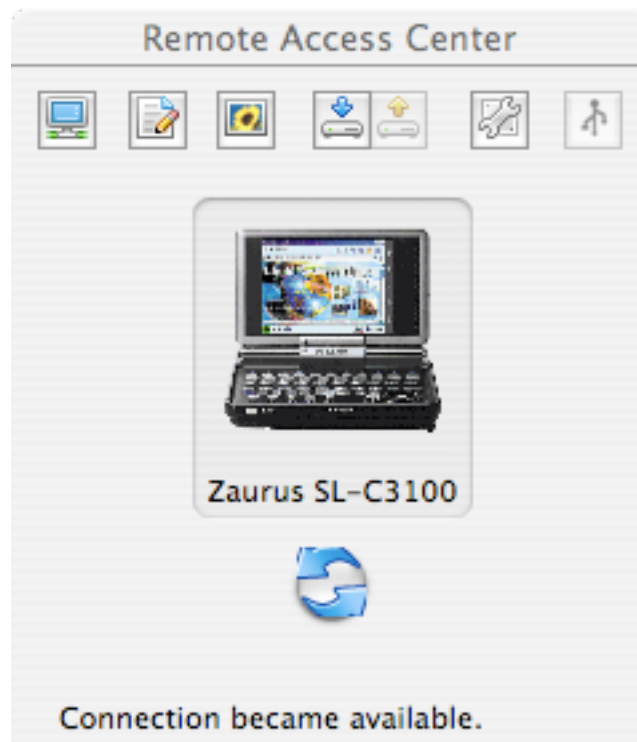# Zaurus Remote Access Center

ZMACSYNC 2.4

User Manual

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Contents

Welcome

Welcome to ZMacSync, the Data Transfer tool between Apple Macintosh machines and Linux based handhelds.

Together with AJZaurusUSB (the Ethernet-over-USB driver) you get connectivity between the Mac and the handheld device (Sharp Zaurus, Acer n30 with Letux and others).

Depending on the device, ZMacSync allows to mount devices on the Mac desktop and to sync contact and calendar data.

You can open an ssh terminal on all models and directly send files to the device by drag&drop.

Feature	Sharp Zaurus	Letux n30	Neo 1973
Ethernet over USB	yes	yes	yes
WLAN connectivity	yes	no	no
Encrypted connection	yes	yes	yes
Password proteced	yes	yes	yes
Open SSH terminal	yes	yes	yes
Send files directly	yes	yes	yes
Mount on Desktop	yes (USB only)	no	no
Backup/Restore PIM data	yes	no	no
Refresh sync from Mac	yes	no	no
Bidirectional sync	no	no	no
openssh included	yes	already installed	already installed

zmacsync@dsitri.de
http://www.goldelico.com

Installation

Check Requirements

Hardware:

Zaurus SL5000, SL5500, SL5600, SL-C7x0, SL-C860, SL-C1000, SL-C3000, SL-C3100, SL-6000

Acer n30 (with Letux Linux)

FIC Neo 1973 / OpenMoko

Firmware:

Sharp ROM 3.1x on SL5x00

ROM 1.2 or later on C series

or Cacko 1.21 or later

or Letux Linux for the Acer n30

Mac:

MacOS X 10.4 (or later)

NOTES:

- ZMacSync 2.1 is NOT compatible with OpenZaurus or pdaXrom

- it is known not to work on MacOS X 10.2 and 10.3

Installing the USB Driver (not required if you have WLAN or want to use the Apple USB driver for the Acer n30 or OpenMoko)

Install "AJZaurusUSB.pkg" on the Mac

simply by double-clicking on the package and following the Installer instructions.

For more information on this driver, please refer to http://www.lucid-cake.net

At the end of the installation process, reboot the Mac (the Installer will ask you to do so).

After rebooting the Mac (or before, it doesn't matter) connect the Zaurus to a free USB port and turn it on.

Start the System Preferences application on the Mac and select "Network". You will be notified that a new Ethernet interface is available.

Configure the new interface with a manual IP address of "192.168.129.1" and click "Apply Now".

Enabling the Zaurus for TCP over USB

Open the Settings Tab and change the PC Link settings to look like this:
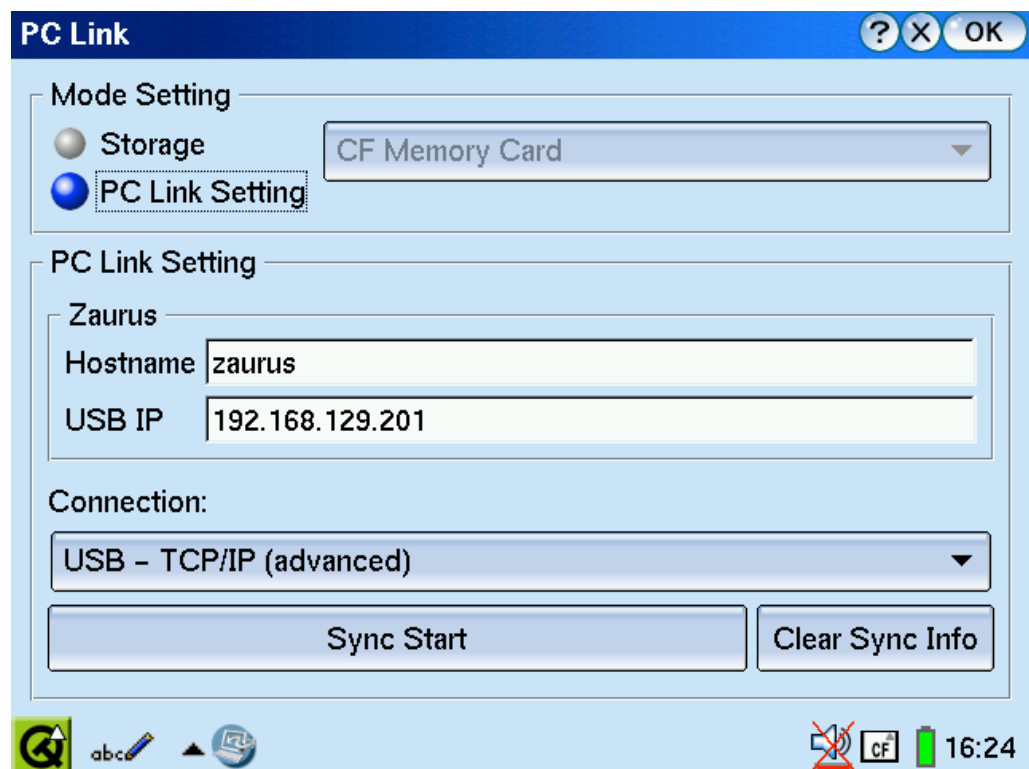
Enabling the Acer n30 for TCP over USB

Open the Network Setup and change the usb0 Tab settings to look like this:

Enabling the Neo 1973 for TCP over USB

The default IP address for the Neo 1973 is 192.168.0.202. Therefore, please choose 192.168.0.1 on the Mac.

This address might collide with some WLAN base stations (e.g. D-Link). Since the Neo has no WLAN, you must choose a different Subnetwork address.

Install ZMacSync

Install on Mac

Drag the ZMacSync application to a location where you like it to open on the MacOS X machine.

This can be /Applications or your private ~/Applications folder or the Desktop.

Start ZMacSync

If your Zaurus does not yet have ssh installed (like in a Cacko ROM), ZMacSync might open with an error message, asking you to check the ssh installation. Just press "Ok".

Open the "ZMacSync/Preferences..." menu.

Change the IP Address ("192.168.129.201" or the WLAN address as needed), User name ("root") and the Passcode of the Zaurus if they need to be changed.

Select the data types to be synchronized. (The beta release can only refresh sync Addresses, iCal, and Clock).

Close the Preferences window. If everything is fine, the Zaurus should now respond and the crossed out image should disappear.

Copy files to the Zaurus using a Memory card

Using a memory card might be the easiest way if you have a card reader for the Mac. But there is an alternative:

Copy files to the Zaurus using USB

NOTE: the following procedure works only for a Sharp Zaurus connected through USB (not on WLAN).

Click on the Mount button ( )

Finder will open a new "HOME" window in which you will see a folder called "Main_Memory".

This reflects the folder "/home/samba" on the Zaurus. You might also see other folders for your installed CF or SD cards.

Open the folder "Main_Memory" (or "Documents" on your CF or SD card) and therein the "Install_Files".

Copy the file "zmacsync_*.*_arm.ipk" from the "Tools" folder on the Mac to the "Install_Files" folder on the Zaurus by dragging in Finder.

NOTE: if you are using the Cacko ROM, don't install zmacsync or openSSH but dtm2xml_*.*_arm.ipk. Otherwise, you will damage your Cacko installation.

Unmount the Zaurus (⬆)

NOTE: you might corrupt a CF or SD card plugged into the Zaurus when not ejecting and a Powerbook or the Zaurus goes to sleep mode or loose connection.

Close ZMacSync

On your Zaurus - finalize installation

After copying the installer file, go to the "Settings" tab and open "Add/ Remove Software". Select "Install Packages".

Install "zmacsync" (or "dtm2xml" and/or "openssh-server" but never all!) to "Internal Flash".

NOTE: if you are using the Cacko ROM, don't install zmacsync or openSSH but dtm2xml_*.*_arm.ipk. Otherwise, you will damage your Cacko installation.

Close the Installer.

Make a Backup!

Back on your MacOS X machine - doing your first Sync

Start ZMacSync (again). The icon should show your Zaurus (not crossed out).

Click on the Terminal button (🖥). This will log you into your Zaurus console. If it asks for a password, enter the Passcode you have defined on the Zaurus. There might be a confirmation question that you should answer with "yes" (all three letters are required). You can close the window if everything is fine.

Select "File/Save As..." to read out the Zaurus Database as one large XML file. Select a convenient location to store the file.

Press the 🔄 (sync) button or select the "File/Sync" menu item.

NOTE: The button is currently not yet enabled in the beta version - use "File/Refresh Sync..." instead.

Using WLAN

Using WLAN instead of USB makes some small differences:

- you do not need to install AJZaurusUSB but a working IP connection from the Macintosh to the Zaurus (sharing a router, or being a Computer-Computer-Network).

- SMB is not available over WLAN.

- open the Preferences... of ZMacSync and type in the IP address at which the Zaurus can be reached

- please consider to set the Settings/Security/Passcode on the Zaurus as your device would otherwise be openly accessible through ssh by anybody with access to your WLAN network!

Deinstallation

Deinstall the USB driver

Just remove the file /System/Library/Extensions/AJZaurusUSB.kext and reboot the Mac.

Deinstall ZMacSync on the Mac

1. delete the ZMacSync application

2. delete ~/Library/ZMacSync/Preferences/de.dsitri.myPDA.ZMacSync.plist

3. delete file ~/Library/Application Support/ZMacSync.sync

Deinstall ZMacSync on the Zaurus

1. Uninstall zmacsync.ipk

2. delete /home/zaurus/Applications/ZMacSync.plist

Licence

ZMacSync is copyrighted by Golden Delicious Computers GmbH&Co. KG. All rights are reserved. It is licensed individually based on the Shareware model. There is no warranty.

The driver AJZaurusUSB is developed by Andreas Junghans and provided as a binary package or source code by http://www.lucid-cake.net. It is under GPL.

The tool dtm2xml is under the GPL and based on dtmdump.

Shareware Fee

There is a Popup that reminds you to pay your shareware fee on each sync attempt unless you purchase a key. There is no other functional limitation so that you can try out the software as much as you think is required to decide to purchase a key.

Payment is fairly simple through http://www.handheld-linux.com/wiki.php?page=ZMacSync. This link is also installed in the About.../Purchase dialog.

After placing and paying your licence key you will receive an email receipt - provided that you have specified a valid internet email address. And the enabling key in a second mail directly from us.

Features

- Full Unicode support (e.g. Chinese and Japanese characters)

- Encrypted access of Zaurus through USB or WLAN through ssh

- Automatic detection of Zaurus connection status (hot-sync)

- Configurable (areas to write, auto-sync)

- Individual enabling or disabling of data areas to be synchro-nized:

Zaurus	MacOS X	Entries	Notes/Limitations
Address Book	Address Book	Contacts	
Calendar	iCal	Events	no mail alarms no organizer/attendees limited recurrence
To Do	iCal	Tasks	
Text Editor (Notes)	Stickes	Notes	not implemented
Browser	Safari	Bookmarks	not implemented
Clock	Clock	Date&Time	Mac to Zaurus only Timezone not updated

- Zaurus clock synchronization (assuming precise NTP time on the Macintosh)

- Log window

- Mount Zaurus file system in Finder

- Direct access to Zaurus console (through ssh)

- Includes AJZaurusUSB-0.5.3 driver for MacOS X 10.4 and open-ssh

Operation

How ZMacSync works

SyncServices.framework

MacOS X 10.4 has introduced a new framework that much simplifies synchronization. It consists of a synchronization daemon that can be accessed by all applications that want to synchronize data amongst each other. The client interface of the framework allows to push to and pull records from the daemon. Applications like Address Book and iCal use the client interface to notify changes to other interested applications. The same does the iSync application - which interfaces to many devices through so-called conduits. Because the application interface for the conduits is not published, ZMacSync is a stand-alone application that uses the client interface and not the conduits.

The Truth

The sync client keeps a database that is called "The Truth". It stores all attributes of all records, so that devices which can loose data (like PDAs) and need to be reset can be refreshed. You can look into the Truth by the Truth Inspector.

Unique IDs

Each record within the scope of the Sync Services is identified by a Unique-ID (which is a string of characters). As the name implies these IDs are globally unique (by using time stamps, ethernet addresses etc.). They are assigned when a new entry is created. Two records are regarded the same if they have the same Unique-ID or different if they differ in ID. In both cases they might still have different values, i.e. person's name or task due date. If they have the same ID but different values, changes have to be identified.

Last-Sync store

To detect if a record has been modified recently and needs to be synchronized with the Mac, ZMacSync keeps a table that remembers the last modification date for each Unique-ID on the Zaurus. This file is stored directly on the Zaurus to detect attempts to synchronize different Zaurus devices on the same Mac and to recognize a full reset of the Zaurus.

Changes on the Mac side are detected by the Sync Services.

Synchronization process

In the first step, all records on the Zaurus are transferred to ZMacSync. Then, changes are detected by comparing the modification date. All added, modified, or deleted records are pushed to the iSync daemon. The daemon compares the data and notifies other clients like the Address Book or iCal about these changes.

In the next phase, ZMacSync asks the daemon to find out all added, modified or deleted records on the Mac side. These changes are pulled and applied to the Zaurus records stored on the Mac.

After all changes have been applied, the records are written back to the Zaurus. A special case are new records. They get a unique ID assigned by the Zaurus, so these unique IDs are made known to the iSync daemon.

NOTE: This is pretty slow on a SL-C3000 because data is directly and immediately written to disk. So, please be prepared to wait 1-2 minutes while the HDD-LED is blinking.

Data conversion

A rather complex and sometimes tricky part of ZMacSync is the data conversion. Records on the Macintosh do not have the same data format as on the Zaurus. Some fields may be missing (e.g. the Macintosh has no "Gender" field in the Address Book while
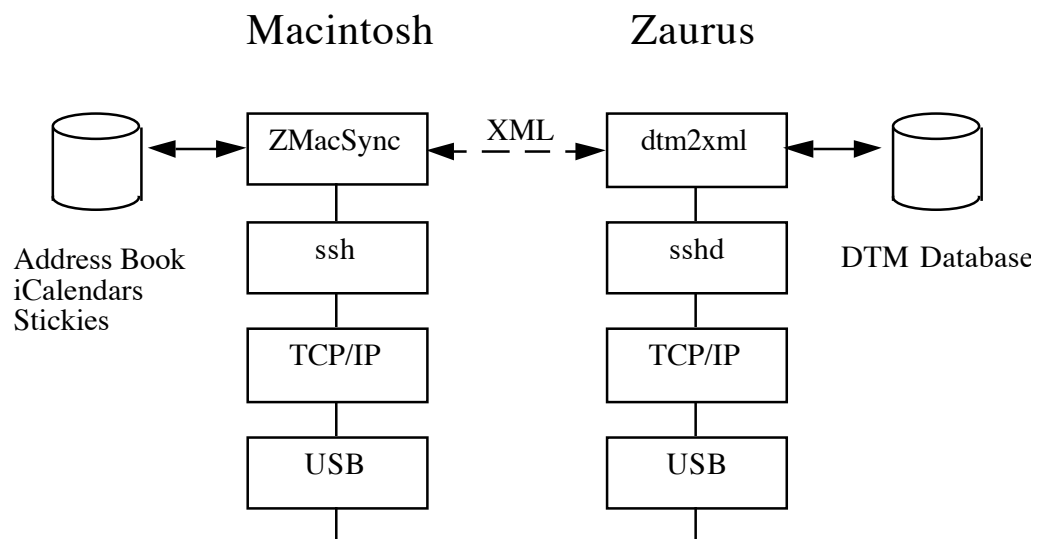
the Zaurus can't store an Image) or have a different format (e.g. the Macintosh uses a labeled "MultiValue" for the e-mail addresses while the Zaurus has two record entries: one for a comma separated list of e-mail addresses and one for the primary address).

So writing records to the peer is not only transmitting data but also converting. Some data loss is unavoidable. But it has been reduced to a reasonable minimum.

Assume you have a record on the Macintosh with several e-mail addresses, labeled "Home", "Business", "Alternate". And you sync to the Zaurus, they will just appear - as you would expect - as a comma separated list. Now, you add a note to this record on your Zaurus. And when you sync, the modified Zaurus record is copied and converted back to the Macintosh format. But the labels are lost and replaced by "1", "2", "3".

Communication

Communication is done through ssh (secure shell) over any TCP/IP connection between the Zaurus and the Macintosh. This can be either IP over USB or WLAN or could even be GPRS. The diagram shown below gives an overview how communication works.

Macintosh   Zaurus

|	ZMacSync	XML	dtm2xml	
Address Book iCalendars Stickies	ssh		sshd	DTM Database
	TCP/IP		TCP/IP	
	USB		USB	

Background Ping

ZMacSync runs a background "ping" command to detect if the device is plugged in or out. This mechanism has some reaction time so that it might need 10-20 seconds until you see a response.

Main Window

The main control window of ZMacSync looks like the following picture (if the device is not connected).
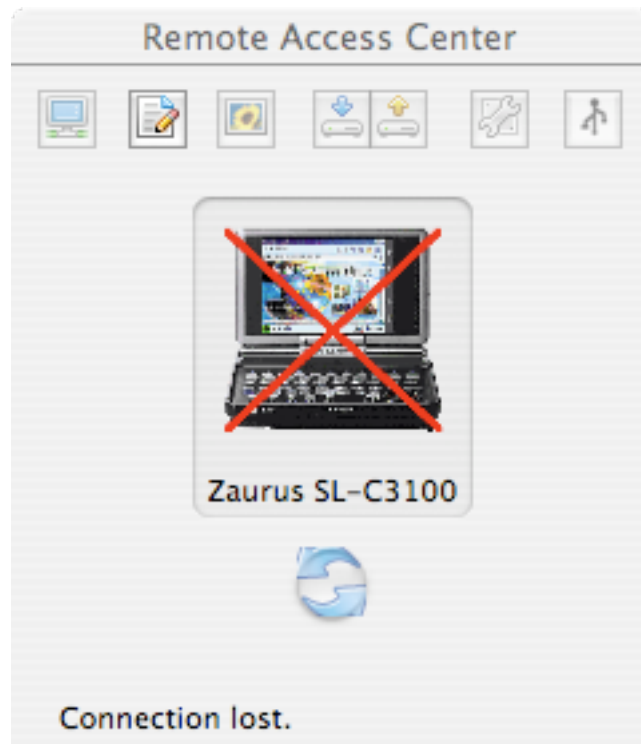
By connecting a, the window changes to show the device icon as in the following example:

The meaning of the buttons is as follows

Synchronize (if available)

Open a ssh session in Terminal

Open Log window

Make a screen shot (if available)

Mount Zaurus on Desktop (if available)

Unmount Zaurus (if available)

Send/Install Files (you can also drop files on this icon)

Enable LAN connection sharing (if available)
This might not work on your system.

Sync

Standard sync writes all changes to the peer.

You can trigger synchronization by three ways:

- by pressing the Sync button ( )

- by selecting the "File/Sync" menu

- by enabling Autosync in the Preferences so that sync starts when the device becomes connected

Slow Sync

Normal Synchronization detects changes to determine which records are to be copied or replaced or deleted on the peer side.

Slow sync works a little different. It takes all records on one side and sends all records to the iSync daemon. The daemon now decides which records are different or changed by comparing the content. Which fields are relevant for two records to be assumed to be the same is defined by a data description model.

When should you use this command?

You should do that in all cases where you suspect that the Mac and the Zaurus are no longer synchronized. This also is the case for the first sync, but ZMacSync is smart enough to do a Slow Sync anyway.

A second case is after you have manually reset the DTM database on the Zaurus or the Zaurus data has been lost for other reasons (e.g. hard reset) and you have already created new entries to the Zaurus.

After doing it once, you can revert back to the normal Synchronization command.

Refresh Sync

is also called "Pulling the Truth". This command deletes all records on the Zaurus and pulls all records from the Truth database. So, it reverts to the state stored on the Mac.

When should you use this command?

Basically, you should use this command if you want to "undo" changes you have made on the Zaurus while it was not connected. E.g. if you have accidentially used the Delete All... command or there was a hadrware reset.

NOTE: Please make sure that you disable the Autosync in the Preferences before connecting the Zaurus. Otherwise ZMacSync would try to do a normal sync first, which will end up in deleting all records on the Mac!

Making and restoring Backups

By using the File/Save As... command, you can save an XML formatted copy of the full Zaurus DTM database on your Mac for later use. The default file name is built from the current date and time and has a Suffix ".zaurus".

You can send the data of such a file to the Zaurus by using the Load... command. Note, this will not delete any records but overwrite records with the same ID. So, you should use it only after deleting all entries in Addresses, Calendar etc. on the Zaurus.

Preferences Window

The preference window allows to change general settings.
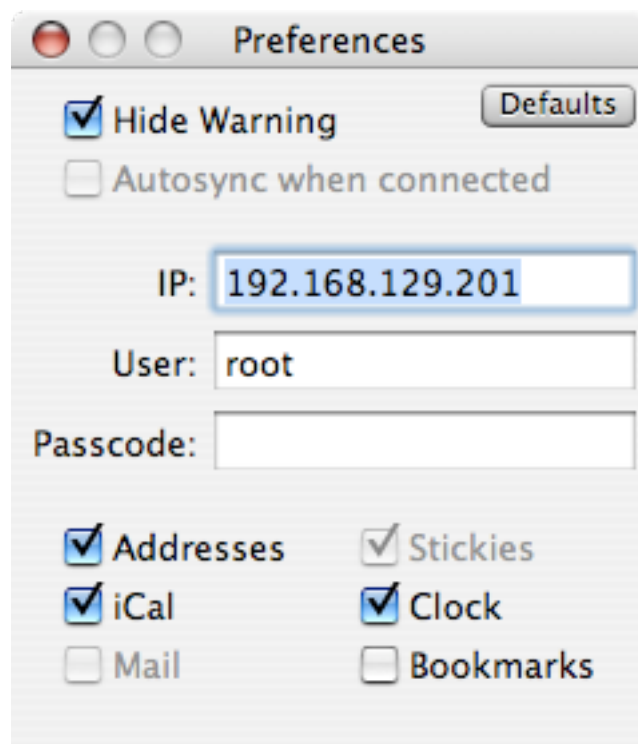
Autosync

if this checkbox is enabled, ZMacSync tries to sync regularly (approx. every 60 seconds after the last one). This allows to operate the Zaurus as follows:

- On arriving at your Macintosh (running ZMacSync) you plug in the Zaurus.

- Any changes done while you have used the Zaurus while not being connected will be automatically synced.

- While working on your Macintosh you can change some values. These will be synchronized to the Zaurus in the background.

- When you are finished, you just unplug the Zaurus and have the latest synchronized staus on the move.

IP, User, Passcode

Here, you specify the IP address, the user name, and the passcode for access through ssh.

Changes of the IP address are effective immediately, so that you do not have to close this window or restart ZMacSync.

You can use either the dotted IP address format or a host name to address the Zaurus. In the latter case, the Zaurus must be known to the DNS system.

NOTE: Please do never use blank characters in the IP address.

The user name should be either "root" or "zaurus" for Sharp Zaurus devices and "root" or "user" for Letux n30.

If using "zaurus", you can't write the Zaurus clock, so you should disable the Clock from updating. It may also have additional limitations.

The Passcode must be the same digit sequence as the code entered into the "Settings/Security" control on the Zaurus or the login password defined by Letux. The only exception is that the setting in ZMacSync is ignored if there is no Passcode defined on the Zaurus.

NOTE: Please consider setting a passcode when using WLAN in a public hotspot! If not, anybody could ssh into your Zaurus.

## Log window

By opening the Log window through the Windows menu, you can see and review the actions that have been done recently.
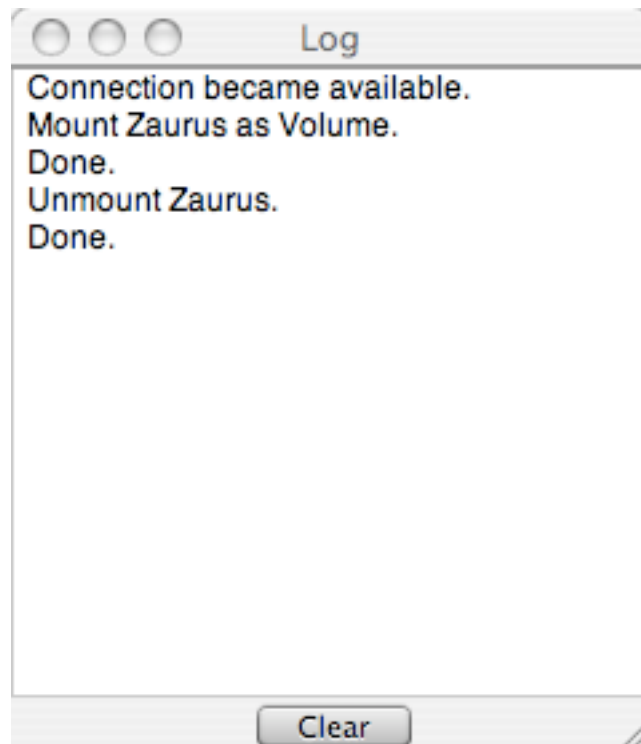
Progress

Progress of operations is either shown by a spinning bar (left picture - if ZMacSync does not know how much data the Zaurus will send) or by a progress bar (right picture - if data is sent to the Zaurus). Please note that the progress bar is making jumps.

Golden Delicious Computers GmbH&Co. KG, Oberhaching, Germany
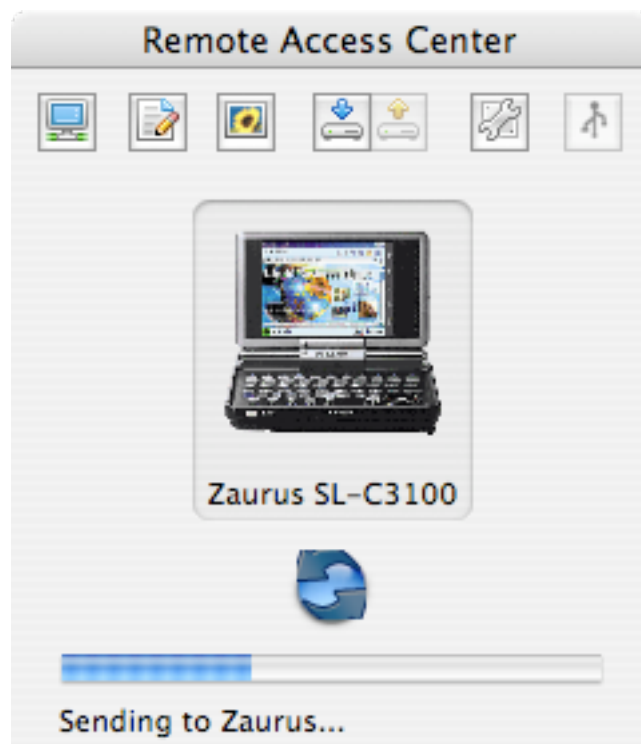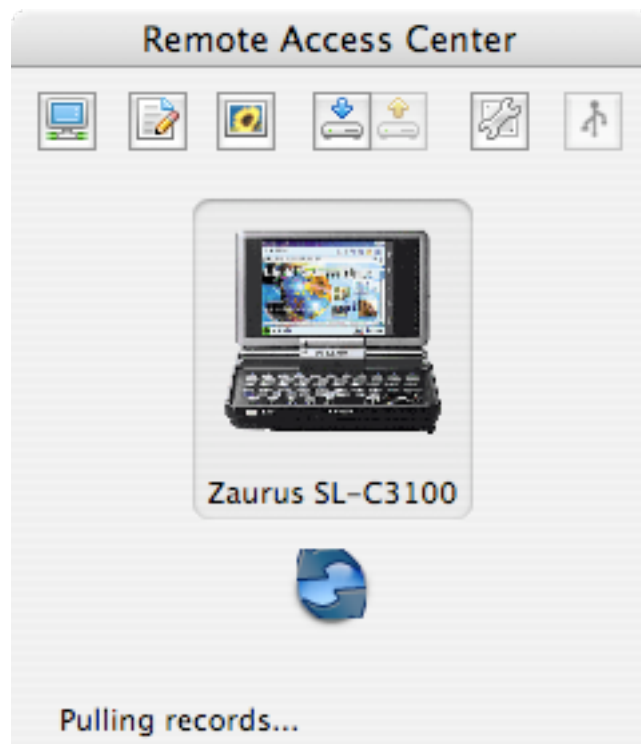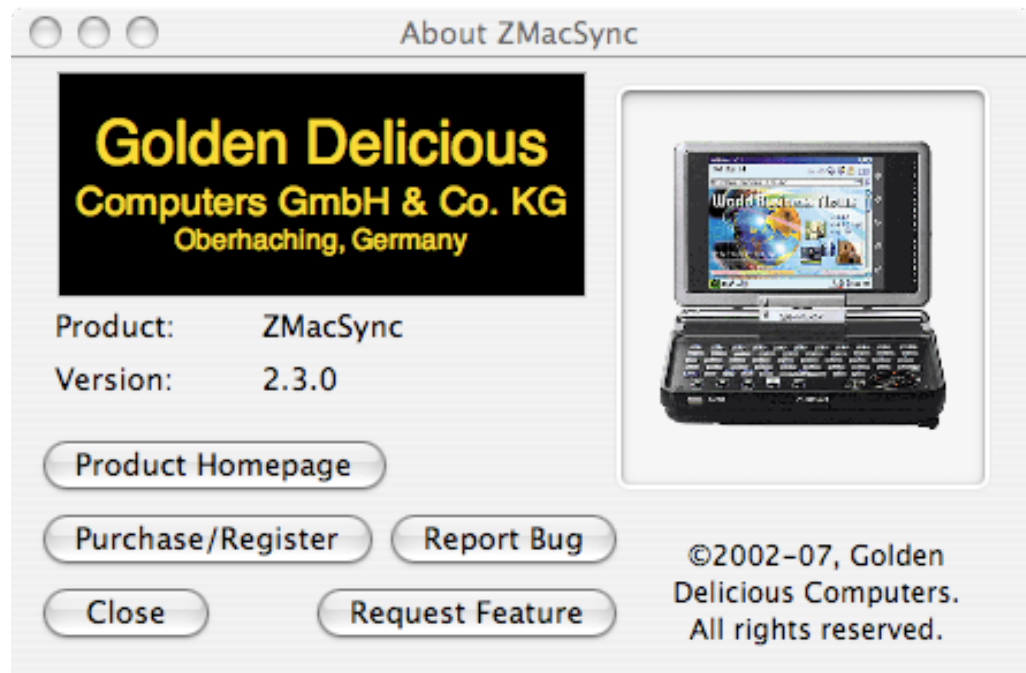
Menus

ZMacSync

About...

Shows the Version number of ZMacSync and allows you to report bugs, propose features and register the Application.

Preferences...

Opens the Preferences window.

Unregister Client

Deletes all about the sync state in the Sync Engine on the Mac. This enforces a Slow Sync next time.

Truth Inspector...

Opens the Truth Inspector.
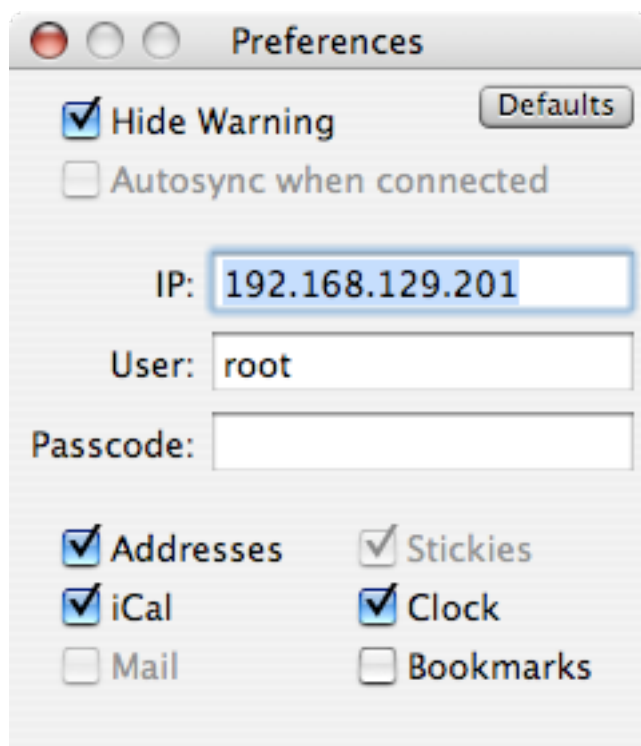
File
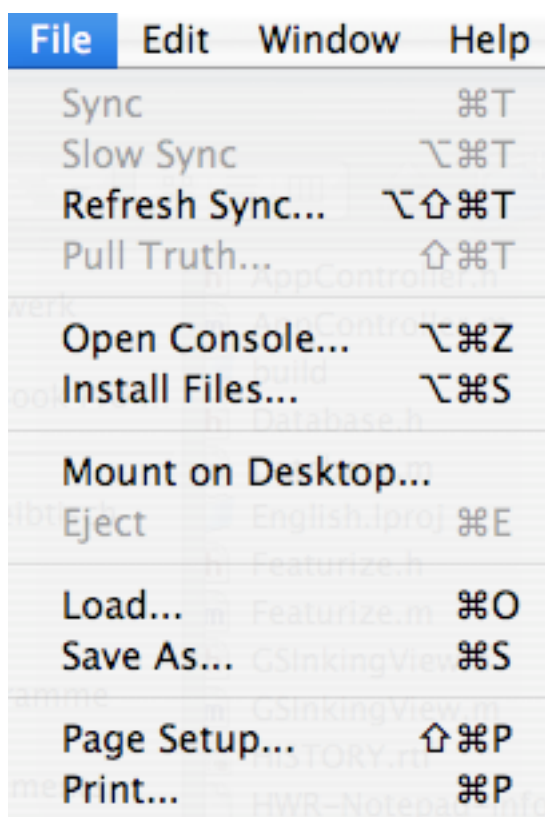
Sync

Starts the standard Synchronization process. This looks for additions, changes and deletions on either side and sends them to the other.

Slow Sync

Starts a Slow Synchronization process. This will create the superset of all records on the Mac and the Zaurus - deleting only obvoius duplicates.

Refresh Sync...

Starts a Copy process from the Macintosh "Truth" to the Zaurus. This will delete any records on the

Zaurus!

Open Console

Opens a 32x160 characters Terminal window which runs an ssh command to access the Zaurus. By that, you will be logged into a Linux shell to access the Zaurus.

Install Files

Allows to select files on your Mac and send them directly to the file system of the Zaurus. It has some built-in rules where to place the files:

File extension	Destination
.ipk	Install_Files
.png, .jpg, .jpeg, .gif	Image_Files
.mpeg	Movie_Files
.mp3	Music_Files
.doc	application/msword
.xls	application/excel

The default location is /home/zaurus/Documents except on the C3x00 models where data is stored on /hdd3/Documents.

If it does not support a file type, an error message is shown.

You can also send files by dragging and dropping them on the send button:

This command requires a working ssh connection.

Mount

Mounts the directory /home/samba of the Zaurus in Finder.

Eject

Unmounts the /home/samba directory from Finder.

Note: Please unmount before disconnecting the Zaurus! Not doing so might currupt data on CF or SD cards on the Zaurus.

Load...

Loads an XML file (extension .zaurus) to the dtm2xml tool on the Zaurus. This can be used to restore data saved by "Save As...".

Save As...

Asks for a file destination and saves all DTM data on the Zaurus to that file in XML format.

Edit

This menu has no special functions. It is enabled and can be used while changing settings (e.g. the IP address).

Window

Show Log

Opens the Log window.

Clear Log

Clears the Log window.

Help

There is no built-in help yet.

Limitations

Supported Systems

ZMacSync has been tested or reported to work on this

Hardware:

- SL5000
- SL5500
- SL5600
- SL-C7x0
- SL-C860
- SL-C3100
- SL-C3000
- SL6000
- Acer n30 with Letux Linux

Firmware:

Sharp ROM 3.10 or later on SL5x00 series

ROM 1.2 or later on SL-C series or SL6000L

Cacko 1.21 or later

Macintosh:

MacOS X 10.4 (or later)

NOTES:

ZMacSync is NOT compatible with OpenZaurus or pdaXrom

it is known to crash on MacOS X 10.3 (or earlier)

Limitations of data conversion

Data copied but not displayed

- Macintosh does not show Gender

- iCal calendar names are saved as Calendar categories but Zaurus does not display or filter on them

- Zaurus might not display all Unicode characters (although they are stored) depending on model and localization

Data that is lost when copying from Mac to Zaurus

- Image of a Contact

- Messenger account

- "is Company" status

- URL of Events or Tasks

- Mail alarms

- Attendees of events

- complex recurrence of Events (e.g. every 2nd Thursday every 3rd month)

Functions not yet implemented

- No sync for Stickies / Notes, no syncing of Bookmarks, E-Mails, etc.

Known bugs (to be resolved in upcoming versions)

- Does not (slow or fast) sync from the Zaurus to the Mac

- The Macintosh "me" record is not copied completely into the Owner Information entry of the Zaurus Addressbook

Troubleshooting

It does not work. What else can I try?

No WLAN connection

Check, if ping and ssh ports are enabled in all Access points and intermediate Firewalls.

NOTE: the SMB daemon of the Zaurus is by factory default only enabled for USB connections.

ZMacSync is hanging (spinning ball) and no progress

Synchronization of an average system with some 500-1000 entries (addresses, calendar entries) should be finished within not more than 5 minutes.

If ZMacSync simply hangs and you can still ssh into the Zaurus, this is a symptom for a corrupt DTM database (see below). In that case, use ssh to access the Zaurus and issue the dtm2xml -v -a command to verify first and to repair use the dtm2xml reset database command.

On a SL-C3000 writing is pretty slow because data is directly and immediately written to disk. So, while the green HDD activity LED is flashing, everything is ok.

Calendar starts very slowly

The first start of Calendar after doing a Sync might need more time (10-30 seconds) because it builds internal databases. If the Calendar application hangs totally, please try a reboot before syncing again. If the problem remains, please try to find out the conflicting iCal entry and send it to us for analyzing.

Connecting is hanging

You have just plugged in the Zaurus USB connection but the Zaurus is not recognized. Or a Powerbook just awoke from sleep mode and does not find the Zaurus. But it has already worked.

This situation sometimes occurs if the USB driver on the Zaurus is hanging. In this case, try to switch off the Zaurus for approx. 10 seconds and switch on. Usually, this resets the IP over USB connection.

NOTE: Writing back to a SL-C3000 is pretty slow because data is directly and immediately written to disk. So, please be prepared to wait several minutes while the green HDD activity LED is flashing.

Clean up the Zaurus

a) uninstall openssh, dtm2xml, zmacsync

b) reinstall zmacsync.ipk OR openssh.ipk and dtm2xml.ipk (not all three!)

Clean up and test ssh on the Mac

Open the Terminal application.

Type all commands printed here in **`Bold Courier`** (substitute your Zaurus address if it is different)

`$` **`ping -c 5 192.168.129.201`**

this checks the basic USB driver

```
PING 192.168.129.201 (192.168.129.201): 56 data bytes
64 bytes from 192.168.129.201: icmp_seq=0 ttl=255 time=1.731 ms
64 bytes from 192.168.129.201: icmp_seq=1 ttl=255 time=1.428 ms
64 bytes from 192.168.129.201: icmp_seq=2 ttl=255 time=1.129 ms
64 bytes from 192.168.129.201: icmp_seq=3 ttl=255 time=1.767 ms
64 bytes from 192.168.129.201: icmp_seq=4 ttl=255 time=1.551 ms
--- 192.168.129.201 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
```

if there is packet loss, check the Network settings of the Mac.

```
round-trip min/avg/max = 1.129/1.521/1.767 ms
$ cd $HOME/.ssh
$ rm known_hosts
```

this resets ssh. If ssh was never used, a harmless message that the file does not exist will appear.

```
$ ssh -2 root@192.168.129.201
The authenticity of host '192.168.129.201 (192.168.129.201)' can't
be established.
```

if you get a different message, see below.

```
RSA key fingerprint is
XX:XX:XX:XX:XX:XX:XX:XX:XX:XX:XX:XX:XX:XX:XX:XX.
Are you sure you want to continue connecting (yes/no)? yes
```

you must really type yes and not only y

```
Warning: Permanently added '192.168.129.201' (RSA) to the list of
known hosts.
This system is for the use of authorized users only.  Individuals
using this computer system are subject to having all of their ac-
tivities on this system monitored and recorded.  Anyone using this
system expressly consents to such monitoring and is advised that if
such monitoring reveals possible criminal activity, system personel
may provide evidence of such monitoring to law enforcement.
# hostname
zaurus
```

ok, we are now remotely controlling the Zaurus.

```
# dtm2xml -a | head -3
<!DOCTYPE dtm PUBLIC "-//GNU//DTD DTM 1.0//EN"
"http://www.dstri.de/DTDs/dtm-1.0.dtd">
<DTM VERSION="2.0">
```

if not at least "2.0", a too old version of dtm2xml is installed

```
# exit
Connection to 192.168.129.201 closed.
$
```

we are back on the Macintosh

zmacsync@dsitri.de
http://www.goldelico.com

Messages that might come from ssh:

Host key verification failed

Remove the known_hosts file in $HOME/.ssh on your Mac. You won't find this file through Finder or Spotlight - only in a Terminal Shell session.

ssh: connect to host 192.168.129.201 port 22: Operation timed out

Ping should have already shown packet loss. Switch off the Zaurus for approx. 5-10 seconds and on again. Then, retry. This state can happen if the Zaurus or a Powerbook went to sleep mode.

@@
@@@@@@@@@@@@@@@@@@@@@

@ WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED!   @

@@
@@@@@@@@@@@@@@@@@@@

This can happen if you have two different Zaurus models operated on the same USB connector. Or the Zaurus was rebooted. Remove the known_hosts file.

ssh: port 22: No route to host

Switch on the Zaurus and check the cable. Or check the USB driver setup.

ssh: Permission denied, please try again.

Remove the Passcode (Settings/Security) on the Zaurus

ssh_exchange_identification: Connection closed by remote host

Openssh is not installed on the Zaurus. Please install either zmacsync or openssh

Zaurus Database is corrupt

In rare occasions the DTM database can be corrupted (e.g. if you had to hard reset the Zaurus without closing the Address Book). Symptoms are that there are records you can't delete or change anymore.

To verify, ssh to the Zaurus and use dtm2xml -a to get a full listing of the database or dtm2xml -t to verify.

In case you have to restore the database:

```
# killall -SIGTERM addressbook datebook todolist textedit qtmail
# dtm2xml reset database
Please close all PIM applications (Calendar, Address Book, ToDo
List, Text Editor, EMail) first!
Really clear all data in database (yes)? yes
# rm /home/zaurus/Applications/ZMacSync.plist
```

The first command stops all Zaurus applications that might access the DTM database (they are running even if the window is closed). And the last command notifies ZMacSync that the database itself has been lost.

Records are missing

If you are missing records, please check first if the write enable checkbox is clicked.

Records are duplicated

In rare cases the Slow sync process compares record attributes that are invisible. In that case you might think that both are the same. If you want to keep just one, delete the other or do a Merge operation for Addressbook entries.

Other issues

If you still can't solve the problem, send a mail to zmacsync@dsitri.de. And please try to submit a Console log or Crash log.

dtm2xml

This is a tool to read (dump) and write the Sharp Zaurus DTM Database.

Usage

```
dtm2xml [-w[e]] [-v] [-a] table | -f path.box ... [<input.xml]
```

`-v`

Verify database integrity.

Combine the -a flag to verify all databases.

Use the -f flag to specify a specific box or index file.

`-w`

Read XML from stdin (or file input.xml) and update database before dumping

`-we`

read XML from stdin (or file input.xml) and echo new records (with new card="x" value assigned)

`-a`

print all data (Contacts, Events, Memos, Tasks). May be combined with -w but should not with -we.

`table`

the database table(s) to read. The following names are allowed:

Categories, Contacts, Events, Inbox, Memos, Outbox, Tasks, Trash

`-f path.box`

file path to a .box file

`...`

you can list more than one table or box file for reading at least one specification is required unless -w or -a is present

`reset database`

installs a fresh DTM directory - after verifying that you really want to delete all your PIM data!

Please kill all running DTM applications before using this command as they might cache some data:

```
killall -SIGTERM addressbook datebook todolist textedit qtmail
```

XML format

The following XML format is generated when reading or expected for writing:

```
<DTM VERSION="2.0">
  <Table>
```

database table (<Table> to replaced by keyword).

```
    <Entry card="123">
```

specific card (Entry and 123 to replaced by keyword and card number - counting from 1).

use card="0" when writing to create a new card. The system assigns a currently unused card number.

```
    <ATTR>value</ATTR>
```

change value (ATTR and calue to replaced by 4-character keyword and new value).

ATTR can also be "REF" and value a reference value that is echoed back but not stored for the -we command.

```
    <delete/>
```

delete current card (only used for writing)

```
    </Entry>
```

finish card

```
<deletebox/>
```

delete all card of current table (only used for writing)

```
</Table>
```

finish database table

```
</DTM>
```

done

To specify tables and entries:

Zaurus	MacOS X	Table	Entry
Address Book	Address Book	<Contacts>	<Contact>
Calendar	iCal	<Events>	<Event>
To Do	iCal	<Tasks>	<Task>
Text Editor (Notes)	Stickes	<Memos>	<Memo>
Inbox	Mail	<Inbox>	<Email>
Outbox	Mail	<Outbox>	<Email>
Trash	Mail	<Trash>	<Email>

For the ATTR fields please refer to the Sharp DTM specificaion.

License

This software is based on dtmdump written by S.C. Kremer <stefan@kremer.ca> as described at

http://216.239.57.104/search?q=cache:H1aFQ1R_6jOJ:docs.zaurus.com/index.php%3Fid%3Ddtm_howto+dtmdump or

http://www.zaurususergroup.com/modules.php?op=modload&name=phpWiki&file=index&pagename=DTM%20database

and was expanded by H. N. Schaller <hns@dsitri.de>

This software is licensed under the GPL.

The source code is included in the ZMacSync package.

The future of ZMacSync: QuantumSTEP

In parallel to optimizing ZMacSync we are working on a full new application environment for the Zaurus which will extend the syncing experience far more:

- more compatible in data file formats (so there will be no restrictions in syncing)

- more compatible in applications (so you will find a small Macintosh in your Zaurus)

- more compatible in operation (as far as it is possible to operate by touchscreen)

- more compatible in application programming interface (allowing you to port or write Cocoa based software using Xcode to run natively on the Zaurus)

It is based on the Linux kernel, X11, and GNUstep/mGSTEP.

More information on the project can be found at

http://www.quantum-step.com

A preliminary data sheet is shown on the next pages.

QUANTUMSTEP ZAURUS EDITION

Example: Sharp Zaurus SL-C1000

Developer: DSITRI

Buchenstr. 3
D-82041 Deisenhofen
Contact: www.quantum-step.com
E-Mail: info@quantum-step.com

Camera

WLAN

GPS

GPRS

QuantumSTEP® - Combine the best of two worlds

QuantumSTEP is an Application Platform for Handheld Devices (Smartphones and PDAs) that is optimized for the Macintosh IT Environment by being highly aligned in look and feel, data formats, PIM applications and even the application programming interface (API).

It is based on the standard Linux kernel (2.4.x) provided by Sharp and the mySTEP libraries (which originate in GNUstep) . They include the Foundation and AppKit classes for the Graphical User Interface. The Runtime system provides user input (touchscreen) and output interfaces by using X11R6. The Application suite contains a large range from Contact and Event manager over Phone dialer, POP3/SMTP Mail client with Junk filter, Web browser, GPS Navigator to Image viewer, Music&Video player and Picture recorder.

Applications	
Runtime (X11R6)	Service Platform
Libraries (mySTEP)	
Kernel (Linux)	
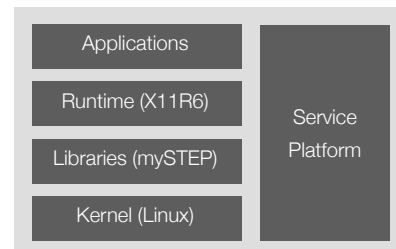
A service platform is planned to provide users with online-services and E-Mail Pull&Push services while on the move.

Most Libraries and the Runtime system are Open Source (LGPL). Software development is done with Xcode and Interface Builder on an Apple Macintosh.

www.quantum-step.com

QUANTUMSTEP ZAURUS EDITION

Features

Graphical User Interface
- Touchscreen operation
- myInk - Handwriting anywhere
- Keyboard operation
- Supports 320x240 (or larger) Color Display
- Alpha channel and antialiased fonts
- Full multi-language (UTF) character support
- Separate Menu bar (Application specific) and Status bar (System)
- look and feel familiar to Macintosh users

Application Suite
- myAfrica - Web browser
- myAddresses - address book
- myCalc - RPN calculator
- myChat - (video) conferencing and chatting tool
- myDates - calendar manager
- myFinder - file manager
- myMail - POP3/IMAP mail client with trainable junk filter and Push / Pull service
- myNavigator - GPS based Navigation tool
- myNotes - notepad (text/sketches)
- myRecorder - sound/image/video capturer/archiver/viewer/player
- mySettings - system settings manager
  - Clock
  - Display
  - Energy
  - Handwriting
  - Language - English, ...
  - Network - IP
  - Software Installation and Backup
  - Touchscreen - Calibration
    - Wireless - WLAN, GPRS
- myTextEdit - RTF compatbile text editor
- myViewer - an Image (pre-)viewer
- Utilities
  - myConsole - Console log viewer
  - myInstaller - Software installer (.pkg compatible)
  - myJAR Launcher - Launcher for JAR applications
- myTerminal - Command line terminal application
- ZMacSync - to synchronize with the Qtopia calendar, address book if you are running both systems in parallel

Supported Data and Sorftware Standards
- Window Server: X11R6 with render extension
- OpenStep Frameworks: Foundation, AppKit
- Additional Frameworks: AddressBook, Preference-Panes, Messages, MenuExtras, SystemExtensions
- Networking: GPRS, WLAN, TCP/IP, NNTP, POP3, SMTP, SSH, HTTP, FTP
- Graphics: TIFF, GIF, PNG, JPEG, ICNS, XWD, (others planned)
- Music: MP3/AAC (planned)
- Video: planned, Zaurus Camera card
- Data and Documents: HTML, RTF, XML, UTF-8, UCS16
- Others: GPS (NMEA183)

Supported Hardware
- Sharp Zaurus models
  - SL5500
  - SL5600
  - SL-C700, C750, C760
  - SL-C860
  - SL-6000
  - SL-C1000, C3000
- MMC/SD memory cards
- CF memory cards
- CF WLAN card (several Prism2/2.5)
- CF GPRS card (Audiovox RTM 8000, Eagletech)
- CF GPS card (e.g. Bilionton CF GPS)
- CF Camera card (Sharp CE-AG06)
- USB Docking Station

Software Development Tools
- SDK - Open Source Software Development Kit for cross-compilation of applications on a MacOS X host with Apple Xcode
- Zaurus-X-gcc - Objective-C ARM cross compiler plugin (gcc 2.95.3) for Xcode

Others
- USB driver for MacOS X (AJZaurusUSB)
- openssh-server, gdb, fdisk, mkfs, pax
- OpenSTEP tools: defaults, open
- Softpear emulator to run PowerPC code
- JAVA compatible using the www.kaffe.org VM

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