The Computer Environment at RISC

Károly Erdei

October 31, 2005

Contents

1   Introduction

We have at RISC a high performance and very expensive computer equipment. You can find the complete list of resources at the link:

`http://www.risc.uni-linz.ac.at/internals/resources/equipment/`

There exists an on-line map of the whole RISC institute (all floors of the castle, the Softwarepark offices and the Campus offices), where you can easily find and identify the locations of all people, rooms and equipment. This map is available on

`http://www.risc.uni-linz.ac.at/internals/resources/rooms/`

At RISC, the only used and supported operating system is (Debian) Linux (`http://www.debian.org`). Debian is running on every computer of the institute except some machines in the public room (room 1.8) on which Windows 2000 is installed.

If you would like to use some Windows applications (e.g.: MS Word), you can execute them under Linux, too, see Section 6.3.

2   Getting Accounts and Changing Passwords

Each new member/student gets the information related to her/his accounts (for the linux risc-wide YP domain and for the risc windows domain) from her/his supervisor. The accounts are personal and may not be disclosed to "outsiders". This is of particular importance since all of our computers may be accessed from the Internet.

If you use your Linux (risc-wide) account at the first time, you must change your password immediately by the command

yppasswd

Please read the guideline about how to choose a secure password at:

`http://www.risc.uni-linz.ac.at/internals/resources/services
/userguides/accounts/password_1.html`

For the description, how to use your Windows account, see Section 6.3.

3   Using the Computers and Other Equipment

3.1   The Computers

All computers at RISC are connected to an uninterruptible power supply, whose sockets are marked with red color. The computers must not be plugged in at other outlets.

The computers must not be moved if they are operating, e.g. a computer may not be transferred from the desk to the floor.

No computer integrated into the local network may be turned off or disconnected without approval of the SAG.

It can happen while using a computer that it crashes or some problem occurs and you can not work anymore, e.g. some windows hang, etc. In this case, please NEVER SWITCH OFF your workstation. Contact the System Administration by email or phone (see the first page). **If you switch off a workstation, all people who use it (remotely) will lose their work, not only yourself.**

Please read the detailed document: How use the computers at: `http://www.risc.uni-linz.ac.a`

3.2   The Software Environment

No matter, on which Linux machine you login at RISC, you will always have full access to your home directory `/home/<loginname>` (where `<loginname>` is the name of your Linux account). This directory is regularly backed up, thus you should store your essential files only here. However, since space on these directories is limited, you should also store all non-essential files (audio and movie clips etc) in directory `/scratch/<loginname>` which is *not* backuped at all.

The desktop allows to execute various applications by selection from menu lists, but you should also get familiar with working on the command line in a terminal window which is sometimes necessary and often even more productive. The SAG suggest to use the `konsole` command as the terminal window.

When you open a terminal window, you get access to a Linux shell "csh" which can be configured by editing the file .cshrc in your home directory. In particular, you can add to this file the module commands mentioned later in Section 5.2 and you can add a command that lets the environment variable PATH point to additional directories where executable applications can be found. For example,

```
setenv PATH $PATH:/dir1/sdir1:/dir2/sdir2
```

will add two directories /dir1/sdir1 and /dir2/sdir2 to the PATH.

For many commands/applications installed, the shell command `man <command>` will display a corresponding manual page. Of course, you can use Google to find documentation for most software on the Web.

Please read the detailed description of The Software Environment about the major software tools that you may probably will want to use at RISC (e.g.: web browsers, e-mail clients, editors, file managers, office application, various viewers (images, dvi, pdf and ps), computer algebra systems, multimedia applications, etc.) at:

```
http://www.risc.uni-linz.ac.at/internals/resources
            /services/userguides/sw-env/
```

You can login to any other machine of the RISC environment by using the Secure Shell client "ssh". You can transfer files from/to other machines using "scp" and "sftp" (this should not be necessary within the RISC environment since your home directory can be accessed from any machine at RISC).

3.3   Printing

Available printers at RISC:

- **floor0** HP LaserJet 4000 Series PS (b/w) in the room 0.4,

- **floor1** HP LaserJet 4050 Series PS (b/w) in the hall 1.10,

- **floor1_color** HP Color LaserJet 4600 in the hall 1.10,

- **floor2** HP LaserJet 2200 Series PS in the corridor 2.0,

- **floor2_color** Tektronix Phaser 780 in the corridor 2.0,

- **canon** Canon iR C3100 (b/w) copy machine in the hall 1.10,

- **canon_color** Canon iR C3100 copy machine in the hall 1.10,

- **camp** HP LaserJet 2100 Series PS in RISC-Linz campus office,

- **swp** Lexmark Optra E312 PS2 in RISC-Linz SWP office.

You can print from the command line under Linux/Unix among other commands by:

lpr -P<printer_name> <document> e.g.: lpr -Pfloor1_color example.ps

xpp *X Printing Panel.* This opens a printing dialog window, which provide an easy way to choose a printer and set certain printer options for a print job.

The number of pages printed by each user is counted automatically. You and your supervisor will receive this info once a week. If the quantity is unreasonable your supervisor will ask you to pay for the extra-printing. Please read the detailed description about the printing at RISC at:

```
http://www.risc.uni-linz.ac.at/internals/resources
        /services/userguides/printing/cups.html
```

3.4 Scanning

Available scanners at RISC:

- Canon iR C3100 copy machine in the hall 1.10,
- HP Scanjet 55470c Scanner connected to the public pc *icebear* in the room 1.8.

Please read the detailed description about how to use the *scanners*:

- Scanning papers with the HP Scanjet:

    ```
    http://www.risc.uni-linz.ac.at/internals/resources
        /services/userguides/scanner/scanpapers.html
    ```

- Scanning photos with the HP Scanjet:

    ```
    http://www.risc.uni-linz.ac.at/internals/resources
        /services/userguides/scanner/scanphotos.html
    ```

- Scanning with the Canon iR3100 pinter/scanner/copy device:

    ```
    http://www.risc.uni-linz.ac.at/internals/resources
        /services/userguides/canon-scanner/ir3100.html
    ```

3.5 Connecting USB Devices

How to use the USB sticks under Linux. Will be added soon.

3.6 Mail

For your mail client program you have to define the following values:

POP server pop.risc.uni-linz.ac.at (for incoming mail)

SMTP server mail.risc.uni-linz.ac.at (for outgoing mail)

Please read the detailed describtion about the

the Mailing System:
```
http://www.risc.uni-linz.ac.at/internals/resources
    /services/userguides/mailing/mailing.html
```

3.7 Phone

The offices in the castle and in the University in Linz can be reached by "internal" phone. Long distance calls can be made only after entering *17 and your personal code (ask the secretary for it) and will be charged to you, except when explicitly allowed by your supervisor for a purpose relevant to RISC activity.

3.8 The RISC Wireless LAN

The WLAN service allows you to build up a network connection from your laptop to our computer network (LAN) without using an Ethernet cable and an Ethernet PC-Card but via a WLAN PC-Card which uses its built in antenna for the transmission of the signals.

The most important unit in a Wireless LAN is the Access Point (AP). This is a unit working as a radio emitter and receiver keeping the contact to the WLAN PC Cards and managing them. We have four (AP) at RISC `wlan-ap1,wlan-ap2,wlan-ap3`.

3.8.1 Using the WLAN

The wireless LAN works under Windows and under Linux, too. Since encryption keys are applied in the wireless communication, you should always contact the SAG in order to configure the corresponding wlan drives on your computer/laptop.

Please read the detailed documentation about the *Wireless LAN* at RISC, at:

> `http://www.risc.uni-linz.ac.at/internals/resources`
> `/services/userguides/wlan/wlan.html`

4 RISC Web

The official Web page of RISC-Linz is available
under the link: `http://www.risc.uni-linz.ac.at`.

For each member or visitor at RISC there exists on the People page: `http://www.risc.uni-linz.ac.at/people/` a link to an **automatically generated business card page**. The purpose of this page is to let RISC present its members in a consistent manner to the outside world. If you would like to reach that your photo will appear on your business card page, copy a jpg picture of you into the directory: */home/www/people/photos/*.

As a courtesy, each member may also have a personally customized home page

> `http://www.risc.uni-linz.ac.at/people/<login_name>`.

This home page is maintained by the corresponding member himself/herself. The personal home page is also linked into the business card page. If one has not bothered to write a personal home page, requests to above URL will simply return an empty page.

4.1   How to Write a Personal Homepage

If not yet done, ask The System Administration Group to create for you a directory

<div align="center">/home/www/people/<loginname></div>

Within this directory, you can create your personal home page. You have to provide at least an HTML file called *index.html* that the server will deliver as the answer to a request for URL

<div align="center">http://www.risc.uni-linz.ac.at/people/<loginname>.</div>

For security reasons, you have to explicitly tell the Web server which files it is allowed to serve (index.html, image files, etc). The easiest way of doing this is to run the command `wndex -a`; this creates a file *index.cache* which tells the server to serve all files in the current directory. Please note that you have to re-run wndex whenever you add new files.

Please read the detailed description about the *Personal Homepages* at RISC, at:

<div align="center">http://www.risc.uni-linz.ac.at/internals/resources
/services/wrapper.html.</div>

5   Installed Software in the Unix/Linux Environment

5.1   Available Software in Debian Linux

As was mentioned in the introduction, the supported operating system is *Debian Linux* at RISC.

Debian is a free operating system (OS) which is available for several kind of hardware architectures. But Debian is much more than a pure OS: it comes with over 15490 packages, precompiled software bundled up in a format for easy installation. See the complete package list and the package finder page of Debian:

<div align="center">http://www.debian.org/distrib/packages</div>

Lots of Debian packages have already been installed under the Linux environment at RISC (you can find all documentations and manuals of the installed softwares in the directory `/usr/share/doc` on each Linux machine), but if you would need some additional software, then you can easily install them in the following way:

- Look for the name of the required package on the Debian web site.

- Issue the following command:

```
sudo apt-get install <package_name>
```

This command will automatically download the required package and install it to your computer (remark: the above command is available for every RISC user).

5.2   Module-system

If somebody wants to install a software which is not available as a Debian package, one can do this by using the Modul system.

(See also the detailed information about the Modul system at: (http://modules.sourceforge.net). Let me cite from the abstract.

"Typically users initialize their environment when they log in by setting environment information for every application they will reference during the session. The Modules package is a database and set of scripts that simplify shell initialization and lets users easily modify their environment during the session...".

So using the module-system a user is able to browse for available software and change the shell-environment at runtime to access (possibly conflicting) versions of software.

You can get a list of all software that is accessible by means of the commands:

module avail - list all available modules,

module whatis - short description of available modules,

module help <package> - long help per available module.

The RISC-Linz default setup loads a few common software packages for you. To use other packages you can use the following commands:

module list - List all loaded module files.

module load <name> - Load a module file into the shell-environment.

module rm <name> - Remove a module file from the shell environment.

Please read the detailed description about the *Module-system* at RISC, at:

```
http://www.risc.uni-linz.ac.at/internals/resources
        /services/userguides/swinst/module.html
```

6 Services

6.1 How to contact the SAG

If you have a problem with a computer at RISC you have to contact the
System Administration Group
(SAG), see: `http://www.risc.uni-linz.ac.at/internals/resources/sag/soda/`
in the following ways:

email:

write an email to *sysadmin*, describing the problem in details.
Always use please this email address to report computer related prob-
lems. Don't send this email to the personal email address of the mem-
bers of the SAG. They may not be read the personal mailboxes for
some time, but the `sysadmin` mailbox will be read at each working
day between 8am-4pm.

phone call:

if your computer hangs or crashed call the *SAG* by the phone number
9980, which is a cordless phone for the `SODA`, `http://www.risc.uni-linz.ac.at/internals/r`
`/services/sag/soda/` (System Administrator of the Day).

6.2 Backups

It is impossible to backup all data stored on any computer here at RISC-
Linz. So only a certain subset of directories is guaranteed to be part of the
backup.
We make regular backups of the following directories:

- Your riscwide Unix home-directory `/home/<login>`.

- The ftp-archive `/home/ftp`.

- The web-server `/home/www`.

- Data stored in the MSQL-database.

- Software installed as a module package in `/zvol/<software>`.

- The laptop backup area backup:`/zlocal/backup` resp. `//backup/backup`.

We do **NOT** make a backup of any other data (e.g. all data in temporary
directories, `/scratch/<login>`). Also note that we will make no attempt
to restore such data in case of hardware problems.
On each working day a daily backup will be made.
Please read the details description about the *backups*, at:

```
http://www.risc.uni-linz.ac.at/internals/resources
        /services/userguides/backup/index.html
```

6.3 Unix-NT Integration

The software packages MetaFrame and WinCenter implement the necessary functionality to run applications provided by Windows-NT Terminal Server on any computer that supports the X11-protocol, i.e. any Unix/Linux-Workstation.

On the Unix-side you can start an NT-session by the following command:

nt

This will start a new NT-session. A new window will pop up at your display with the NT-login window. Use your normal Windows-NT account information to login.

Please read the detailed description about the UNIX-NT integration at RISC, at:

```
http://www.risc.uni-linz.ac.at/internals/resources
      /services/userguides/nt-unix/index.html
```

6.4 Mailing Lists

If you would like to reach all RISC members by e-mail (for instance if you need a ride to Linz...), then you can write a mail to the `all@risc.uni-linz.ac.at` email address.

If you would like to share some information with every PhD student or every diploma student at RISC, you can send a e-mail either to `phdall@risc.uni-linz.ac.at` or to `student@risc.uni-linz.ac.at`. These email addresses we refer as a `risc-wide` email alias, and they represent a mailing list at the `Listserver`.

Please read the detailed documentation about the *Listserver* at RISC, at:

```
http://www.risc.uni-linz.ac.at/internals/resources
      /services/userguides/listserv/listserv.html
```

6.5 Timer Scripts

To manage correctly the working hours (e.g.: for phdwork or for projects), we have a time accounting system, which consists of some Perl scripts. For information about the usage of *Timer scripts*, please read the documentation at: `http://www.risc.uni-linz.ac.at/internals/resources /services/software/timer/`

6.6 RISC Public Database

The RiscPublic database is an msql database which contains the following information:

RiscPersonPublic name, status, office location, email address, research
     area, supervisor of persons at RISC

RiscPersonPrivate home address, birthday, sex of persons at RISC (cur-
     rently empty)

RiscHW name, location, state, type, model, technical data of hardware at
     RISC

RiscRooms phone extensions for rooms at RISC.

The database provides the necessary information for the *map tour*

    `http://www.risc.uni-linz.ac.at/internals/resources/rooms/`

and the *member business card pages*

        `http://www.risc.uni-linz.ac.at/people`

6.6.1   How to change entries in RiscPersonPublic

To change a field entry in your record in RiscPersonPublic (or RiscPerson-
Private in some later time), do the following:

1. Start a Web browser

2. go to page: *member data*

3. choose the appropriate table and action

4. change the necessary fields there

   Important Note: Please always change your location when you move
to another desk! The correct number of the new room can be found with
the map tour. Otherwise your phone number will not displayed correctly on
the RISC web pages!!!

6.7   RISC Allocation Database

There are some devices (e.g.: laptops, beamers, digital cameras, etc), which
are allowed every RISC member to take out for a short period of time and use
them for various purposes (like giving presentation, attending conferences
or private purposes...).

   Before you use the equipment, you must carefully read the allocation
rules at:

`http://www.risc.uni-linz.ac.at/internals/allocation/rules.html`

and you have to fill out the allocation form each time **IN ADVANCE** on
the link:

      `http://www.risc.uni-linz.ac.at/internals/allocation/`

6.8   RISC Forum Database

On every Monday at 1:30pm is RISC forum in the seminar room (room 1.5). This is a formal meeting, where all RISC people can meet together and discuss all RISC related questions and problems. Furthermore, RISC people usually present their recent research results on the forum. Very often invited professors/researchers from other institutes/universities also gives interesting talks about their works on the RISC forum.

On the following page, you are always able to check the topic of the next couple of RISC forums or you can announce an issue/presentation, too:

> `http://www.risc.uni-linz.ac.at/internals/forum/`

6.9   RISC Business Cards

You have the possibility to create your own RISC business cards using the `canon_color` laser printer at RISC. The design of the cards is somehow adapted from the layout of the RISC web pages. In order to produce your own business cards, proceed the description on the following TWiki.RISC page:

> `http://apache.risc.uni-linz.ac.at/WS/twiki/bin`
> `/view/RISC/RISCBusinessCard`

7   Using the Library

The library is an important part of our institute. In order to make the usage of the library as easy and efficient as possible everybody has to observe strictly the following items:

7.1   Rules

We do not have a hired librarian at RISC, we are maintaining the library ourselfs. Please ...

- keep everything in an orderly state and remove minor problems which come to your attention (e.g. displaced items, fallen books, etc.)

- turn off the lights and lock the door when you leave the library.

7.2   Location of the Library

The library is located at the second floor. The "library room" ("Bibliothek") at the top of the spiral staircase (location: 2.1) contains the **books** (ordered by author), the **journals** (ordered by date), the **proceedings** (ordered by year and conference) and the **RISC-Linz reports** (ordered by date). The

corridor at the second floor contains the **Citation Index** and the **technical reports** from other institutions (ordered by first author and year).

7.3   Searching

From the library page you have access to the electronic catalogue where all books, proceedings and reports (both RISC-Linz and foreign) are indexed:

> `http://www.risc.uni-linz.ac.at/internals/library/`

7.4   Borrowing

If you borrow an item, i.e. take it away from the library or from someone's "RISC-Linz Books" shelf (see below), you have to annotate this in the electronic catalogue. For this look up the item ...

- Go to the library page
  (`http://www.risc.uni-linz.ac.at/internals/library/`),

- enter your login name,

- <go to> the borrowing section,

- search the item and click its bibkey and

- press <Borrow>.

Your borrowing will be confirmed by email. In case you borrow an item from somebody who is currently borrowing it, (s)he also will be informed by email.
   Please...

- store library materials at a visible place in your office, labeled "RISC-Linz Books". Anyone needing an item borrowed by another person is allowed to take it away from this "RISC-Linz Books" shelf (but has to update the entry in the electronic catalogue!).

- keep library materials only as long as you need them, and return them to the library as soon as possible - and, of course, when you are ending your studies at RISC. In particular, new journal issues and RISC-Linz reports should not be missing from the library more than a couple of hours. Note that most of the recent RISC-Linz reports can be consulted directly in electronic form.

If you return an item to the library, you also have to annotate this in the electronic catalogue. For this look up the item and press <Return>. Your restitution will be confirmed by email.