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Preface

The AirSync Server is the primary component of the AirSync system and aside from its normal wireless network control responsibilities, it is also responsible for maintaining all of the configuration data, management settings, control files and collected statistics. AirSync uses the MySQL database engine as its data manipulation and storage system. Full system backups of this database, and other crucial files, will lay the groundwork for the option to later restore the server to an expected operational state after a system failure or operator's miscue. This document describes:

- The recommended process for backing up your AirSync Server, and provides ready to use configuration examples of periodic on-line AirSync server backups under Linux and Windows operating systems.
- The recommended process of restoring the AirSync Server system (from a backup prepared using the methods detailed in the AirSync Backup Manual).

This guide is for system administrators using AirSync to manage their wireless network environments. This guide assumes a working AirSync installation. If not, please refer to the AirSync Installation Guide before using the procedures in this guide.

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1.1 Intended Audience

This document is primarily intended for system administrators who will use AirSync to manage their wireless network environments. The document assumes that AirSync has already been successfully installed. The installation process is beyond the scope of this document and covered in the *AirSync 2.2 Quick Installation Guide*.

1.2 Product Version

The document corresponds to the AirSync version 2.2 product release.




1.3 Document Revision Level

Revision	Date	Description
Version 1.0.0	October 2008	Preliminary Release
Version 1.1.0	November 2008	Updated to 2.2b93





1.4 Document Conventions

This guide uses the following typographic conventions:

Convention	Description
Bold	Text on a window, other than the window title, including menus, menu options, buttons, and labels.
<i>Italic</i>	Variable.
<code>screen/code</code>	Text displayed or entered on screen or at the command prompt.
boldface screen font	Information you must enter is in boldface screen font.
< <i>italic screen</i> >	Variables appear in italic screen font between angle brackets.
[]	Default responses to system prompts are in square brackets.



This guide uses icons to draw your attention to certain information. Warnings are the most critical.

Icon	Meaning	Description
	Note	Notes call attention to important and/or additional information.
	Tip	Tips provide helpful information, guidelines, or suggestions for performing tasks more effectively.
	Caution	Cautions notify the user of adverse conditions and/or consequences (e.g., disruptive operations).
	WARNING	Warnings notify the user of severe conditions and/or consequences (e.g., destructive operations).

AirSync Server Backup Procedure

1.5 AirSync Server Backup Components

A full AirSync server backup should consist of the following (see Table 1 for details):

1. Current AirSync database backup
2. Package item files.
3. Licence file (note that this document and the license-related system files use the British/Canadian spelling of the word, "licence")

Backup Item	Linux	Windows	Backup Solution
AirSync database	Standard AirSync installation uses MySQL database named: airsyncewm	Standard AirSync installation uses MySQL database named: airsyncewm	mysqldump with single-transaction and quick options turned on
package item files	typically AirSync stores package item files in: /home/airsync/services/nftp/files	typically AirSync stores package item files in: C:\AirSync\Servers\NFTP\source	tar or zip archive
license file	typically AirSync stores licence file in: /home/airsync/services/jboss/server/default/conf/licence	typically AirSync stores licence file in: C:\AirSync\Servers\jboss-4.2.2.GA\server\default\conf\licence\	tar or zip archive



To set up periodic backups use "Cron" under Linux, or "Task Scheduler" under Windows – described below

1.6 Example Backup Configuration for LINUX

- 1) Prepare shell script for making full AirSync server backups on a Linux system.
 - a. Cut/paste the example AirSync-linux backup script below into a file and customize it for your local needs.

```
#!/bin/bash

#date format which is uses in backup directory name
DATE=`date +%F-%H-%M`
#directory that contains backups
BACKUP_PATH="/home/airsync/backups"
#AirSync installation directory
AS_PATH="/home/airsync"
#package items subdirectory in $AS_PATH directory
NFTP_ITEMS_PATH="services/nftp/files"
#licence subdirectory in $AS_PATH directory
LICENCE_PATH="services/jboss/server/default/conf/licence"
#MySQL password for user root
ROOT_MYSQL_PASSWD="airsync"
#AirSync database name
AS_DB_NAME="airsyncewm"
#mysqldump application with options
MYSQLDUMP="/usr/bin/mysqldump -h 127.0.0.1 --single-transaction --quick -u root --password="

backup_dir()
{
    mkdir -p $BACKUP_PATH/$DATE
}

db_backup()
{
    $MYSQLDUMP$ROOT_MYSQL_PASSWD $AS_DB_NAME > $BACKUP_PATH/$DATE/dbdump.sql
}

package_items_backup()
```



```

    {
        CUR_DIR=$PWD
        cd $AS_PATH/$NFTP_ITEMS_PATH
        tar -czf $BACKUP_PATH/$DATE/package_items.tgz ./*
        cd $CUR_DIR
    }

licence_backup()
    {
        CUR_DIR=$PWD
        cd $AS_PATH/$LICENCE_PATH
        tar -czf $BACKUP_PATH/$DATE/licence.tgz ./*
        cd $CUR_DIR
    }

backup_dir
package_items_backup
licence_backup
db_backup

```

- b. Save this script as "as_backup.sh" (eg. in the AirSync installation directory) and add permissions to enable root user to execute it.
 - c. While it runs, the above script creates, in a directory pointed to by \$BACKUP_PATH, a subdirectory having the current date in its name. Within this directory the script stores three files: dbdump.sql (AirSync database backup), package_items.tgz (archive which contains all package items), and licence.tgz (archive which contains licence files).
 - d. A prudent option is to have \$BACKUP_PATH point to a remotely-mounted filesystem that resides on separate machine (eg. via NFS).
 - e. The above script will operate properly with a default Linux installation of the AirSync system. It is possible to adjust script behavior with variables defined at the beginning of the script (see comments for details).
- 2) Configure Cron to perform backup periodically.
- a. To configure automatic backups simply add a line into /etc/crontab to configure Cron daemon. The following is an example crontab entry which configures the



Cron daemon to run as_backup.sh script everyday at 03:01AM.:

```
1 3 * * * root /home/airsync/as_backup.sh
```

1.7 Example Backup Configuration for WINDOWS

- 1) Prepare a shell script for making full AirSync server backups in the Windows operating environment. Example AirSync-Windows backup script:

```
@echo off

:start
rem windows system regional options (english-usa or polish)
set REG="english-usa"

if %REG%=="polish" goto polish
if %REG%=="english-usa" goto english-usa

:polish
for /F "tokens=1-4 delims=- " %i in ('date /t') do set DATE_TIME=%i-%j-%k
for /F "tokens=1-3 delims=: " %l in ('time /t') do set DATE_TIME=%DATE_TIME%-%l-%m
goto variables

:english-usa
for /F "tokens=2-5 delims=/ " %i in ('date /t') do set DATE_TIME=%k-%i-%j
for /F "tokens=1-3 delims=: " %l in ('time /t') do set DATE_TIME=%DATE_TIME%-%l-%m
goto variables

:variables
rem directory that contains backups
set BACKUP_PATH=c:\AirSync\backup
rem AirSync installation directory
set AS_PATH=c:\AirSync
rem package items subdirectory in %AS_PATH% directory
set NFTP_ITEMS_PATH=Servers\NFTP\source
rem licence subdirectory in %AS_PATH% directory
set LICENCE_PATH=Servers\jboss-4.2.2.GA\server\default\conf\licence
rem MySQL password for user root
set ROOT_MYSQL_PASSWD=
rem AirSync database name
set AS_DB_NAME=airsyncwm
rem mysqldump application with options
set MYSQLDUMP="C:\Program Files\MySQL\MySQL Server 5.0\bin\mysqldump" --single-transaction --
```

```

quick -u root --password=

:backup_dir
    mkdir %BACKUP_PATH%\%DATE_TIME%

:package_items_backup
    xcopy /E /I %AS_PATH%\%NFTP_ITEMS_PATH% %BACKUP_PATH%\%DATE_TIME%\package_items

:licence_backup
    xcopy /E /I %AS_PATH%\%LICENCE_PATH% %BACKUP_PATH%\%DATE_TIME%\licence

:db_backup
    %MYSQLDUMP%\%ROOT_MYSQL_PASSWD% %AS_DB_NAME% > %BACKUP_PATH%\%DATE_TIME%\dbdump.sql

:end
set BACKUP_PATH=
set AS_PATH=
set NFTP_ITEMS_PATH=
set LICENCE_PATH=
set ROOT_MYSQL_PASSWD=
set AS_DB_NAME=
set MYSQLDUMP=
set DATE_TIME=

```

- a. Save this script as as_backup.bat (eg. in AirSync installation directory).
- b. When run, the above script creates a subdirectory with the current date concatenated into the filename in a directory pointed to by \$BACKUP_PATH. The script stores one file and two directories there: dbdump.sql (AirSync database backup), package_items (directory which contains all package items), licence (directory which contains licence files).
- c. It's a prudent practice to have \$BACKUP_PATH pointing to a remotely-mounted filesystem on a separate machine (eg. via SMB).
- d. As written, the above script operates properly within the default Windows installation of the AirSync system. It is possible to adjust script behavior with variables by defining pertinent one at the beginning of the script (see comments for details).
- e. Note: The above script is written for two language settings of Windows (Polish and English-USA).

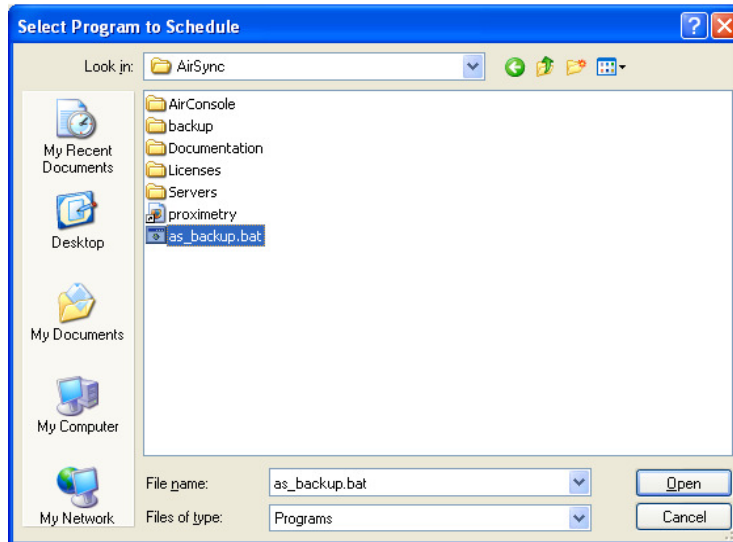
- 2) Configure the Windows Task Scheduler to perform the backup periodically. To configure automatic backups in Windows:
- Go to Start->Control Panel->Scheduled Tasks->Add Scheduled Task.
 - Follow the Wizard instructions
 - For the desired program browse to and choose the backup script.



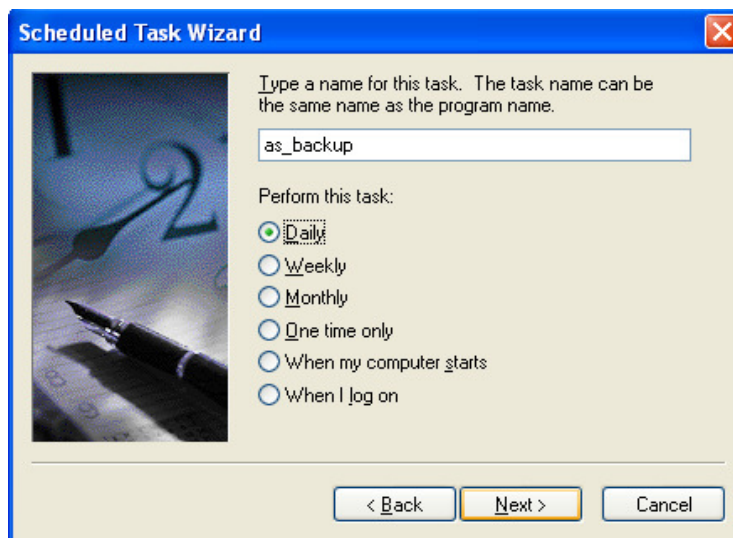
Click the Next button.



Click the Browse button.



Choose your backup script file and Click Open.



Enter task name and execution frequency (eg.Daily).



The image shows a Windows 'Scheduled Task Wizard' dialog box. It has a blue title bar with the text 'Scheduled Task Wizard' and a close button. The main area is light beige. On the left is a small image of a clock and a pen. The text reads: 'Select the time and day you want this task to start.' Below this is a 'Start time:' label followed by a time picker showing '4:01 AM'. Then, 'Perform this task:' is followed by three radio buttons: 'Every Day' (selected), 'Weekdays', and 'Every' (with a spinner box showing '1' and the word 'days' next to it). Below that is a 'Start date:' label followed by a date picker showing '10/13/2008'. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

Scheduled Task Wizard

Select the time and day you want this task to start.

Start time: 4:01 AM

Perform this task:

☒ Every Day

☐ Weekdays

☐ Every 1 days

Start date: 10/13/2008

< Back Next > Cancel

Enter task start time.



The image shows the second step of the 'Scheduled Task Wizard' dialog box. It has the same title bar and left-side image as the first step. The text reads: 'Enter the name and password of a user. The task will run as if it were started by that user.' Below this are three input fields: 'Enter the user name:' with the text 'PROXIMETRY\klawczys', 'Enter the password:' with masked characters '.....', and 'Confirm password:' with masked characters '.....'. Below these fields is a note: 'If a password is not entered, scheduled tasks might not run.' At the bottom are three buttons: '< Back', 'Next >' (which is highlighted with an orange border), and 'Cancel'.

Scheduled Task Wizard

Enter the name and password of a user. The task will run as if it were started by that user.

Enter the user name: PROXIMETRY\klawczys

Enter the password:

Confirm password:

If a password is not entered, scheduled tasks might not run.

< Back Next > Cancel

Enter user name and password of user who has permissions to run backup script.



Click Finish button to complete backup task setup.



AirSync Server Restore Procedure

To restore AirSync server from backup, it is necessary to have:

- 1) A full system backup, prepared as described earlier in this document.
- 2) The original installation files of the same version of the AirSync system that is to be restored (if there is a need to reinstall server eg. after physical machine fail).

1.8 Example Restore Procedure for LINUX

Use following steps to restore AirSync server from full system backup under Linux:

- 1) Login as a root,
- 2) Install AirSync server with the same version as is in the backup (if not needed skip this step),
- 3) Copy full system backup to /root directory
- 4) Stop all AirSync server services, on typical AirSync installation use:

```
# /home/airsync/airsync.sh stop
```

- 5) Start AirSync's MySQL DB engine, on a typical AirSync installation use:


```
# /home/airsync/airsync.sh start mysql
```

- 6) Restore AirSync's MySQL database from the "mysqldump" backup file; the following should work on a typical AirSync installation:

```
# /usr/bin/mysql -h 127.0.0.1 -u root --password==airsync  
airsyncewm < /path_to_db_backup/dbdump.sql
```

- 7) Stop AirSync's MySQL DB engine; the following should work on a typical AirSync installation:

```
# /home/airsync/airsync.sh stop mysql
```


- 
- 8) Remove the content of files directory of the NFTP AirSync service; the following should work on a typical AirSync installation (skip this step if server is installed from scratch):

```
# rm /home/airsync/services/nftp/files/*
```

- 9) Untar and copy content of package items archive into files directory of nftp AirSync service; the following should work on a typical AirSync installation:

```
# cp /path_to_package_items_backup/package_items.tgz
/home/airsync/services/nftp/files
# cd /home/airsync/services/nftp/files
# tar -xzf ./package_items.tgz
# rm ./package_items.tgz
```

- 10) Make a subdirectory called "licence" (British/Canadian spelling) in the jboss config directory; the following should work on a typical AirSync installation:

```
# mkdir /home/airsync/services/jboss/server/default/conf/licence
```

- 11) Untar and copy the content of the licence archive into the licence subdirectory of jboss AirSync service; the following should work on a typical AirSync installation:

```
# cp /path_to_licence_backup/licence.tgz
/home/airsync/services/jboss/server/default/conf/licence
# cd /home/airsync/services/jboss/server/default/conf/licence
# tar -xzf ./licence.tgz
# rm ./licence.tgz
```


- 12) Start the AirSync server services; the following should work on a typical AirSync installation:

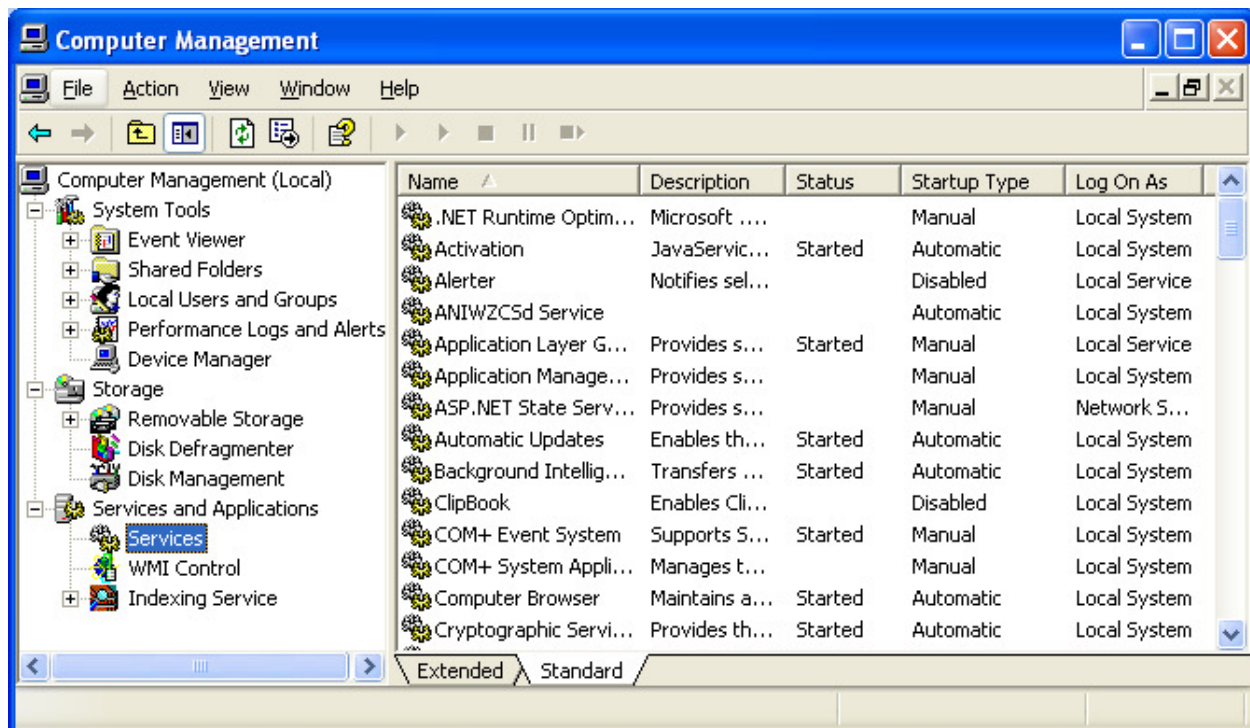
```
# /home/airsync/airsync.sh start
```

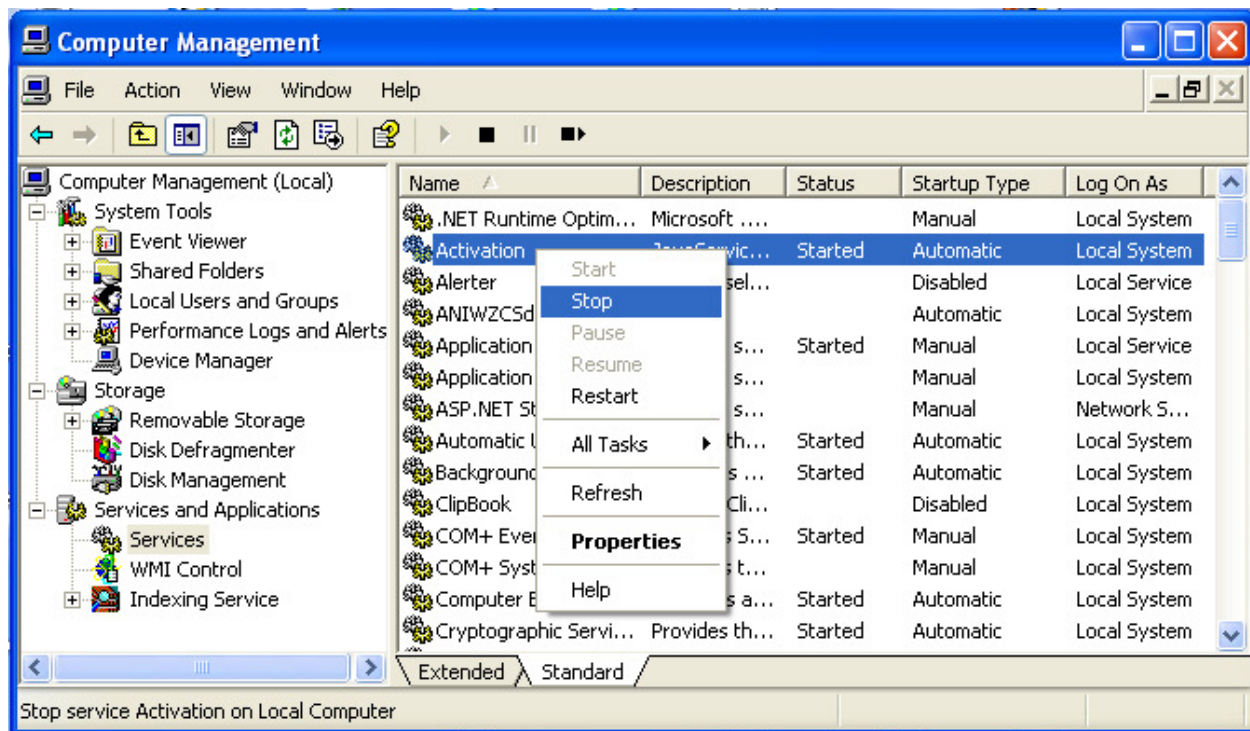
1.9 Example Restore Procedure for WINDOWS

Use following steps to restore AirSync server from full system backup under Windows:

- 1) Login as a administrator of Windows machine,

- 
- 2) Install AirSync server with the same version as is in the backup (if not needed skip this step),
 - 3) Copy the full system backup to some directory on the server.
 - 4) Using MMC, stop all AirSync server services: Activation, NFTP Cleaner, NFTP Server, NFTP Upload Server, RM Server, JBoss (it is important to stop JBoss as last service)
 - a) To run MMC, right-click on the 'MyComputer' icon and from the context menu select Manage. From the element tree on the left part of the MMC window select: Services and Applications -> Services (See following screenshots).
 - b) Stop all listed services by right-clicking on each service name in the service list and selecting 'Stop' (See the following screenshots). Services list:
 - i) Activation
 - ii) NFTP Cleaner
 - iii) NFTP Server
 - iv) NFTP Upload Server
 - v) RM Server
 - vi) JBoss





- 5) Restore the AirSync MySQL database from the "mysqldump" backup file, on typical AirSync installation use:

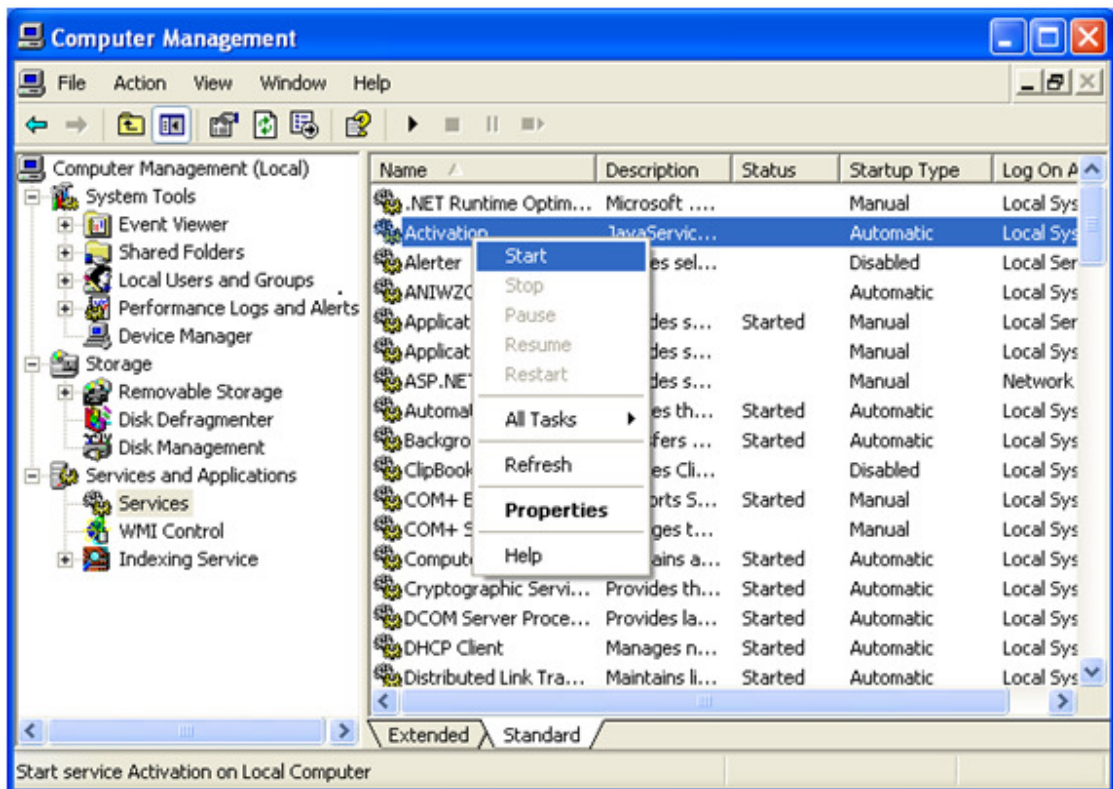
```
# C:\Program Files\MySQL\MySQL Server 5.0\bin\mysql -u root --
password=airsync airsincwem < \path_to_db_backup\dbdump.sql
```

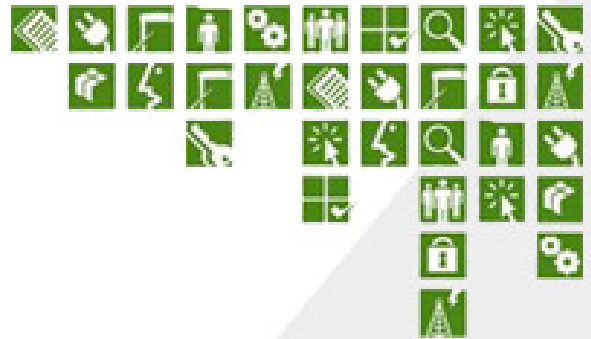
- 6) Remove the existing files in the NFTP AirSync service "source" directory; (skip this step if server is installed from scratch):
c:\AirSync\Servers\NFTP\source
- 7) Copy the content of package items backed-up from the source directory of the NFTP AirSync service:
c:\AirSync\Servers\NFTP\source
- 8) Make a subdirectory named "licence" (British/Canadian spelling) under the jboss configuration ("config") directory:
c:\AirSync\Servers\jboss-4.2.2.GA\server\default\conf\licence
- 9) Copy the content of the licence backup into the licence subdirectory of jboss AirSync service (a typical AirSync installation structure is shown):

c:\AirSync\Servers\jboss-4.2.2.GA\server\default\conf\licence

- 10) Using MMC, start all AirSync server services: JBoss (it is important to start JBoss as first service), Activation, NFTP Cleaner, NFTP Server, NFTP Upload Server, RM Server

- a) To run MMC, right-click on the 'MyComputer' icon and from the context menu select Manage. From the element tree on the left part of the MMC window select: Services and Applications -> Services.
- b) Start all listed services by right-clicking on each service name in the service list and selecting 'Start' (See following screenshot). Services list:
- i) JBoss
 - ii) Activation
 - iii) NFTP Cleaner
 - iv) NFTP Server
 - v) NFTP Upload Server
 - vi) RM Server





Proximetry, Inc.

Corporate Headquarters

909 West Laurel Street, Suite 200

San Diego, CA 92101

U.S.A

Phone: 1 619 704 0020

www.proximetry.com

