
IceWarp Unified Communications

SyncML Guide

Version 12

IceWarp[®]



Published on 3/6/2017

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SyncML

SyncML (Synchronization Markup Language) is an open standard, XML over HTTP, definition for platform-independent data synchronization.

It gives you the benefit of being able to synchronize much of your data between different mobile devices, meaning you always have current data in whichever device you happen to be carrying.

A normal SyncML server stores data from devices within its own storage system so it can share it amongst other devices that synchronize with it. IceWarp Server is different in that it stores the data within the standard IceWarp Server database, allowing it to be accessed via GroupWare, IceWarp WebClient or even MS Outlook (via the Outlook Connector).

Many major manufacturers, including Nokia, Sony Ericsson, Motorola and Siemens AG, manufacture devices that support SyncML.

Enabling SyncML on your IceWarp Server allows your users to synchronize their mobile phones, PDAs etc. with Public Folders on the Server.

Setting up the SyncML Server in IceWarp Server is very quick and simple (see ***Setting up SyncML within IceWarp Server***).

Setting up a client is more complex and can vary dramatically between Clients.

- Here is a brief explanation of the setup of a ***PocketPC*** using the Funambol plug-in.
Funambol is usable on the Ipod, PocketPC, Blackberry and other devices. The plug-in is free and recommended. Full information on Funambol is available at the ***Funambol Website***.
- Here is a brief explanation of the setup of a ***Nokia N80*** using Symbian.
Nokia devices use the Symbian operating system, as do Sony Ericsson devices.

Feature Overview

IceWarp Server's SyncML server boasts the following capabilities:

- Can be run as a Domain(s) or Account(s) related Service.
Choose which Domains and/or Accounts can access the SyncML Service.
- Supports all versions of SyncML .
From the oldest to the latest, version 1.2.
- Mail Filter support, for capable clients.
Download Headers only.
Download only recent messages.
Download only small messages.
- All 6 Standard Synchronization Methods.
Slow, Normal, Update, Refresh, Client Only and Server Only.
- 3 Synchronization Methods unique to IceWarp Server.
Client Only one-way slow synchronization possible.
Server Only one-way slow synchronization possible.
Client Reset - to "fast delete" all entries in a resource.
- Safe Synchronization Management.
Intelligent resolution of multiple synch-type requests.
- Backup Synchronization mode.
Backup any Resource to a File-type Resource.
- Synchronization of a wide range of data types.
Contacts, Events (Calendar), Files, Journals, emails, Notes and Tasks - where the client supports them.
- 2 Groupware Format Sets.
SIF format.
Versit Objects format.
- 2 Mail Formats.
OMA DS format.
RFC format.
- DES support.
Use DES (Data Encryption Support) to encrypt data passed between Client and Server.
- Possibility of communication via XML and WBXML.
- All Authentication types supported.
Force MD5 authentication.
Force Basic authentication.
Allow either authentication
- Formatted Logging with timestamps.
Detailed logging can be activated on the Server.
Analyze performance using the Logged time-stamps.
- Informational Logging Mode.
To aid in de-bugging problems, a debug Logging Mode can be activated, writing extremely detailed information to the Server logs.

Client Device Support

SyncML	Some Nokia, some Sony Ericsson, some Motorola, all Symbian	Blackberry	Palm OS 4, 5	Windows Mobile Windows PocketPC Windows SmartPhone	iPhone	Android	Java ME
Email	n/a (IMAP IDLE)	n/a IMAP IDLE BIS My.Funambol.com Funambol Push Email Client 7.2	Synthesis 3.0.2 (IMAP)	Funambol 6.5* Synthesis 3.0.2 (IMAP IDLE)	n/a (IMAP)	n/a (IMAP IDLE)	Funambol 7.2
Calendar	native Funambol 7.2	Funambol 7.2 SyncJe 2.47	SyncJe 1.0.1 Synthesis 3.0.2	Funambol 7.2 Synthesis 3.0.2	n/a** Synthesis ToDo+Cal+Sync 1.7	n/a	n/a
Contacts	native Funambol 7.2	Funambol 7.2 SyncJe 2.47	SyncJe 1.0.1 Synthesis 3.0.2	Funambol 7.2 Synthesis 3.0.2	Funambol 7.2 Synthesis SyncML 1.1/ ToDo+Cal+Sync 1.7	Funambol 0.1.1	n/a
Tasks	n/a (Calendar)	Funambol 7.2 SyncJe 2.47	SyncJe 1.0.1 Synthesis 3.0.2	Funambol 7.2 Synthesis 3.0.2	n/a** Synthesis ToDo+Cal+Sync 1.7	n/a	n/a
Notes	native Funambol 7.2	Funambol 7.2 SyncJe 2.47	SyncJe 1.0.1 Synthesis 3.0.2	Funambol 7.2	n/a	n/a	n/a
Journals, Briefcase	n/a	n/a	n/a	Funambol 7.2	n/a	n/a	n/a
Bookmarks SMS	native (backup only)	n/a	n/a	n/a	n/a	n/a	n/a
Example	Nokia E Series	8800	Treo	HP iPAQ	iPhone 3G	T-Mobile G1	

* Later Funambol versions restrict e-mail sync only to MyFunambol service. Possible workaround is editing the \\registry\HKLM\Software\Funambol\SyncclientPIM\server\Ext registry entry on the device and setting the value of smartSlowSync key to 1. Note that Push must be turned off otherwise it will rewrite the registry entry on each synchronization.

* Does not synchronize with the built-in calendar, provides own calendar and tasks interface.

Links

<http://www.funambol.com/solutions/bb.php>

<http://www.funambol.com/solutions/iphone.php>

<http://www.funambol.com/solutions/wm.php>

<http://www.funambol.com/solutions/javameclient.php>

<http://www.funambol.com/solutions/symbian.php>

<https://android-client.forge.funambol.org/>

<https://www.forge.funambol.org/download/>

http://nexthaus.com/products_b_blackBerry.html

http://nexthaus.com/products_b_palm.html

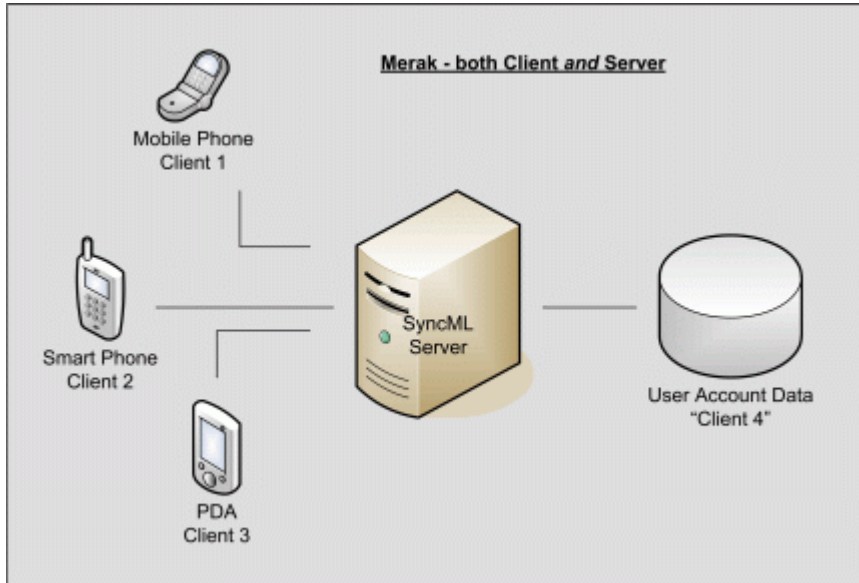
http://www.synthesis.ch/dl_client.php?lang=e

<http://www.synthesis.ch/todosync.php>

IceWarp Server and SyncML – Basic Concept

IceWarp Server now comes with a built-in SyncML server for mobile devices and also allows a Users IceWarp Server account to act like a SyncML Client (with some added value).

The following picture explains the concept here:



As you can see from the above diagram your user can synchronize multiple clients.

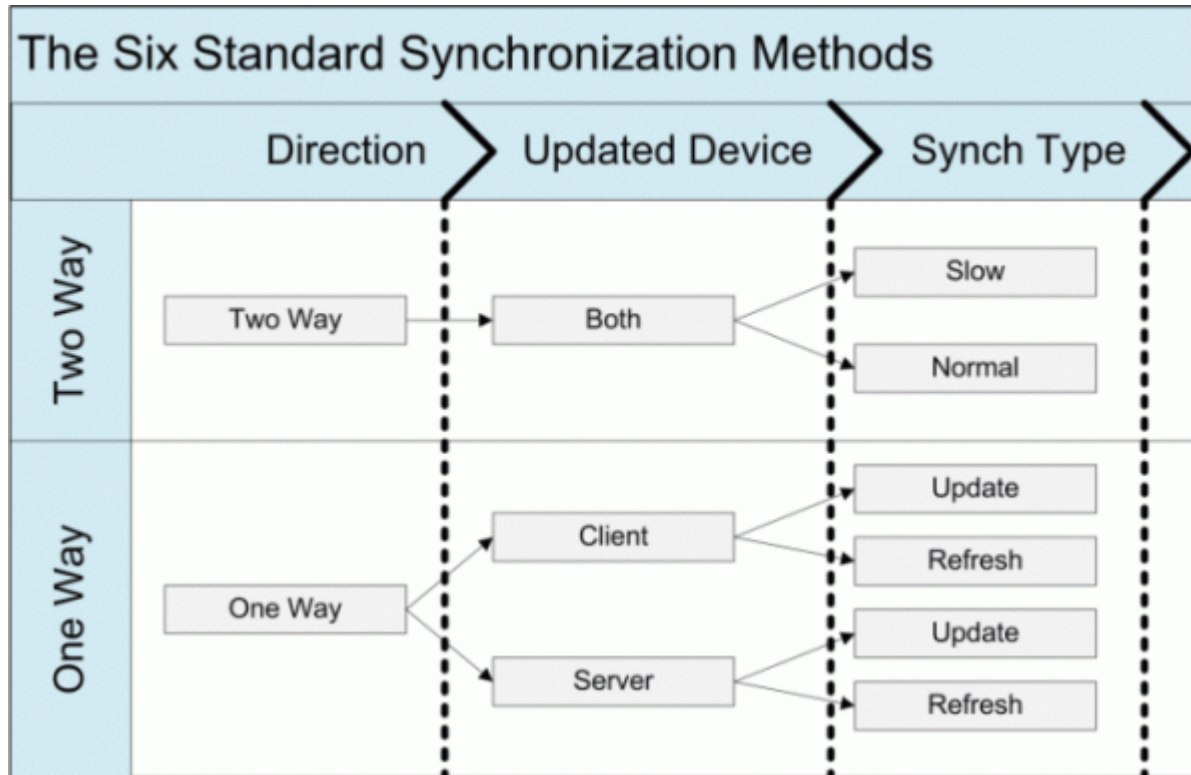
The User Account Data within IceWarp Server can be accessed via GroupWare, IceWarp WebClient and Outlook (via the Outlook Connector).

Standard Synchronization Methods

There are a set of six standard methods that can be used to perform synchronization, and there are a further three methods unique to IceWarp Server.

Not all clients support all methods but IceWarp Server's SyncML supports all of them.

The following diagram shows the 6 standard methods:



- Two Way Slow
- Two Way Normal
- One Way Client Update
- One Way Client Refresh
- One Way Server Update
- One Way Server Refresh

These methods are described in the following sections:

Two-way Synchronizations

Two-way Synchronization is where data on the client is synchronized with the server and then data on the server is synchronized with the client.

Two Way Slow

- All data on both the client and the server is copied.
- Any duplication or conflict within the data is resolved during this process by the SyncML server.
- This method is forced by IceWarp Server when a client is first synchronized, and also forced if the client and server "anchors" are out of step ("anchors are usually based on a time-stamp and are generated fresh at each synchronization as a way of proving the two devices are in synch).

Two Way Normal

- Only changed, modified or deleted data, on both the client and the server is copied (i.e. an incremental synchronization).
- This is the normal method used for the second and subsequent synchronizations.

One-way Client Only

This method updates the client with data that has changed on the server.

Update

- The Update method is an incremental Synchronization.

Refresh

- The Refresh method forces the client data to become an exact copy of the server data, deleting any data that is on the client and not the server.

NOTE: The refresh method is currently only supported by Synthesis clients and IceWarp Server

One-way Server Only

This method updates the server with data that has changed on the client.

Update

- The Update method is an incremental Synchronization.

Refresh

- The Refresh method forces the server data to become an exact copy of the client data, deleting any data that is on the server and not the client.

NOTE: The refresh method is currently only supported by Synthesis clients and IceWarp Server.

Unique Synchronization Methods

IceWarp Server has three unique synchronization methods:

1. Client Only slow sync.
2. Server only slow sync.
3. Client reset.

They are designed to cater for some limitations in the SyncML definition and allow a User to force an effective slow synch of either the server or the client.

In a Client Only slow synch the following occurs:

- All data is deleted from the Client.
- All data is copied from the Server to the Client.

In a Server Only slow sync the following occurs:

- All data is deleted from the Server.
- All data is copied from the Client to the Server.

In a Client Reset the following occurs

- All data is deleted from the client device

Most clients do not have a way to "bulk" delete items from a resource and you have to delete items one by one. If you want to delete all items from a particular resource you can use the Reset sync to achieve this. No data is deleted from the server, only from the client device.

Setting up SyncML within IceWarp Server

Selecting the **SyncML** tab shows the following screen:

SyncML

Authentication type: Any (Basic Or MD5) ▼

URL: http://127.0.0.1/syncml/

Field	Description
Authentication type	<p>Choose between three ways of allowing authentication.</p> <p>Any (Basic or MD5)</p> <p>IceWarp Server will accept authentication with either Basic (Base64) encryption or MD5 encryption.</p> <p>Basic authentication may be required for Users with older clients.</p> <p>Require Basic</p> <p>This option forces clients to use basic authentication. If a client attempts to connect using MD5 authentication IceWarp Server will request that it try again with Basic authentication. If a second attempt is made with MD5 authentication then the connection is rejected.</p> <p>Require MD5</p> <p>This option forces clients to use MD5 authentication. If a client attempts to connect using Basic authentication IceWarp Server will request that it try again with MD5 authentication. If a second attempt is made with Basic authentication then the connection is rejected.</p> <p><i>NOTE: If IceWarp Server serves as a go-between for a client and another (authentication) server (e.g. Active Directory), it is not possible to use this authentication type.</i></p> <p><i>NOTE: Selecting either of the "Require" options may stop some clients from using IceWarp Server's SyncML server. This is because some older clients do not have MD5 capabilities and some newer clients do not have Basic capabilities.</i></p>
URL	<p>URL consists of:</p> <ul style="list-style-type: none"> ▪ The server address or alias: <mail.domain.com> <p>This address (alias) has to be set in a client exactly otherwise synchronization will not work.</p> <p><i>NOTE: Default ports (80 for HTTP, 443 for HTTPS) are not specified. The use of different ports for control service is possible – they have to be defined on the System – Services – General tab in the Control service.</i></p> <ul style="list-style-type: none"> ▪ The path specified by IceWarp Server – syncml <p><i>NOTE: This part of URL (folder) can be changed provided that its content is moved into the newly defined folder.</i></p>

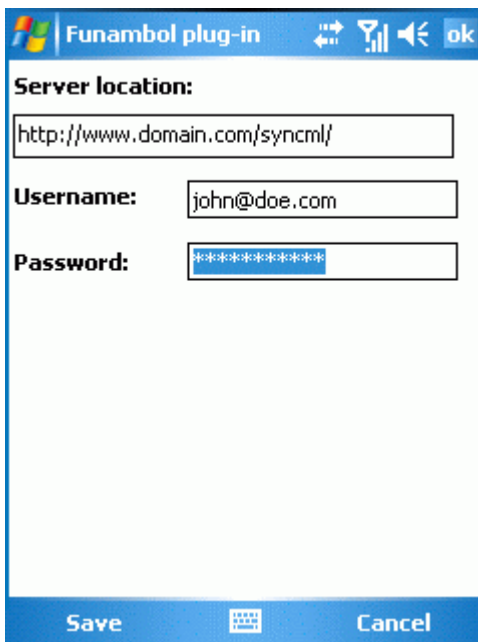
Client Device Configuration

PocketPC

1. To synchronize a PocketPC with IceWarp Server's SyncML server you will need to use the Funambol plug-in (available [here](#)).



2. You will need to set up your device to connect to the SyncML Server:

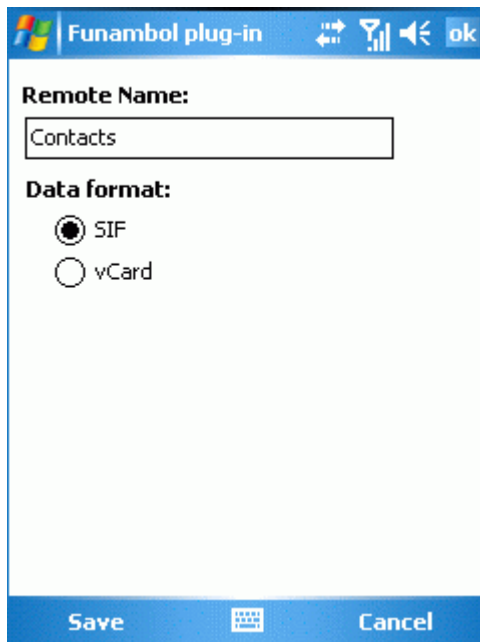


Use your IceWarp Server's domain name and add the port if you are not using the standard HTTP port 80.

Example `http://www.icewarpdemo.com:32000/syncml`

Your Username is your Full email address, and your password is that for the corresponding IceWarp Server account.

3. You will then need to add the folders that you wish to synchronize:



Data Format – IceWarp Server will accept any data format you choose. Note that the SIF set of formats is specific to Funambol.

The Remote name is the name of the folder, you can choose from the following standard IceWarp Server folders:

Contacts – your contact list

Events – your calendar entries (Calendar can be used here as an alias and the Events folder will be selected unless a folder called Calendar exists)

Tasks – your tasks

Notes – you notes

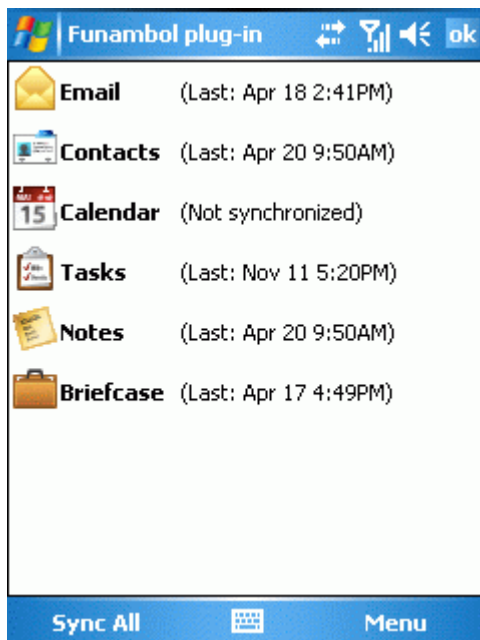
Journal – your Journal

Mail – your mail items (Note that Mail is an alias for InBox. You can synchronize a different mail folder by specifying its correct name)

The names are not case-sensitive and that mail synchronization currently only synchronizes your Inbox.

NOTE: Currently there are very few clients that support synchronization of more than one folder of each data type. Version 1.2 of SyncML implements a hierarchical type, which will allow synchronization of sub-folders.

4. With the Funambol Plug-in your synchronizable items are shown and you just need to choose when to synchronize

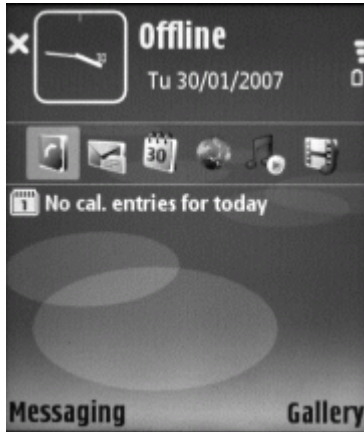


5. And that's it. You can now synchronize your client with your IceWarp Server account.

Nokia N80

This section shows you how to set up a Nokia N80 to synchronize with IceWarp Server. Whilst not necessarily correct for all Nokia products, it should serve as a good guide for other products.

From the main screen select the menu option.



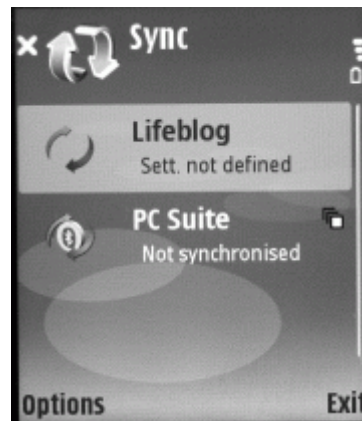
Select Connectivity.



Select Sync.



At this point we want to create a new Synchronization profile, so select Options



Select New sync profile.

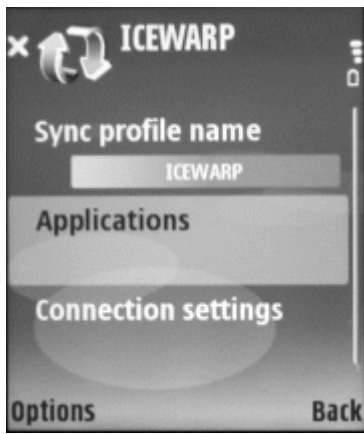


Select Sync profile name and click OK (N80 joystick)



Enter a name for the new sync profile. Then select Applications to set up the Items you want to synchronize.

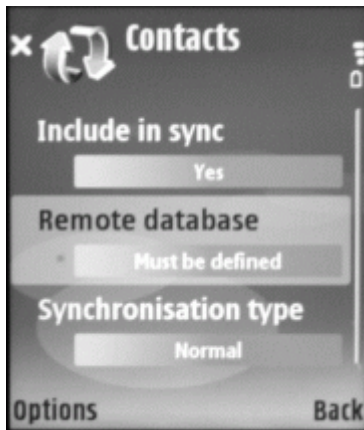
To synchronize your Contacts select Contacts and press OK.



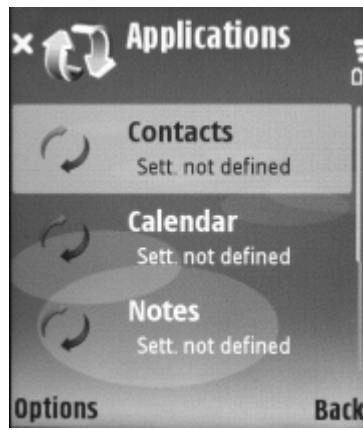
Select Include in sync and press OK.



Select Remote database and click OK.



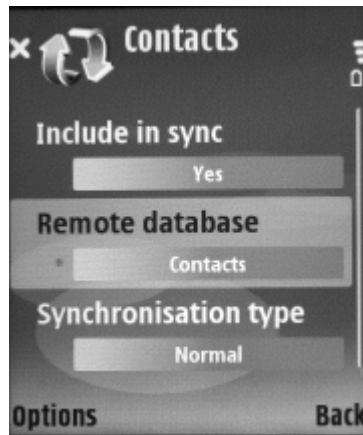
Normally, you would leave the Synchronization type as Normal.



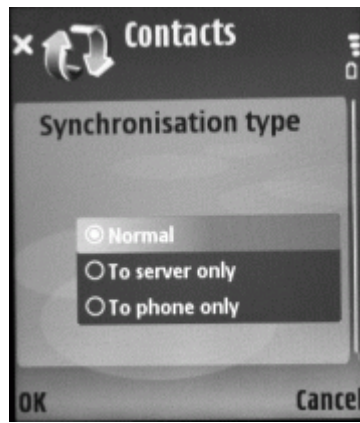
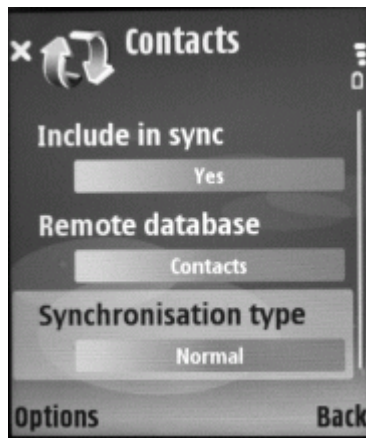
Change the setting to Yes.



The default database for Contacts in IceWarp Server is "Contacts". Your Domain or System administrator should inform you if it is different for your Domain.

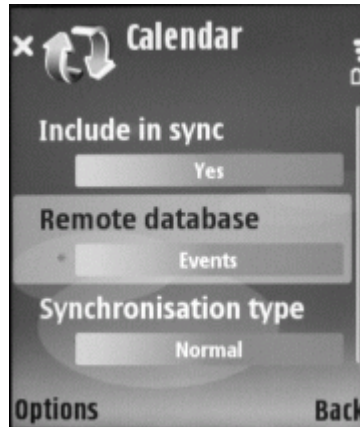
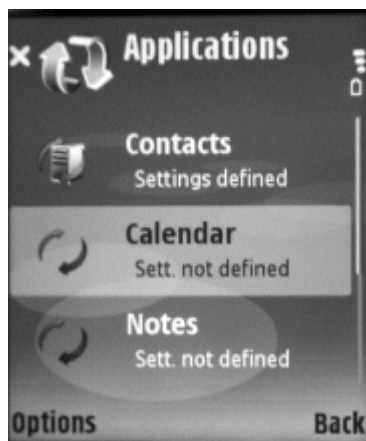


However, you have the option to do a "One-way" synchronization if you wish.



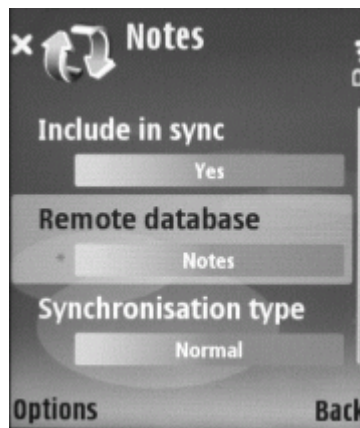
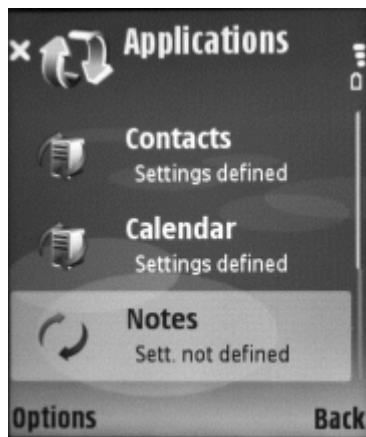
Following a similar procedure you can synchronize your Calendar items.

The default Remote database is Events.



And similarly, you can synchronize your Notes.

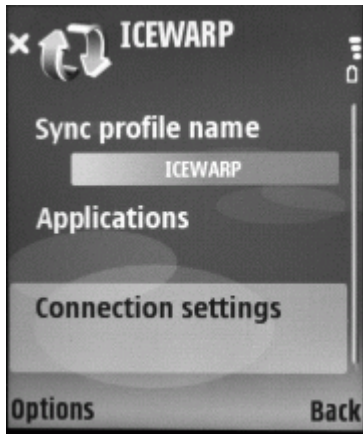
The default remote database is called Notes.



Now we have set which items we want to synchronize we need to set up the connection settings.

Under Server version, select 1.1.

Select Connections and click OK.



Leave the Data bearer set to Internet.



Leave the Access point as Always ask.



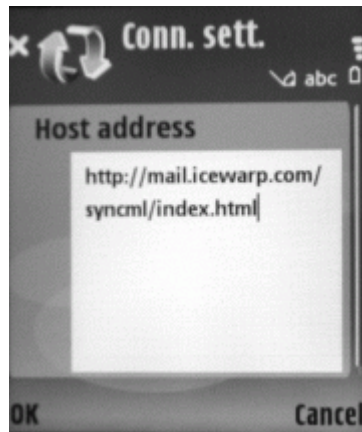
Select the Host address option.



Enter the URL for SyncML access - this should have been provided by your Administrator.



The default port is 80 so this can be left, unless your Administrator has informed you otherwise.



Select the User name option.



Enter the email address you use to log in to IceWarp Server.

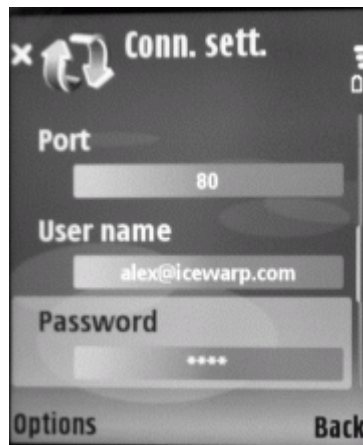


Select the Password option and enter the password for your User account.

When you have entered it press Back to get back to the Sync menu.



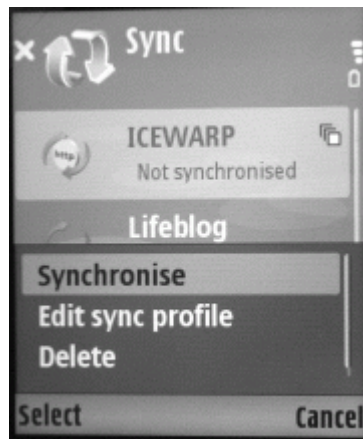
You have now entered all the information you need to synchronize your N80. Select your new Sync Profile.



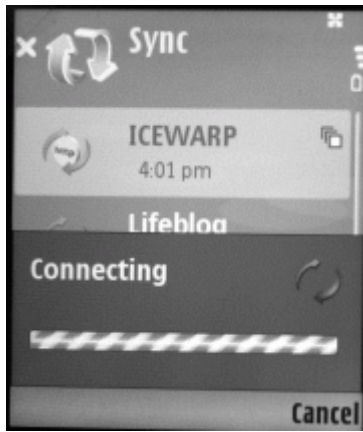
Select Synchronize.



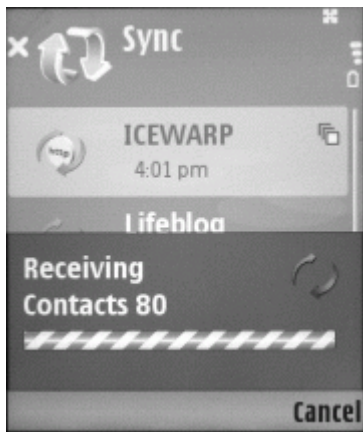
The device will connect....



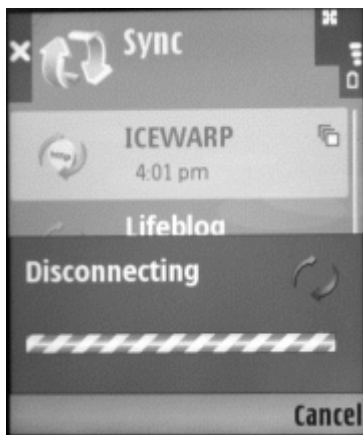
then start receiving items, with a running total of the number of items completed....



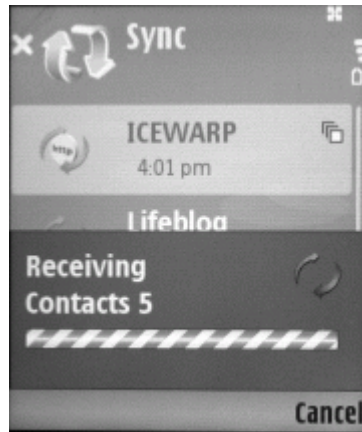
until those items are completed...



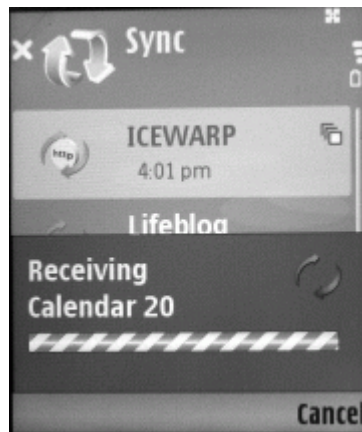
until everything is complete, and the device disconnects.



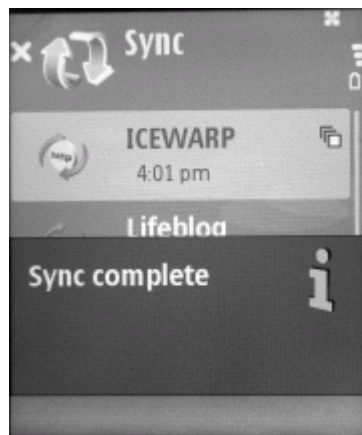
And in the Sync menu the time of the last synchronization is displayed.



then the next set of items, and so on....



A message will be displayed showing you that the synchronization is complete.





URL Parameters

The URL used to access the SyncML Server can also contain extra parameters allowing the user to perform certain specific tasks purely by adding the parameter and performing a synchronization.

The format of the URL with parameters is as follows:

```
http://<server>/syncml/index.html?parameter1=value1&parameter2=value2&parameter3=value3
```

or, for Funambol clients:

```
http://<server>/syncml/index.html?parameter1=value1#parameter2=value2#parameter3=value3
```

NOTE: The use of the "#" character. Funambol currently generates invalid XML if the & character is used!

Available parameters are:

- FORMAT
- SYNC
- BACKUP
- RESET
- PUSH (explained in the SyncML PUSH manual)

and these are discussed in the next sections.

FORMAT Parameter

Objects passed between the client and the server are represented in one of two formats, SIF or Versit.

SIF is used by Funambol clients and Versit by all others

The Format parameter allows the user to

- Attempt to query the format(s) acceptable to the client.
- Try to force the use of a specific format for the data exchange.

The URL format is:

```
http://<server>/syncml/index.html?format=<value>
```

The possible values are:

- get

The server will ask the client which format(s) it supports (not available on all clients)

```
http://<server>/syncml/index.html?format=get
```

- sif

The server will attempt to use the SIF format

```
http://<server>/syncml/index.html?format=sif
```

- vob

The server will attempt to use the Versit format

```
http://<server>/syncml/index.html?format=vob
```

NOTES:

The sif format is only available on Funambol clients.

Newer clients will notify the server if it does not support the requested format, and IceWarp Server will automatically switch.

SYNC Parameter

Multiple methods are available for the synchronization between client and server, see **Standard Synchronization Methods** (on page 8).

The SYNC parameter allows the user to select which type of synchronization should be performed.

This parameter can be very useful for the following:

- forcing a slow sync for debugging sync problems (in conjunction with the **debug logging mode**)
- forcing a one-way synchronization for, say, testing with live data

The URL format is:

http://<server>/syncml/index.html?sync=<value>

The possible values are:

- 1
Perform a two-way normal sync
- 2
Perform a two-way slow sync
- 3
Perform a one-way server update sync
- 4
Perform a one-way server refresh sync
- 5
Perform a one-way client update sync
- 6
Perform a one-way client refresh sync
e.g http://<server>/syncml/index.html?sync=3
- 7
Perform a one-way slow sync to server
- 8
Perform a one-way slow sync to client
- 9
Perform a client reset (Use with care!)

NOTE: IceWarp Server uses an intelligent algorithm to decide if a requested sync-type is valid (see **Safe Synchronization Management** (on page 23))

BACKUP Parameter

The BACKUP parameter allows you to synchronize any data type to a File-type resource.

No matter what the resource type you are synchronizing, when it reaches the Server and is requested to synch with a File-type resource, the relevant data will be encapsulated in a standard file format and stored on the server.

So, for example, you could synchronize all your Contacts to a File-type resource and they would be stored within a standard file structure.

The URL format is:

http://<server>/syncml/index.html?backup
 or
 http://<server>/syncml/index.html?backup=<filename>

If a filename is not specified then the created file is named according to the date and an incremental counter (which resets each day).

e.g. 200812310001.wot

If a filename is specified then it is used as a prefix for the filename with date and counter.

e.g. with URL http://<server>/syncml/index.html?backup=nokia
 nokia200812310001.wot

RESET Parameter

The RESET parameter allows the user to delete all data from a resource on a client device. This can be useful if, for example, the device is being replaced and the owner wants to remove all the data before passing it on to someone else.

The URL format is:

http://<server>/syncml/index.html?reset

Safe Synchronization Management

Because the sync type request can come from two different places (always from the client set-up and optionally within the URL SYNC parameter) there can sometimes be a conflict.

IceWarp Server always uses the following logic to decide which sync-type to actually perform when a synchronization is requested.

Client Requested Sync (Always Present)	URL Requested Sync (Optional)	Anchor Check (Are Anchors equal?)	Actual Sync Performed
1. Normal 2-way	Not set	Yes	1. Normal
		No	2. Slow
	1. Normal 2-way	Yes	1. Normal
		No	2. Slow
	3. Update Server	Yes	3. Update Server
		No	7. One-way slow sync to Server
	5. Update Client	Yes	5. Update Client
		No	8. One-way slow sync to Client
		Not Checked	Perform URL requested sync
	3. Update Server	Not Checked	Yes
No			7. One-way slow sync to Server
5. Update Client	Not Checked	Yes	5. Update Client
		No	8. One-way slow sync to Client
		Not Checked	Perform Client requested sync.

URL Parameter Recommendations

The following practices are highly recommended when setting up clients for SyncML:

- Always use the # character instead of the & character when using a Funambol Client.
- If using an older Funambol client (version 3 or prior) use the format=sif parameter.
- Use the slow and refresh synchronizations sparingly (sync=2, 4 or 6) as these force a full exchange of data and may impact your server's performance.

Synchronizing Multiple Clients via IceWarp Server

One of the big advantages of using IceWarp Server's SyncML Server is the ability to synchronize all your mobile clients with the same central store of data, your IceWarp Server account.

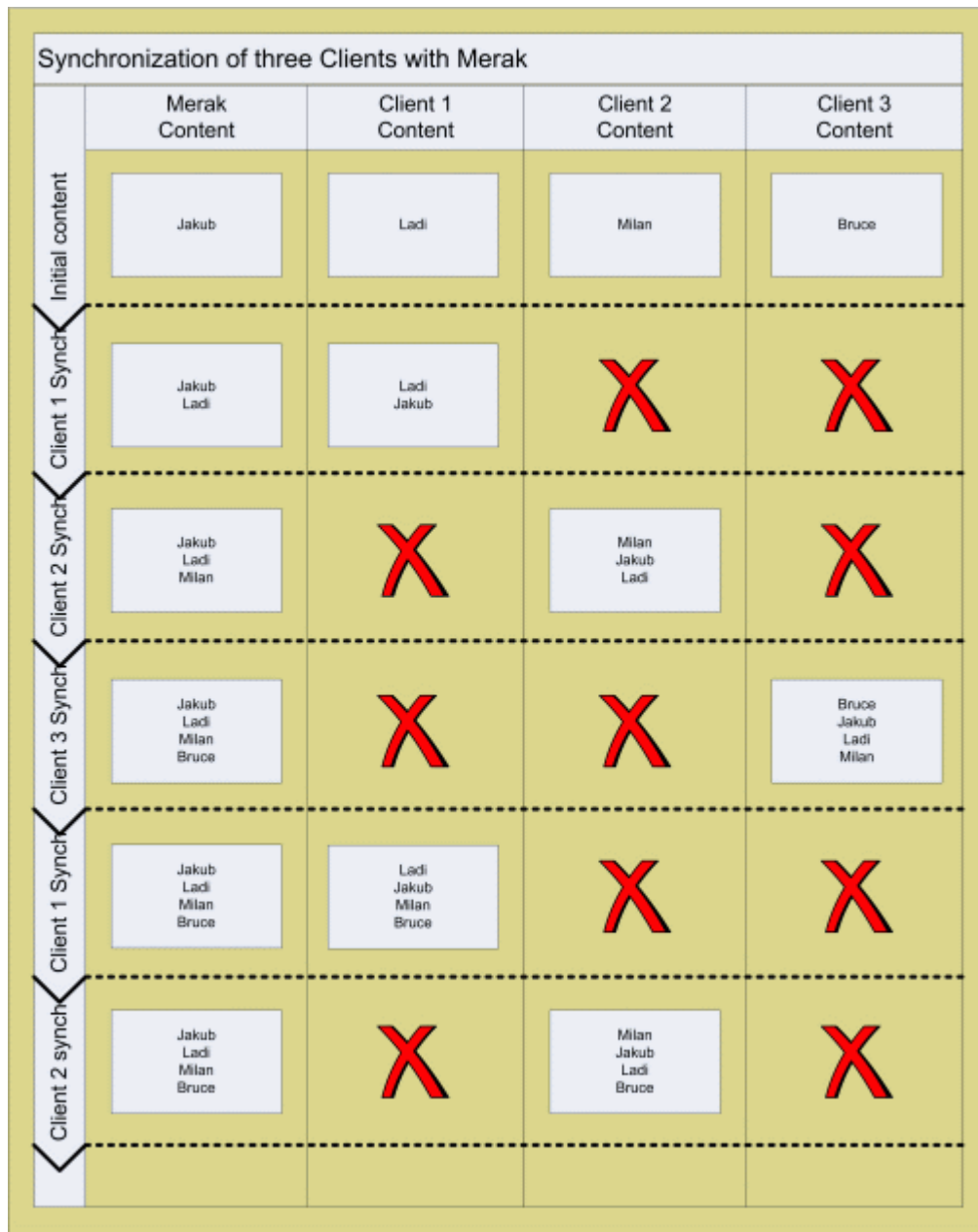
Example:

You can synchronize each client's contact list and, after a couple of synchronization rounds on each client, they will all have the same data. Update a phone number or email on your PDA, and that data will be updated within your IceWarp Server account, and then to your PocketPC, Smartphone and even MS Outlook (using the Outlook Connector connector).

Never have the wrong information in your hands again!

The following picture shows the synchronization process you would need to follow to synchronize three Clients with IceWarp Server and have the same information available in each.

NOTE: The red crosses mean there is no change in client content



From the picture you can see that you need to synchronize all your clients in order, then all except the last should be synchronized again.

You do not need to follow this method strictly, but it is the fastest way to sync all your devices. If you just set synchronization up on your devices and synchronize as and when you want then eventually they will all be in sync.

Troubleshooting

If you are experiencing problems with your SyncML Server and it's communication with clients you should initially check the following areas:

- Enable SyncML (in IceWarp Server)
- Enable GroupWare (in IceWarp Server)
- Enable IMAP (in IceWarp Server)
- Enable Logging (Info or debug)
- Check the client is using the correct URL
<http://icewarpdemo.com/syncml/index.html>
- Check client authentication data
User email and password.
- Check Folder names
These are sometimes case-sensitive.
- Check the SyncML logs for error messages
- Verify the data format is correct for the device

If you are still facing problems, contact your support staff. Please have as much information available as possible to allow a speedy resolution.