

## SOI Asia Server Setup

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SOI Asia server is the main server providing important services to its local network. These services can be classified into two categories.

### **Internet service**

Internet service is a set of fundamental Internet services which support users on the local network to be able to effectively access Internet services. These services are SSH, DNS, WWW,SMTP, DHCP, FTP and Web Cache.

### **SOI Asia archived lecture server**

SOI Asia archived lecture server service is a set of additional Internet services which support users on its local network to be able to access the SOI Asia archived lectures locally. These services are database, video streaming server and reliable multicast file transfer system.

This document will guide SOI Asia operator to install and configure SOI Asia Server to equipped with Internet service and archived lecture services. This document is organized as follows.

1. Hardware/Software Preparation
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  - Fedora Core 1 Installation
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3. SOI Asia Internet Service Installation
  - DNS installation
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  - WWW installation
  - Web Cache Proxy installation
4. SOI Asia archived lecture server Installation
  - Database server installation
  - Real streaming server
  - MTM system

### **1. Hardware/Software Preparation**

Hardware and software needed for installing SOI Asia Server with Internet service are listed in table 1 and 2 respectively. Software is available as ISO images at the specified sources, they should be downloaded and burned to CD-ROMs before start installation.

Table 1. Hardware for SOI Asia Server

Hardware	Amount	Specification
PC	1	PC/AT compatible PC Fedora Core 1 compliant 40GB or larger HDD 256MB RAM or more 500MHz CPU or faster One Ethernet interface <reliable chipsets, e.g. Intel, preferred>

Table 2. Software for SOI Asia Server

Software	Purpose	Source
Fedora Core 1 ( 3 disks)	OS for SOI Server	<a href="http://www.soi.wide.ad.jp/soi-asia/staff/download/soiserver/fc1/yarrow-i386-disc1.iso">http://www.soi.wide.ad.jp/soi-asia/staff/download/soiserver/fc1/yarrow-i386-disc1.iso</a> <a href="http://www.soi.wide.ad.jp/soi-asia/staff/download/soiserver/fc1/yarrow-i386-disc2.iso">http://www.soi.wide.ad.jp/soi-asia/staff/download/soiserver/fc1/yarrow-i386-disc2.iso</a> <a href="http://www.soi.wide.ad.jp/soi-asia/staff/download/soiserver/fc1/yarrow-i386-disc3.iso">http://www.soi.wide.ad.jp/soi-asia/staff/download/soiserver/fc1/yarrow-i386-disc3.iso</a>
SOI Server Software	Additional SW	<a href="http://www.soi.wide.ad.jp/soi-asia/staff/download/soi-fc1-updates.iso">http://www.soi.wide.ad.jp/soi-asia/staff/download/soi-fc1-updates.iso</a>

Table 3. IP Assignment

IP subnets are given to SOI partners differently by JP staff. This is an example of how to assign IP to machines on a subnet.

IP	Purpose
202.249.26.0/255.255.255.248	The subnet for local network given by JP staff.
202.249.26.0	Network address – not used
202.249.26.1	RR’s IP address
202.249.26.2	SOI Asia server’s IP address
202.249.26.3-202.249.26.6	For Realtime lecture machines like WMT, RPT, VIC/RAT
202.249.26.7	Broadcast address – not used

## 2. SOI Asia Server System Installation

(STEP 1) Fedora Core 1 installation

- Insert the Fedora Core 1 CD Disk #1 to SOI Asia server machine
- Change the boot sequence in the BIOS configuration to first boot from CD-ROM and turn on the machine. System will boot with Fedora Core 1 installation
- Follow the instructions below for SOI Asia server default Fedora Core 1 installation.
  - At the first installation page, press enter to install with graphical mode <please connect a mouse to the machine>
  - Press “*skip*” to skip media test.
  - At the graphical welcome menu, click next
  - Follow installation instructions on the left pane to install language, keyboard and mouse

- Choose “*Install Fedora core*”
- At installation type, select “*custom*”
- At Disk Partitioning Setup, select “*automatic partition*”, then select to “*remove Free partition on this system*” on the system and select drive for installation
- At Disk Setup, click next to use default.
- At boot loader configuration, click next to use default
- At network configuration
  - At network devices section, click “*Edit*”. Deselect “*configure using DHCP*”, Select “*Activate on boot*” and put in SOI Asia server’s IP address/netmask.
  - At hostname section, select “*manually*” and put in SOI Asia server hostname.
  - At Miscellaneous settings, put in gateway address as RR’s IP address and put the primary DNS as 202.249.24.18.
- At Firewall configuration, choose “*No firewall*”
- Follow Fedora instruction to install language support, timezone, root password
- At package group selections, select and install only the following components.
  - Development Tools
  - Kernel Development
- System ask for confirmation and start installation, disk 2 and 3 will be required during this step.
- System ask for boot disk creation, you may create one for future use.
- Installation completed, remove CD from drive and click “*Reboot*”.
- After system startup, login as root.

(STEP 2) Test Network configuration

- Test connectivity. Connect SOI Asia server’s Ethernet port to the hub using a straight cable. Ping RR and you should see successful ping result.

```
# ping 202.249.26.1
```

```
PING 202.249.26.1 (202.249.26.1): 56(84) bytes of data.
```

```
64 bytes from 202.249.26.1: icmp_seq=1 ttl=59 time=256 ms
```

```
64 bytes from 202.249.26.1: icmp_seq=2 ttl=59 time=255 ms
```

- Disable unused network services. (The sign # represents command prompt)

```
# chkconfig xinetd off
```

```
# chkconfig apmd off
```

```
# chkconfig atd off
```

```
# chkconfig nfs off
```

```
# chkconfig pcmcia off
```

```
# chkconfig portmap off
```

```
# chkconfig nfslock off
```

```
# chkconfig irqbalance off
```

```
# chkconfig rhnsd off
```

```
# chkconfig smartd off
# chkconfig gpm off
# chkconfig sendmail off
# chkconfig isdn off
# chkconfig netfs off
# chkconfig xfs off
# chkconfig acpid off
# chkconfig autofs off
```

- Limit network access to SOI server. For security reason, Access to SOI server will be limited to only partner institution and WIDE project.

- Edit /etc/hosts.allow to contain following entries, replace 202.249.26.0/255.255.255.248 with your SOI network setting.

```
ALL: 203.178.136.0/255.255.248.0
```

```
# Allow access from WIDE Project
```

```
ALL: 202.249.26.0/255.255.255.248
```

```
#Allow access inside SOI Local network
```

- Edit /etc/hosts.deny file to contain following entry.

```
ALL:ALL
```

- Verify the setting by make a ssh login from a PC with SOI Asia IP. Operator should be able to make a connection and logging in. If possible, make a ssh login from a machine outside of SOI Asia network, the connection shouldn't be established.

- If SOI Asia server is assigned a campus private IP address, follow steps below to set this additional IP address to the interface.

- Check network interface name to be configured using command below. The output lists all Ethernet interfaces's names, in this sample, eth0 is the only interface name. Please find out your SOI Asia server's interface name.

```
# ifconfig -a|grep Ether
```

```
eth0    Link encap:Ethernet HWaddr 00:E0:18:A8:F2:B9
```

-Edit /etc/sysconfig/network-scripts/ifcfg-eth0:0 to contain following entries. Please replace eth0 of the file name and the DEVICE value with your SOI server's interface name, replace IP address and netmask with those given from Campus network.

```
DEVICE=eth0:0
```

```
BOOTPROTO=static
```

```
IPADDR=10.0.1.1
```

```
NETMASK=255.0.0.0
```

```
ONBOOT=yes
```

- Restart network setting. correct.

```
# /etc/init.d/network restart
```

```
Shutting down interface eth0: [ OK ]
```

```
Shutting down loopback interface: [ OK ]
```

```
Setting network parameters: [ OK ]
```

```
Bringing up loopback interface: [ OK ]
```

```
Bringing up interface eth0: [ OK ]
```

### (STEP 3) Fedora Core 1 kernel upgrade

- Insert the SOI server software CD to SOI-Server machine.

- First, check what is your CD-ROM path

```
#dmesg|grep CD
```

- In the output message, find the line similar to this.

```
hdc: CD-224E, ATAPI CD/DVD-ROM drive
```

```
hdc: ATAPI 24X CD-ROM drive, 128kB Cache , DMA
```

- In this example, the “hdc” denotes CDROM name, therefore the path to CD is /dev/hdc.

Please find out your machine’s CDROM name.

- Mount the CDROM to system directory. Please replace /dev/hdc to suit your system.

```
#mkdir /cd
```

```
#mount /dev/hdc /cd
```

- Follow the instructions below to upgrade kernel

```
#cd /usr/local/src
```

```
# cp /cd/* ./
```

```
# rpm -ivh kernel-2.4.22-1.2197.usagi.i686.rpm
```

- Change the default boot image to the new one by edit /boot/grub/grub.conf

```
# vi /boot/grub/grub.conf
```

- Edit following entry and save the file

**Change**        **default=1**

**To**            **default =0**

- Reboot the machine

```
# reboot
```

- Check the running kernel by the command below and “2.4.22-1.2197.usagi” must be shown in output.

```
# uname -a
```

```
Linux sfc-soi.ai3.net 2.4.22-1.2197.usaigi #1 Wed Jul 2 1:01:40 JST 2004 i686 i686 i386
```

```
GNU/Linux
```

### (STEP 4) Openssh/Openssl packages upgrade

- Follow the instructions below to upgrade openssh and openssl to the most up-to-date version to avoid vulnerabilities and security holes.

```
#mount /dev/hdc /cd
#cd /usr/local/src
# gzip -d openssl-0.9.7d.tar.gz
# tar -xvf openssl-0.9.7d.tar
# cd openssl-0.9.7d
# ./config
# make
# make install
# cd ..
```

```
# gzip -d openssh-3.8p1.tar.gz
# tar -xvf gzip -d openssh-3.8p1.tar
# cd openssh-3.8p1
# ./configure --with-ssl-dir=/usr/local/ssl
# make
# make install
# cd ..
```

- Replace old binaries with new ones.

```
# mv /usr/bin/openssl /usr/bin/openssl.old
# cp /usr/local/ssl/bin/openssl /usr/bin/openssl
# mv /usr/sbin/sshd /usr/sbin/sshd.old
# cp /usr/local/sbin/sshd /usr/sbin/sshd
```

- Edit /etc/ssh/sshd\_config

```
# vi /etc/ssh/sshd_config
```

and add the following lines and save the file

```
PermitRootLogin no
PasswordAuthentication no
PermitEmptyPasswords no
```

- Restart sshd daemon to re-read configuration file

```
#service sshd restart
```

(STEP 5) Fedora Core 1 packages upgrade

```
# cd /usr/local/src
# rpm -ivh apt-0.5.15cnc6-0.fdr.11.2.i386.rpm
# apt-get mirror-select
Choose the repositories you want to use from the list below:
1 Fedora Core
```

- 2 Fedora Extras
- 3 Macromedia

When finished choose 'c' to continue or choose 'q' to quit repository selector without changing anything.

Enter your selection(s) in a comma-separated list:

**1,2**

Choose the repositories you want to use from the list below:

- 1 (x) Fedora Core
- 2 (x) Fedora Extras
- 3 Macromedia

When finished choose 'c' to continue or choose 'q' to quit repository selector without changing anything.

Enter your selection(s) in a comma-separated list:

**c**

Then Follow instructions to select mirror sites. After finish mirror selection process, types following commands in sequence to update package information and upgrade the existing packages to a new version.

- Update package list

**# apt-get update**

- Update packages

**# apt-get upgrade**

(STEP 6) Adding a user account

- Use command below to create a username, replace “username” in following steps with your own username.

**# adduser username**

- Edit /etc/shadow

**# vi /etc/shadow**

- On the username line, Change **!!** to **\***, and save the file.

For example,

Change **username:!!:12587:0:99999:7:::**

to **username:\*:12587:0:99999:7:::**

- Change directory permission

**# mkdir /home/username/.ssh**

**# chmod -R 755 /home/username**

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```
# chown -R username:username /home/username
# cd /home/username/.ssh
```

- Put your RSA public key file somewhere on the web. The next command will download the file to SOI server.

```
# wget <url of your public key>
# mv your_public_key_file authorized_keys
# chown username:username authorized_keys
# chmod 600 authorized_keys
```

### 3. SOI Asia Internet Service Installation

(STEP 1) DNS installation : bind-9.2.2.P3-9

The default DNS setting in SOI Asia environment is caching only name server. Server resolves domain name queries from clients and cache answers for future queries. But it does not host or manage a domain name by itself.

- Enable DNS service and make it runs at system startup

```
# apt-get install bind-chroot
```

- Edit /var/named/chroot/etc/named.conf and put in the following configuration. Change subnet address to your SOI Asia subnet.

```
options {
    allow-query { 202.249.26.1/29; localhost; };
    allow-recursion { 202.249.26.1/29; localhost; };
    allow-transfer { none;};
};
```

```
#service named start
```

```
Starting named: [ OK ]
```

```
#chkconfig named on
```

- Edit /etc/resolv.conf to contain following entry

```
search ai3.net
nameserver 127.0.0.1
```

- DNS verification. Use nslookup command and check if it can resolve the IP address of the queried domain or not.

```
#nslookup www.soi.wide.ad.jp 127.0.0.1
```

```
Server: 127.0.0.1
Address: 127.0.0.1#53
```

```
Non-authoritative answer:
```

```
www.soi.wide.ad.jp canonical name = asari.soi.wide.ad.jp.
```

```
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```

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Name: asari.soi.wide.ad.jp

Address: 203.178.138.99

-\*\* In case you want to host a domain name, the instructions are in chapter2::appendix 1 at the end of this chapter.

(STEP 2) SMTP server installation : postfix-2.0.16-1

SMTP is an outgoing mail gateway serving users in local networks to send mails to recipients in the Internet. The default SMTP server is sendmail. However, SOI Asia environment uses postfix as SMTP server.

- Remove sendmail and install postfix

```
#apt-get remove sendmail
```

```
#apt-get install postfix
```

- Configure postfix by edit /etc/postfix/main.cf to add following 2 lines. Each line should be placed at the corresponding configuration section. Please replace value of hostname and 202.249.26.0/29 with your site setting.

```
myhostname = sfc-soi.ai3.net
```

```
mynetworks = 127.0.0.0/8, 202.249.26.0/29
```

- Create chroot environment for postfix

```
#cp /usr/local/src/postfix-chroot.sh /etc/postfix/
```

```
#cd /etc/postfix
```

```
#chmod 744 postfix-chroot.sh
```

```
#!/postfix-chroot.sh enable
```

- Start SMTP server

```
#service postfix start
```

```
#chkconfig postfix on
```

- SMTP verification. Mail to your email address using mail command as shown in example below. After you type the command and enter, it will let you specify subject of the mail and body of the mail. To finish writing the body of the mail, make a newline by enter and type “.” and enter again. Please check if you receive the mail in your mail box.

```
#mail your_email
```

```
Subject: soi-server test
```

```
Mail body : type anything
```

```
.
```

```
Cc:
```

```
#
```

(STEP 3) DHCP installation : dhcp-3.0p12-6

## # apt-get install dhcp

- Configure DHCP by edit /etc/dhcpd.conf to store the network information for the clients. The sample configuration content is given below, broadcast-address is the highest IP of your network, router is RR, domain-name-servers is the SOI server itself. Finally, the range statement specifies range of IP addresses to be assigned to clients, therefore the IP address of RR, SOI server and broadcast address are excluded.

```
ddns-update-style ad-hoc;
default-lease-time 600;
max-lease-time 7200;
option subnet-mask 255.255.255.248;
option broadcast-address 202.249.26.7;
option routers 202.249.26.1;
option domain-name-servers 202.249.26.2;
option domain-name "ai3.net";

subnet 202.249.26.0 netmask 255.255.255.248 {
    range 202.249.26.3 202.249.26.6;}
```

- Add a route to your routing table, this is required by DHCP server. Please replace eth0 with SOI Asia server's interface name.

```
#route add -host 255.255.255.255 dev eth0
```

- Start dhcpd service

```
# touch /var/lib/dhcp/dhcpd.leases
```

```
#service dhcpd start
```

```
#chkconfig dhcpd on
```

- DHCP verification. Connect a machine to the SOI Asia LAN and configure it to get IP address from DHCP. Check if the output contains correct network setting or not.

- In window machine, using command "ipconfig /renew".

```
C:\Documents and Settings\soi>ipconfig /renew
```

```
Windows IP Configuration
```

```
Ethernet adapter ????: ??????:
```

```
Connection-specific DNS Suffix . : ai3.net
```

```
IP Address. . . . . : 202.249.26.3
```

```
Subnet Mask . . . . . : 255.255.255.248
```

Default Gateway . . . . . : 202.249.26.1

(STEP 4) File Transfer service installation

SSH version 1 provides SCP(secure copy) which gives secure file transmission over remote hosts so we do not have to install additional programs.

- Test SCP

On a Windows machine

- download WINSCP client program from <http://winscp.sourceforge.net/eng/download.php>
- install and launch the program
  - select "session" on the left pane of WINSCP program
    - put in SOI server's IP address in "Host name" box
    - put in username in "User Name" box
    - leave "Password" box blank
    - browse your private key in "Private key file" box.
    - select "SCP" protocol
  - select "SSH" on the left pane of WINSCP program
    - select protocol version as "1"
  - click "Save" to save this session for future login.
  - click "Login" and system will ask for passphrase to login to SOI server.
- test to upload and download file with the server.

(STEP 5) Web server installation : apache-2.0.49-1

- Create a Web root directory. In SOI Asia environment, /soi/soi is the Web root directory. (Each directory under DocumentRoot should have read permission to others.755 is recommended. )

```
# mkdir /soi
```

```
# mkdir /soi/soi
```

```
# chmod -R 755 /soi
```

- Install httpd

```
# apt-get install httpd
```

- Edit /etc/httpd/conf/httpd.conf and modify the following parameters. Please be noted that the line number may differ a little bit.

1. DocumentRoot parameter at the line 446

Change from : `DocumentRoot "/var/www/html"`

To : `DocumentRoot "/soi/soi"`

2. Directory setting at the line 471

Change from : `<Directory "/var/www/html">`

To : `<Directory "/soi/soi">`

3. ScriptAlias parameter at the line 746

Change from : `ScriptAlias /cgi-bin/ "/var/www/cgi-bin/"`

To : `ScriptAlias /cgi-bin/ "/soi/soi/"`

#### 4. Directory setting at the line 752-757

Change from : `<Directory "/var/www/cgi-bin">`

To : `<Directory "/soi/soi">`

- Enable Web server and make it runs at system startup

```
# chkconfig httpd on
```

```
# service httpd start
```

```
Starting httpd: [ OK ]
```

- Web server Verification

- Create /soi/soi/index.html to contain the following line.

```
<html><head>hello</head></html>
```

- Use a browser to access `http://your-server-ip-address/` (In our sample case, `http://202.249.26.2/`), you must see a plain html page written "hello".

#### (STEP 6) Web Cache Proxy installation : squid-2.5.STABLE3-2

Web Cache Proxy is acting as a gateway to access WWW services in the Internet. It accepts client's request for a Web page. It then retrieves the requested web content and transfers to client. Moreover, it caches the web contents for future requests. Clients in SOI Asia network with private IP address gain benefits using this Web Cache Proxy as a relay WWW gateway.

- Install squid

```
# apt-get install squid
```

- Edit configuration file, /etc/squid/squid.conf, and modify the following parameters

1. cache\_peer parameter

```
cache_peer sfc-cache.ai3.net parent 8080 3130
```

2. maximum\_object\_size parameter

Change from : `# maximum_object_size 4096 KB`

To : `maximum_object_size 8192 KB`

3. cache\_dir parameter

< default configuration define the space of cache directory to 100 M, you may increase this number to the size of space you provide for caching web pages, in this example, we change it to 1.6G>

Change from : `#cache_dir ufs /var/spool/squid 100 16 256`

To : `cache_dir ufs /var/spool/squid 1600 16 256`

4. ftp\_user parameter. Please replace sfc-soi.ai3.net with your host name.

Change from : `#ftp_user Squid@`

To : `ftp_user squid@sfc-soi.ai3.net`

5. acl parameter, add the following line. Please replace IP and netmask to your site setting.

```
acl localsite src 202.249.26.0/255.255.255.248
```

6. http\_access parameter, add the following line before the line http\_access deny all

```
http_access allow localsite
```

7. icp\_access parameter

```
Change from: icp_access allow all
```

```
To : icp_access deny all
```

8. cache\_mgr parameter. Please replace admin@email.address with email address of person whom be informed when there are something wrongs with proxy server.

```
Change from: # cache_mgr root
```

```
To : cache_mgr admin@email.address
```

9. logfile\_rotate parameter.

```
Change from: # logfile_rotate 0
```

```
To : logfile_rotate 10
```

- Enable Web Cache proxy server and make it runs at system startup

```
#chkconfig squid on
```

```
# service squid start
```

- Log rotation

```
#crontab -e
```

```
0 0 * * * /usr/sbin/squid -k rotate
```

- Web Cache Proxy Verification. Connect a Windows PC to the SOI LAN and use SOI Asia's IP address.

- Open Internet Explorer

- Open Tools menu and choose Internet Option submenu

- Choose the connection tab and Click LAN Setting button

- Enable the "Proxy server" frame, put IP address of SOI server and port 3128

- Click "OK".

- Use IE to browse Internet pages, press ctrl and click reload at the same time to avoid browser's cache.

- Install Squid analyzer

```
#cd /usr/local/src
```

```
#apt-get install gd-devel
```

```
#apt-get install libpng-devel
```

```
#apt-get install libjpeg-devel
```

```
#gzip -d GD.pm.tar.gz
```

```
#tar -xvf GD.pm.tar.
```

```
#cd GD-2.11
```

```
#perl Makefile.PL
```

- Answer script question as follow.

```
Where is libgd installed? [/usr/lib]
```

Please choose the features that match how libgd was built:

Build JPEG support? [y] **y**

Build FreeType support? [y] **n**

Build XPM support? [y] **n**

**#make**

**#make install**

**#cd /usr/local/src**

**#gzip -d squid-graph-3.1.tar.gz**

**#tar -xvf squid-graph-3.1.tar**

**#cd squid-graph-3.1**

**#cd bin**

**#chmod 755 squid-graph**

**#mkdir /soi/soi/squid**

**#cp ../images/logo.png /soi/soi/squid**

**./squid-graph --output-dir=/soi/soi/squid < /var/log/squid/access.log**

- Generate graph every hour by using command crontab to add the following entry.

**#crontab -e**

**1 \* \* \* \* /usr/local/src/squid-graph-3.1/bin/ squid-graph --output-dir=/soi/soi/squid < /var/log/squid/access.log**

- Verify the graph by browsing the following URL.

[http://\[SOI-server-IP-address\]/squid/](http://[SOI-server-IP-address]/squid/)

#### **4. SOI Asia archived lecture server Installation**

(STEP 1) Database server installation: postgresQL-7.3.4-11

- Enable Database server and make it runs at system startup

**#apt-get install postgresql**

**# apt-get install postgresql-server**

**# chkconfig postgresql on**

**# service postgresql start**

(STEP 2) Real streaming server : Helix Universal server

- Obtain Helix Server product key by registering to Real web site at the following URL.

(<http://licensekey.reálnetworks.com/rnforms/products/servers/eval/index.html?ulf=b>)

- At the registration page, choose Linux version 2.4.18 in OS selection. Fill in information including email address that the product key will be sent to. You will get the information of how to get product key via email.

- Get the product key and Helix server program and FTP it to SOI Asia server at directory /usr/local/src

- To install Helix Universal Server, execute the following commands.

```
# cd /usr/local/src
```

```
# ./rmserver.bin
```

- You will see the installation screen, press enter to continue.

```
Extracting files for RealNetworks installation.....
```

```
Welcome to the Helix Server 9.0 (9.0.2.794) Setup for UNIX
```

```
Setup will help you get Helix Server running on your computer.
```

```
Press [Enter] to continue...
```

- System asks for the location of the license key, input “/usr/local/src”

```
If a Helix Server license key file has been sent to you,  
please enter its directory path below. If you have not  
received a Helix Server license key file, then this server  
WILL NOT OPERATE until a license key file is placed in  
the server's License directory. Please obtain a free  
Basic Helix Server license or purchase a commercial license  
from our website at http://www.real.com/. If you need  
further assistance, please visit our on-line support area  
at http://service.real.com/.
```

```
License Key File: []: /usr/local/src/
```

- System asks for agreement in terms and conditions of usage, press enter to see license key and then input “Accept”

```
Installation and use of Helix Server requires  
acceptance of the following terms and conditions:
```

```
Press [Enter] to display the license text...
```

```
extracting text from file /usr/local/src
```

```
Choose "Accept" to accept the terms of this  
license agreement and continue with Helix Server setup.
```

```
If you do not accept these terms, enter "No"  
and installation of Helix Server will be cancelled.
```

```
I accept the above license: [Accept]: Accept
```

- System asks for installation directory, input “/usr/local/rmsrver”

Enter the complete path to the directory where you want Helix Server to be installed. You must specify the full pathname of the directory and have write privileges to the chosen directory.

Directory: [/usr/local/src]: **/usr/local/rmsrver**

- System asks for username and password to administer the Helix Server. Please set username as “soi” and password as “soi-asia-secret”

Please enter a username and password that you will use to access the web-based Helix Server Administrator, monitors, and live encoders:

Username []: **soi**

Password []:

Confirm Password []:

- PNA port selection, press enter to use default port number 7070.

Please enter a port on which Helix Server will listen for PNA connections. These connections have URLs that begin with "pnm://"

Port [7070]:

- RTSP port selection, press enter to use default port number 554.

Please enter a port on which Helix Server will listen for RTSP connections. These connections have URLs that begin with "rtsp://"

Port [554]:

- HTTP port selection, input “8080”

Please enter a port on which Helix Server will listen for HTTP connections. These connections have URLs that begin with "http://"

Port [80]: **8080**

- MMS port selection, press enter to use default port number 1755

Please enter a port on which Helix Server will listen for MMS connections. These connections have URLs that begin with "mms://"

Port [1755]:

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- Web-based configuration port selection, input "12345"  
Helix Server will listen for Administrator requests on the port shown. This port has been initialized to a random value for security. Please verify now that this pre-assigned port will not interfere with ports already in use on your system; you can change it if necessary.

Port [21188]: **12345**

- System displays all configuration made, press enter to confirm the configuration  
You have selected the following Helix Server configuration:

Admin User/Password: soi/\*\*\*\*  
Encoder User/Password: soi/\*\*\*\*  
Monitor Password: \*\*\*\*  
RTSP Port: 554  
HTTP Port: 8080  
PNA Port: 7070  
MMS Port: 1755  
Admin Port: 12345  
Destination: /usr/local/rmsrver

Enter [F]inish to begin copying files, or [P]revious to go back to the previous prompts: [F]:

- Helix Universal server installation is done.  
Copying Helix Server files....cp: omitting directory `/usr/local/src'

Helix Server installation is complete.

If at any time you should require technical assistance, please visit our on-line support area at <http://service.real.com/>.

Cleaning up installation files...  
Done.

- Move the product key to executing directory and place the startup script at the system's startup directory.

**# cd /usr/local/rmsrver**

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```
# mv /usr/local/src/*.lic /usr/local/rmserver/License/  
# cp /usr/local/src/rmserver /etc/rc.d/init.d/  
#chmod 755 /etc/rc.d/init.d/rmserver
```

- Edit /etc/rc.d/init.d/rmserver and change 203.159.26.37 to your SOI server 's IP address at line 23.

- Enable the streaming server

```
#service rmserver start
```

- Set streaming server's content root.

```
#cd /usr/local/rmserver/Content/  
#ln -s /soi/soi/ soi
```

- Streaming server Verification. Connect a Windows PC to the SOI LAN and use SOI Asia's IP address.

- If no Realplayer installed on the PC, please download from

<http://www.real.com/realplayer.html>

- Open a real player and open the URL rtsp://(your SOI server's IP)/real9video.rm

- You must be able to view the sample real stream.

- Visit Administrator configuration page at [http://\[your-server-ipaddress\]:12345/admin/index.html](http://[your-server-ipaddress]:12345/admin/index.html).

\*\*In case SOI server has more than one IP address, Please visit Server setup -> IP Binding configuration to add all IP addresses to the binding list.