Doyen Build Instructions

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Abstract

This document shows the explicit steps necessary to create a Doyen LiveCD from Red Hat's Fedora Core 3 distribution. The Doyen CD is a scientific platform which can be distributed at various science conferences. It enables scientific software to be distributed as literate programs. The Doyen CD has a local wiki and a set of scientific packages which can be scripted from the wiki pages. The scientific packages can be tailor to the specific conference.

1 Prepare a clean Fedora Core 3 System

1.1 Overview

- Obtain Fedora Core 3 iso images from the Fedora Website.
- Disk 1 and Disk 2 should be enough for a basic installation.
- Create installation CDs from the iso images downloaded.
- Boot up you system with the installation disk 1 to begin the Fedora installation process.

In the first screen, you will be presesented with some boot options. Press Enter to continue.

1.2 CD Media test

For the option to test the media CD before installation, select skip. Once the welcome screen comes up, proceed to click next.

1.3 Language Selection

In the language selection, select your prefered language and click next.

1.4 Keyboard Configuration

In the keyboard configuration, select your keyboard configuration.

1.4.1 Special Case

At this point depending if your system is not clean, an upgrade examine window will appear. Please select *"Install Fedora Core"*.

1.5 Installation Type

In the installation type window, select *"Custom"*.

1.6 Disk Partioning Setup

In the Disk Partioning Setup, select "Manually partition" with Disk Druid.

1.7 Disk Setup

For our base distribution, only three partitions should be created. A boot partition of 100 MB, a swap space generally the double of your amount of RAM, and a root partition which size depends on the programs to be installed in the system.

1.7.1 Boot Partition

In the Disk setup, select new. In mount point select /boot. File system type ext3. Size 100 MB. Select force to be a primary partition.

1.7.2 Swap Partition

Create a swap partition. Select new. Select file system type swap, and size 512 MB.

1.7.3 Root Partition

Select new. Select mount point /. Select the file system type to be: ext3. Select "Fill to maximum allowable size" or the size you would like for the root partition. 4GB should be the minimum. Click Ok. Click Next to finish with the Disk Setup menu.

1.8 Boot Loader Configuration

Preserve the default boot loader configuration.

1.9 Network Configuration

Preserve the DHCP option for the eth0 by default. For the hostname, select manually and in the text box type "doyen".

1.10 Firewall Configuration

Select enable firewall and select Remote Login (SSH). Also, select disable for SELinux.

1.11 Additional Language Support

Select your prefered language.

1.12 Time Zone Selection

Select your time zone location.

1.13 Set Root Password

Select the desire password for the root account. In Doyen Live CD the default password is "doyen@org".

1.14 Package Group Selection

- Select default selections for X Window System section and the Gnome section.
- In the editors section, select Emacs and Vim-Enhanced.
- Select Graphical Internet and remove all packages except Firefox.
- Select and remove all packages in text-based internet.
- Remove all Office/Productivity packages.
- In the Sound and video packages remove everything except "cdrecord" and "mkisofs" packages.
- Remove all packages in the Graphics section.
- Leave all the other sections unchanged and click next.

Click next to begin installation. Follow the proper prompts when asked to insert other media CDs. When the installation is complete, remove the CD and reboot your computer.

1.15 Finishing System Installation

1.15.1 Welcome

At the new Welcome screen, click next.

1.15.2 License Agreement

Proceed to accept the license agreement. Click next.

1.15.3 Date and Time

Set the proper date and time. Click next.

1.15.4 Display

In Display configuration, click configure and select "Generic CRT Display" with "1024x768" resolution and color depth of "Millions of colors". Click next.

1.15.5 System User

For the System User options, provide this information:

- Username: doyen.
- Full name: Doyen user.
- Password: doyen@org.
- Confirm Password: doyen@org.

1.15.6 Sound Card

You can skip the sound card testing and click next.

1.15.7 Additional CDs

Leave this section unchanged and click next.

1.16 Finish Setup

Click next to complete the installation.

1.16.1 Login Screen

Login as root user.

1.16.2 Services Configuration

You need to disable unwanted system services from autoloading.

```
Click on Applications -->  System Settings --> Server Settings --> Services
```

Uncheck all except:

- acpid
- anacron

- apmd
- atd
- autofs
- crond
- gpm
- haldaemon
- iptables
- netfs
- netplugd
- network
- pcmcia
- sshd
- syslog
- xinetd

Click save and close the window.

1.17 Auto-login Configuration

```
Clik on Applications --> System Settings --> Login Screen
```

Select the doyen user in the "Automatic login username" section.

2 Customizing Live CD

2.1 Software Installation

The package installation for the Doyen distribution is done by using YUM and WGET to obtain all the required packages for The next step configures a file required for yum to search and install packages. Do not skip this step. Open a terminal window.

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```
rpm --import /usr/share/rhn/RPM-GPG-KEY-fedora
```

2.2 Upgrade Mozilla Firefox Browser

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```
yum -y update firefox
```

2.2.1 Obtain the required Doyen packages

Most of the packages used in doyen have been collected and archived into one package. Download the doyen.tar.gz package from axiom-developer.

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```
cd /tmp/

wget http://alfredo.axiom-developer.org/doyen/livecd/doyen.tar.gz

tar -xzf doyen.tar.gz

cd doyen
```

2.3 Desktop Configuration

Creates the default Doyen desktop configuration. Installs other various CCNY Software.

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```
tar -xzpf doyenHome.tar.gz -C /
```

2.4 Computer Algebra Systems

tar -xzpf AlgebraSystems.tar.gz -C /usr/local/
cp magnus /usr/bin cp caiss-stat /usr/bin
cp axiom /usr/bin

2.4.1 Latex

To install the Latex software package you need to use yum and install tetex, tetex-latex, and tetex-xdvi packages.

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```
yum -y install tetex

yum -y install tetex-latex

yum -y install tetex-xdvi
```

2.4.2 Noweb Software Package

Install the Noweb software used for notangle and noweave support.

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```
rpm -ivh Icon2-9.3.2-7.i386.rpm

rpm -ivh noweb-2.10a-4.i386.rpm
```

2.4.3 Installing Zope, Python-Imaging, and ZWiki

In this section, you will install and configure the ZWiki server. Install the Zope and Python-imaging rpm packages.

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```
rpm -ivh python-imaging-1.1.4-7.i386.rpm

rpm -ivh zope-2.8.0-2.fc3.i386.rpm
```

Configure root user for access to the Zope server.

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```
/usr/bin/zopectl adduser root doyen@org
```

2.4.4 LatexWiki

Extract the Doyen Wiki Database

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```
tar -xzpf doyenWiki.tar.gz -C /var/lib/zope/
```

Upgrade the Python interpreter.

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```
yum -y update python
```

Install the Python development tools.

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```
yum -y install python-devel
```

Install GraphViz.

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```
rpm -ivh graphviz-2.2-3.i386.rpm
```

Install Latex Packages.

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```
cp axiom.sty /usr/share/texmf/tex/latex/base/

texhash
```

Install DVIPNG

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```
yum -y install gd

rpm -ivh dvipng-1.4-1.rhfc2.i386.rpm
```

Test and deploy Zope server.
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chmod 777 /var/lib/zope
/etc/init.d/zope start

2.4.5 Xorg file configuration

For multiple video card support the driver "vesa" was used.

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```
cp --reply=yes xorg.conf /etc/X11/
```

2.4.6 Generic mouse configuration

Place the moused script in the /etc/init.d directory

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```
cp moused /etc/init.d/
```

Add the script to the run levels 3, 4, and 5.

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```
ln -s /etc/init.d/moused /etc/rc3.d/S01moused
ln -s /etc/init.d/moused /etc/rc4.d/S01moused
ln -s /etc/init.d/moused /etc/rc5.d/S01moused
```

2.5 Shutdown Scripts

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```
mv /sbin/shutdown /sbin/sysshutdown
cp shutdown /sbin/
```

2.5.1 Reboot Scripts

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```
rm -f /usr/bin/reboot
cp reboot /usr/bin/
```

2.6 Wireless Tools

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```
rpm -ivh wifi-radar-1.9.4-1.mr.i386.rpm
```

2.7 Grant Sudo Permission to Doyen User

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```
echo "doyen     ALL=(ALL) NOPASSWD:ALL" >> /etc/sudoers
```

2.7.1 Build Live CD scritps

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```
tar -xzf linux-kernel-2.6.13.2-i486-1.tgz -C /

tar -xzf doyen-linux-live-5.1.8.tar.gz -C /tmp/

cd /tmp/doyen-linux-live-5.1.8/
```

Create module dependecies for newly installed kernel.

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```
depmod -b / 2.6.13.2
```

2.7.2 ISO Creation

Run the runme.sh script, which will create the distribution iso. This one will be located in the /tmp directory under the name of livecd.iso.

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```
yum clean all

sh runme.sh
```

3 Makefile

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```
notangle=/usr/local/bin/notangle
noweave=/usr/local/bin/noweave

all: extract do latex
        @echo done

extract: steps.pamphlet
        ${notangle} -Rstep steps.pamphlet >steps.sh
        ${noweave} -delay steps.pamphlet >steps.tex

do: steps.pamphlet
        @echo executing

latex: steps.tex
        @echo making steps.dvi from steps.tex
        latex steps.tex
        latex steps.tex
        pdflatex steps.tex

remake: steps.pamphlet
        @echo extracting makefile
        ${notangle} -t8 steps.pamphlet >Makefile
```