening on the GroupWise Post Office Agent (POA) side and what additional features have been added to help trouble-shoot the SOAP communications.

### Objectives:

- Task I: The Problem
- Task II: Identify the location of the Problem
- Task III: Fix the Problem

### Special Instructions and Notes:

- Have DA1L-GW running and logged in as root.
- Have DA2L-DATASYNC running and logged in as root.

## Task I: The Problem

End users are complaining that it takes a long time for messages to reach their devices. They do get them but it can take hours. Message sent from the Device to GroupWise work fine.

1. In a Terminal window on the DA2L-DATASYNC virtual machine type:  
“trouble2.sh” and press Enter
2. Switch to the DA1L-GW virtual machine.
3. Start the GroupWise client and login as “**msteale**” with a password of “**novell**”, if not already running.
4. Send a new email, with “Special” on the subject line, to Marie Perry
5. Switch back to the DA2L-DATASYNC virtual machine.
6. Check the Android emulator to see if the message came in.

Note: The message should not be there.

## Task II: Identify the location of the Problem

In this Task you will determine through the use of log files and the GroupWise POA SOAP tracking options where the problem is located.

1. Right click on DA2L-DATASYNC's desktop and select “Open in Terminal”  
Note: You can use an existing windows of one is open.
2. Change to the “/var/log/datasync/connectors” directory.  
“cd /var/log/datasync/connectors”
3. Search the default.pipeline1.groupwise-AppInterface.log for the “Special” subject line by typing:  
“cat default.pipeline1.groupwise-AppInterface.log |grep -i special”  
Do you see any lines come up with the subject line? No  
Since we do not see the Subject line in the default.pipeline1.groupwise-AppInterface.log, which is the first log in the message flow, did the message even leave the GroupWise POA?
4. Switch to the DA1L-GW virtual machine.
5. Load Firefox
6. Browse to the SLC Post Office POA Webconsole.  
Should be on the bookmark bar. If not browse to:  
<https://172.17.8.101:7181>
7. Login as **gwagent** with a password of **novell**.

Note: Unless you have setup your POA agents to require a userid and password most of the following options will not be available to you.

- 
8. Click on the Configuration tab.
  9. Click on the “SOAP Notification List” link
  10. Find “mperry” in the list.
  11. Look at the Date/Time column for this user.  
What is missing?  
Note: The Asterisk (\*) means that the last SLAP sent from the POA never got responded too and therefore the POA will stop sending SLAPs for new messages.
  12. Click on the Configuration tab.
  13. Click on the “Event Configuration List” link
  14. Click on the “mperry” link in the list.
  15. Check the box for “Add to Notification List”.
  16. Click on the Submit button.
  17. Click on the Configuration tab.
  18. Click on the “SOAP Notification List” link
  19. Find “mperry” in the list.
  20. Look at the Date/Time column for this user.  
Is the Asterisk still missing? No
  21. Start the GroupWise client and login as “**msteale**” with a password of “**novell**”, if not already running.
  22. Resend an email, with “Special” on the subject line, to Marie Perry
  23. Return to the SLC Post Office POA Webconsole.
  24. Click on the “SOAP Notification List” link
  25. Find “mperry” in the list.
  26. Look at the Date/Time column for this user.  
Is the Asterisk still missing? Yes  
Note: The SLAP has failed again.
  27. Click on the Configuration tab.
  28. Click on the “Event Configuration List” link
  29. Click on the “mperry” link in the list.
  30. Check the box for “Show Events”.
  31. Click on the Submit button.  
Note: You should see a list of Events waiting to be picked up for this user.
  32. Click on the Configuration tab.
  33. Scroll down and click on the “Log Settings” link.

34. Check the options for “Show SOAP Requests” and “Show SOAP Events”.
35. Click on the Submit button.
36. Switch to the GroupWise client and login as “**mstele**” with a password of “**novell**”, if not already logged in.
37. Resend an email, with “Special” on the subject line, to Marie Perry
38. Return to the SLC Post Office POA Webconsole.
39. Click on the “Log Files” tab of the POA Webconsole
40. Type “Error” in the “Events containing” line.
41. Highlight the last log file in the list and click on the “View Events” button.
42. See the lines with the:  
“Error with GWEvent notification [8908]: 172.17.8.102:4500”  
Note: Error 8908 Means: Cannot connect to specified address or Connection to the specified address failed.
43. Take the GroupWise POA out of the equation by using Telnet to test the connection.
44. Right click on DA1L-GW's desktop and select “Open in Terminal”
45. Type the command “telnet 172.17.8.102 4500” and press Enter.  
Note: It never comes back. Press Control+C to stop.  
Is the problem in GroupWise?
46. Switch back to the DA2L-DATASYNC virtual machine.
47. Browse to the Novell Data Synchronizer Mobility Pack WebAdmin Console.  
Should be the Home Page. If not browse to:  
<https://172.17.8.102:8120/admin/login/>
48. Login as **admin** with a password of **n0v3ll**.  
Is the GroupWise Connector running? Yes
49. Right click on DA2L-DATASYNC's desktop and select “Open in Terminal”  
Note: You can use an existing windows of one is open.
50. Type the command: “netstat -patune |grep 4500” and press Enter.  
Note: Says that python is LISTEN on 172.17.8.102:4500  
Why can't the GroupWise POA reach it? What could be in the way?

### Task III: Fix the Problem

In this Task we will fix the problem based on the fact that it does not appear to be either GroupWise or Data Synchronizer. What is in between these two programs?

1. Check for a Firewall on DA2L-DATASYNC by typing the following command in

---

a Terminal window: “rcSuSEfirewall2 status” and pressing Enter.

Note: Shows unused.

2. Check Network Cables?

Note: Email going from the Device to GroupWise works, therefore the cables and hardware is fine.

3. Check iptables on DA2L-DATASYNC by typing the following command in a Terminal window: “iptables --list-rules” and pressing Enter.

Note: -A INPUT -p tcp -dport 4500 -j DROP

Something is happening on port 4500 here.

4. Clear the iptables by typing the following command in a Terminal window: “iptables --flush” and pressing Enter.

5. Recheck iptables on DA2L-DATASYNC by typing the following command in a Terminal window: “iptables --list-rules” and pressing Enter.

Note: The DROP is gone.

6. Switch to the DA1L-GW virtual server.

7. Browse to the SLC Post Office POA Webconsole.

Login as **gwagent** with a password of **novell** unless already logged in.

8. Click on the Configuration tab.

9. Click on the “Event Configuration List” link

10. Click on the “mperry” link in the list.

11. Check the box for “Add to Notification List”.

12. Click on the Submit button.

13. Click on the Configuration tab.

14. Click on the “SOAP Notification List” link

15. Find “mperry” in the list.

16. Look at the Date/Time column for this user.

Is the Asterisk still missing? No

17. Start the GroupWise client and login as “**msteale**” with a password of “**novell**”, if not already running.

18. Send a new email, with “Is it Working” on the subject line, to Marie Perry

19. Switch back to the DA2L-DATASYNC virtual machine.

20. Check the Android emulator to see if the message came in.

Note: The message should be there along with all the other messages sent.

---

When a new message comes into a GroupWise mailbox, if that user is registered with the Novell Data Synchronizer, then the POA for that user will send a SLAP the Data Synchronizer on port 4500 telling the Data Synchronizer to come get the new mail. The Data Synchronizer will then connect to the POA via port 7191 (the SOAP port) and retrieve the pending items. If the Data Synchronizer does not receive any SLAPs for over 60 Minutes, it will force a polling for new items. This is called the “Sweep Cycle” and the length of time it waits can be changed under the Advanced GroupWise Connector Settings. This Sweep Cycle will appear as a long delay to the mobile users. However, setting the Sweep Cycle to low will cause performance issues.

Iptables are commonly used to redirect ports but not to block them. It is more common for this problem to be caused by a Firewall that was configured but not for port 4500.

---

**(End of Exercise)**

---

## 1.4 Exercise SSL Certificates

In this Exercise you will generate new Self-Signed Certificates for both the Webadmin and the Device connections using just OpenSSL. These same steps will help you to understand how the certificates work and how they can be replaced if need be.

### Objectives:

Task I: Look at existing Certificate

Task II: Create a new Self-Signed Certificate

Task III: Verify the new Web Admin Certificate

### Special Instructions and Notes:

- Have DA1L-GW running and logged in as root.
- Have DA2L-DATASYNC running and logged in as root.

### Task I: Look at existing Certificate

How does the default generated Data Synchronizer Certificate look?

1. Go to either DA1L-GW or DA2L-DATASYNC vm.
2. Load Firefox
3. Open the Novell Data Synchronizer Web Admin console  
ie: <https://172.17.8.102:8120/admin>
4. Login as user **admin** with a password of **n0v3ll**
5. On the Firefox Menu, click on Edit
6. Select Preferences
7. Select Advanced (the sprocket)
8. Click on the Encryption tab.
9. Click on the View Certificates button
10. Select the Authorities tab
11. Scroll down to and highlight the “Datsync Web Admin” certificate.
12. Click on the View button

Note: This certificate is very generic and has “DataSync Web Admin” as the common name. Also, there is no Organization or Organizational Unit. This Certificate is not specific to any machine and some devices and most browsers will complain about it.

13. Close all the pop up windows and return to the Web Admin Console.
14. Click on the “Home” link, if not already there.
15. Click on the “mobility” connector link  
Note that the “Connector Port” is set to 80 and the “Secure” box is unchecked.
16. Change the “Connector Port” is set to 443 and check the “Secure” box.
17. Click on the “Save Custom Settings” button.
18. Click on the “Home” link.
19. Stop and Restart the Mobility connector.
20. Right click on DA2L-DATASYNC's desktop and select “Open in Terminal”
21. Change to the “/var/log/datasync/connectors” directory.  
“cd /var/log/datasync/connectors”
22. Search the default.pipeline1.mobility.log for “ssl” by typing:  
“cat default.pipeline1.mobility.log |grep -i ssl”  
You should see a couple of line that indicate that “SSL is enabled for device” and that “No SSL certificate file found, creating a new one in /var/lib/datasync/device/mobility.pem”.
23. Logout of the Novell Data Synchronizer Web Admin console, and close Firefox.
24. In a Terminal windows type the command “rcdatasync restart” and press Enter
25. Open the Android Emulator and try to check the email.  
Note: It should fail as the particular Android does not like the Certificate generated by the Data Synchronizer server. Hence why we go on to create a new one.

## Task II: Create a new Self-Signed Certificate

Follow the steps listed to generate a new Self-Signed Certificate as described in TID 7007674. While having any Self-Signed Certificate is not optimal (they are cheaper) it is better to have a Self-Signed Certificate that has a proper DNS/CN name.

1. Open a Terminal Window on DA2L-DATASYNC.
2. Change to the “/root” directory  
ie: cd /root
3. Type "openssl genrsa -des3 -out server.key 2048 " and press Enter.
4. Type the pass phrase to protect the key and press Enter.  
This can be whatever you want (ie: novell).
5. Re-enter the pass phrase to protect the key.
6. Do a directory listing (ie: ll) to verify that the “server.key” file was created.
7. Next, Generate a Certificate Signing Request by typing

- 
- "openssl req -new -key server.key -out server.csr "
- and press Enter.
8. Enter the pass phrase of private key when asked for.  
This is the same pass phrase that was entered in Step 4/
  9. Fill in the following information:

Country Name:	US
State or Province Name:	Utah
Locality Name:	Salt Lake City
Organization Name:	Digitalairlines
Organizational Unit Name:	SLC
Common Name:	da2l.digitalairlines.com
Email Address:	<a href="mailto:admin@digitalairlines.com">admin@digitalairlines.com</a>

Note: Common Name is very important as this is the DNS name that the devices would use to connect to the server.
  10. When asked for Challenge password and optional company name, leave them blank and press Enter after each.
  11. Do a directory listing (ie: ll) to verify that the "server.csr" file was created.
  12. Generate a Self-Signed Certificate by typing:  
"openssl x509 -req -days 730 -in server.csr -signkey server.key -out server.crt"  
and press Enter.  

Note: You can increase or decrease the number 730 as needed as this is the number of days the certificate will be valid for.
  13. Enter the pass phrase of the Private Key.  
This is the same pass phrase that was entered in Step 4
  14. Do a directory listing (ie: ll) to verify that the "server.crt" file was created.
  15. Next you need to remove the password from the Private Key with the following command:  
"openssl rsa -in server.key -out nopassword.key"  
and press Enter.
  16. Enter the pass phrase of the Private Key.  
This is the same pass phrase that was entered in Step 4.
  17. Do a directory listing (ie: ll) to verify that the "nopassword.key" file was created.
  18. Now combine the Certificate (server.crt) and Passwordless private key file (nopassword.key) to create a single pem file (mobility.pem). Do this by typing the

following two commands:

"cat nopassword.key > mobility.pem" and press Enter.

And

"cat server.crt >> mobility.pem" and press Enter.

Notice the double greater than symbol (>>), this adds to the file rather than replace.

19. Do a directory listing (ie: ll) to verify that the "mobility.pem" file was created.

20. Do a "cat" command on the "mobility.pem" file to take a look at it.

"cat mobility.pem"

Note: There are two sections to the file, first the Key and second the certificate.

21. Rename the existing mobility.pem by typing the command:

mv /var/lib/datasync/device/mobility.pem /var/lib/datasync/device/mobility.old

22. Copy mobility.pem to /var/lib/datasync/device directory by typing:

"cp mobility.pem /var/lib/datasync/device/" and press Enter.

23. Rename the existing server.pem by typing the command:

mv /var/lib/datasync/webadmin/server.pem /var/lib/datasync/webadmin/server.old

24. Now copy the mobility.pem file to the /var/lib/datasync/webadmin directory as

server.pem by typing:

"cp mobility.pem /var/lib/datasync/webadmin/server.pem" and press Enter.

25. Type "rcdatasync restart " and press Enter.

### Task III: Verify the new Web Admin Certificate

How does the new Data Synchronizer Certificate look?

1. Go to either DA1L-GW or DA2L-DATASYNC vm.
2. Load Firefox
3. Open the Novell Data Synchronizer Web Admin console  
ie: <https://172.17.8.102:8120/admin>
4. You should receive a "Server Connection Failed" with the option to "add an exception".
5. Click on "or you can add an exception".
6. Next, click on the Add Exception button.
7. Click on the Get Certificate button.
8. Click on the View button.  
Note: This certificate is no longer just a generic certificate but specific to this server and DNS host name.
9. Click on the Close button.

- 
10. Verify that the box is checked for the “Permanently store this exception” and click on the Confirm Security Exception button.
  11. Login as user **admin** with a password of **n0v3ll**  
Note: You can at this time look at the Android Emulator and mess around with it if you wish, but after much testing, I could never get the Emulator to work with SSL at this time. In fact, I will have you switch it back off so you can continue with the other labs.
  12. Click on the “mobility” connector link  
Note that the “Connector Port” is set to 443 and the “Secure” box is checked.
  13. Change the “Connector Port” is set to 80 and uncheck the “Secure” box.
  14. Click on the “Save Custom Settings” button.
  15. Click on the “Home” link.
  16. Stop and Restart the Mobility connector.
  17. Switch to the Android Emulator.
  18. Click on the Menu button
  19. Click on Refresh to see if you can now connect.

---

The steps listed here can also be used to create a Certificate Signing Request to send to a public Authority to get a public certificate. Then you can replace the Self-Signed certificates with a public one.

---

**(End of Exercise)**

## 1.5 Exercise: Working with PostgreSQL databases

The purpose of this exercise is to become familiar with working in the PostgreSQL database should the need arise. Included in this exercise are instructions on how to perform manual maintenance on the datasync and mobility databases.

### Objectives:

Task I: Accessing the PostgreSQL databases

Task II: Maneuvering within the Databases

Task III: Viewing Data from the databases

Task III: Running the Vacuum Process

Task III: Running the Index Process

### Special Instructions and Notes:

Switch to the DA2L-DATASYNC virtual machine

Right click on the desktop and select **Open Terminal**.

### Task I: Accessing the PostgreSQL databases

This task will cover some basic instructions on how to get around in the PostgreSQL databases. Be careful as damage can be caused at this point and Novell will not be held responsible for damaged caused while in the PostgreSQL database.

1. Identify the “datasync\_user” password by looking in the `/etc/datasync/configengine/configengine.xml` file.
2. Change to the `/etc/datasync/configengine` directory

```
cd /etc/datasync/configengine
```
3. Display the `configengine.xml` file.

```
cat configengine.xml
```
4. Near the bottom of the file look for the lines that reads:

```
<username>datasync_user</username>
<password>n0v3ll</password>
```
5. Return to the root of the partition:

```
cd /
```
6. Open the `datasync` database with the following command:

```
psql -U datasync_user datasync
```
7. You will be prompted for the password as found in the `configengine.xml`. In this case type “**n0v3ll**” and press Enter.

- 
8. You should now be in the psql client at a “datasync=>” prompt.  
Note the prompt indicates which database you are in.

## Task II: Maneuvering within the Databases

This task shows the basics of maneuvering around within and between the psql databases.

1. At the “datasync=>” prompt, type a \d command and press enter to see the tables within the datasync database.

```
\d
```

2. To view the columns or fields within a Table use the “\d tablename” command.

For example view the columns under the “targets” table by entering:

```
\d targets
```

3. Now change to the mobility database by typing:

```
\c mobility
```

Notice that the prompt has now changed to “mobility=>”

4. View the tables within the mobility database by typing:

```
\d
```

5. View the columns/fields under the “users” table by typing:

```
\d users
```

## Task III: Viewing Data from the databases

What Items are currently being stored in the Mobility database for the user Marie Perry? What types of Items are being store and how many of them are Emails? This information is stored in the “deviceimages” table.

1. Get the list of columns from the deviceimages table by typing:

```
\d deviceimages
```

2. Display the data from the deviceimages table by typing:

```
select * from deviceimages;
```

Note: There may be several pages of data. You can press the “q” key to get back to a psql prompt.

3. Narrow down the search to just Marie Perry's items. To do this first find out what her name is in the mobility database by typing:

```
select name from users;
```

Note: Marie Perry has a name of “MPerry” , yes it is case sensitive.

4. Now display all the Items that belong to MPerry by typing:

```
select * from deviceimages where userid like '%MPerry%';
```

5. Now lets reduce the columns displayed to just the userid, eclass, and state by

typing:

```
select "userid","eclass","state" from deviceimages where  
userid like '%MPerry%';
```

6. How many Items are Email? Can we do a command that just displays the email?

Try typing the following (all on one line):

```
select "userid","eclass" from deviceimages where userid  
like '%MPerry%' and eclass = 'Email';
```

7. Can I see the Subject lines of the email: Try typing:

```
select "eclass","edata" from deviceimages where userid  
like '%MPerry%' and eclass = 'Email';
```

Note: All the edata is one big line of data that wraps and wraps making it harder to read. This is there a way to output the data to a file can be useful.

8. Redirect the out put to a text file by typing:

```
\o /root/output.txt
```

9. Now repeat the command to extract the data you want (same as step 7):

```
select "eclass","edata" from deviceimages where userid  
like '%MPerry%' and eclass = 'Email';
```

10. Exit the psql client by typing “\q” and pressing Enter.

11. Change to the “/root” directory:

```
cd /root
```

12. Display the output.txt file by typing:

```
cat output.txt
```

Note: The displayed text is the same as in the psql client but now you could load it into an editor and search for the subject line.

13. Load the output.txt file into gedit by using the command:

```
gedit output.txt
```

14. Select Edit and Preferences from the menu bar.

15. Uncheck “Enable text wrapping” and click the Close button.

Note: Now you can see the data in a column format with a record all on one row.

16. Press “Control+F” to do a Search or Find

17. Type “Subject” in the search window and click on the “Find” button.

Note: You should now be able to find the different Subject lines for the different emails that are stored in the Mobility database for MPerry.

18. Close gedit.

This is just one example of some of the Data that you can look for in the datasync

---

and mobility databases to confirm what is being stored there and to compare it with what is in GroupWise or on the Device.

### **Task III: Running the Vacuum Process**

Used to clean out deleted or obsoleted data from the databases.

1. From a terminal window on the DA2L-Datasync VM, type:  

```
rcdatasync stop
```

to stop all the datasync services.
2. Type the following command  

```
vacuumdb -U datasync_user -d datasync --full -v
```
3. Enter password for the datasync database (ie: n0v3ll)
4. After the vacuumdb is completed, type the following command  

```
vacuumdb -U datasync_user -d mobility --full -v
```
5. Enter password for the datasync database when prompted (ie: n0v3ll)
6. After the vacuumdb is complete, type  

```
rcdatasync start
```

to start all the datasync services.

### **Task III: Running the Index Process**

Used to improve the performance of the server.

1. From a terminal window on the DA2L-Datasync VM, type:  

```
rcdatasync stop
```

to stop all the datasync services.
2. Type the following command  

```
psql -U datasync_user datasync
```
3. Enter password for the datasync database when prompted (ie: n0v3ll)
4. Type the following command  

```
reindex database datasync;
```
5. After the reindexing is completed, type the command  

```
\c mobility
```

to change to the mobility database.
6. Type the following command  

```
reindex database mobility;
```
7. Exit by typing

\q

8. Type

```
rcdatasync start
```

to start all the datasync services.

---

With the completion of this Exercise you have at least become more familiar with the postgresql database and how to work with it should the need require. As a general rule, other than the regular maintenance, you should not need to access the postgresql databases unless otherwise directed by Novell Support.

---

**(End of Exercise)**

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## 1.6 Exercise Adding the Flat File Connector

Adding the Flat File connector can give you a more generic connector to test with. Basically you use simple files to interface with the other systems. This allows you to determine if there are problems with the Data Synchronizer or with another Connector.

### Objectives:

Task I: Adding & Configuring the Flatfile Connector

Task II: Troubleshoot with the Flatfile Connector

Task III: Send a message from the Device

### Special Instructions and Notes:

- Have DA1L-GW running and logged in as root.
- Have DA2L-DATASYNC running and logged in as root.

### Task I: Adding & Configuring the Flatfile Connector

In this task you will add and configure the Flatfile connector to your Novell Data Synchronizer server.

1. On DA2L-DATASYNC vm, Launch Firefox
2. Browse to the Novell Data Synchronizer Mobility Pact WebAdmin Console.  
<https://172.17.8.102:8120/admin/login/>

3. Login as admn

Username: **admin**

Password: **n0v3ll**

4. In Synchronizer Web Admin, click Add Connector.
5. Specify a name for the Flatfile Connector (ie: Flatfile)
6. In the Connector Type field, set it to flatfile
7. Click Add Connector

Note: The Flatfile connector will show as stopped. Leave it that way for now.

8. Click on the Flatfile connector

This will take you to the Flatfile connector settings.

9. Verify that the Inbound and Outbound directories are set to /tmp/inbound and /tmp/outbound respectively.
10. Click on the User tab

11. Click on “Add Users to Connector”.
12. Type “**mperry**” in the search window and click on the Search button.
13. Select the Check Box for Perry and click on the Add button.
14. Return to the main Synchronizer Web Admin page by clicking on the Home link.
15. Start the Flatfile Connector.

This creates the /tmp/inbound and /tmp/outbound directories.

## Task II: Troubleshoot with the Flatfile Connector

In this task you will send a message to Mperry from the GroupWise client and check the Flatfile connectors outbound directory.

1. Switch to the DA1L-GW virtual machine.
2. Start the GroupWise client and login as “**msteale**” with a password of “**novell**”, if not already running.
3. Send a new email, with a unique subject line, to Marie Perry
4. Switch back to the DA2L-DATASYNC virtual machine.
5. Open a Terminal Window

Note: You can also use the file browser if you wish.

6. Change to the /tmp/outbound directory  
`cd /tmp/outbound`
7. Do a listing of the files in the directory (ie: ll or dir)  
Note: There should be two new files in the directory.
8. Take a look at the file that's name starts with “default.pipeline1.groupwise-source-soapbridge.....” by using the “cat” command.

This validates that everything is working from GroupWise to the GroupWise connector and to the Datasync engine.

9. Delete the files from the /tmp/outbound directory by typing the command “rm \*” and pressing Enter.

## Task III: Send a message from the Device

By sending a message from the device you can confirm what is working from the device to the datasync engine.

1. From the DA2L-DATASYNC server, load the Android emulator (if it is not already loaded).
2. Unlock the device
3. Click on the EMail application on the device.

---

Note: Did you receive the email from Mark Steele?

4. Read the message from Mark Steele.
5. Switch back to the Terminal window.
6. List the files in the /tmp/outbound directory (ie: ll or dir)  
Note: You may need to wait a moment for anything to show up.
7. Display the file in the /tmp/outbound directory (ie: cat default.pipeline1.mobility....)  
What is this file? Notice the status at the bottom of the file (<read>1</read>).
8. Delete the files from the /tmp/outbound directory by typing the command “rm \*” and pressing Enter.
9. Return to Mark Steele's email in the Android Emulator
10. Click on Reply
11. Type something in the Compose Mail window.
12. Click on the Send button.
13. Switch back to the Terminal window.
14. List the files in the /tmp/outbound directory (ie: ll or dir)  
Note: You may need to wait a moment for anything to show up.
15. Take a look at the file that's name starts with “default.pipeline1.groupwise-source-soapbridge.....” by using the “cat” command.  
This validates that everything is working from the Device to the Datasync engine.

---

Besides the use of confirming that messages are flowing through the Data Synchronizer and/or where the messages might be getting hung up. The Flatfile connector can also be used to capture the actual output from a message to as to compare it with output in a log, like the GroupWise POA logs. This can be useful in determining if there is a bad message being created somewhere.

---

**(End of Exercise)**

