IPCR(Call Recording)

Administrator Guide

iPECS is an Ericsson-LG Brand

Please read this manual carefully before operating your set. Retain it for future reference.

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Document Information

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1.0Ba	1.1	Added further explanation how to install Fedora 16.	2013-07-03
1.0Bc	1.2	Applied new BI	2014-02-10
1.0Bh	1.3	Added Kronzilla	2014-03-12
1.0Bh	1.4	Added VM-ware install and modify Document	2014-03-29
2.0Ad	1.5	Added IPCR 2.0 Function(Multi-IPCR)	2014-05-28

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Before Starting

About This Guide

This iPECS iPCR(Call Recording) Administrator Guide is indented to provide you with the information needed to System Configuration, Installation, Administration and Using iPECS Call Recording Server.

The screen might look a little different depending on which version of the OS (Operating System) and Installation Program you're using, all information in this guide is subject to change without prior notice.

Organization of the Document

This guide consists of seven Chapters, as well as the Before Starting section.

- Before Staring
- **Chapter 1:** Introduction
- **Chapter 2:** Installation Overview
- **Chapter 3:** iPECS System Configuration
- **Chapter 4:** iPCR Installation
- **Chapter 5:** iPCR Administration
- **Chapter 6:** Using iPECS Call Recording Server
- **Chapter 7:** Useful Information

The following icons and notices are used in this guide to convey important cautions and notes.

CAUTION

A caution statement alerts you to situations that may cause damage to hardware, software, or data.

NOTE

A note provides additional explanations, important information, or a reference to relate information.

1. Introduction

1.1 iPECS Call Recording Server

The administrator can configure multiple User admin levels and define the features and functions available to each level. A user may be limited to recording only, search & play, call monitoring and recording, and access to various management and administrative Web pages.

The iPECS Internet Protocol Call Recording (IPCR) server application employs a Linux OS and VoIP technology to deliver advanced Call Recording capabilities to iPECS platforms. The advanced capabilities provide automatic and on-demand call recording for recording Agents linked to objects (stations numbers) registered with the iPECS platform. An IPCR server can be associated with from one (1) to ten (10)-host iPECS systems permitting the application to record calls for a network of systems. Each iPECS host can support one (1) to ten (10) IPCR servers allowing separation of Call Recording based on tenant or other iPECS system groupings.

Employing iPECS and SIP protocols, the IPCR application provides an affordable SMB solution to recording and monitoring calls. iPECS protocols are employed to register and control call recordings. The IPCR application registers with the iPECS host as any other iPECS device. The registration can be automatic “plug-and-play” or by listing the MAC address of the Call Recording server in the iPECS host database for local or remote service. The IPCR application operates as an iPECS SIP Phone to receive RTP (Real-Time Protocol) packets. When a call is received, configured objects invite the call recording Agent to join the call and deliver RTP packets to the IPCR application for storage as part of a conference call. Once the call is terminated, the recording Agent is released and a record of the call and RTP packet media (voice) are stored.

The IPCR application supports both Automatic recording of all calls (ACR) and configured users assigned a Two-way Recording button can request an active call be recorded, ODR (On-demand recording). In the later case, when the call is connected to an On-demand recording object, the recording Agent is activated and the media is sent to the Call Recording server. If during the call the user requests recording, audio for the entire call is stored from the beginning of the call. If the user does not request recording during the call, when the call is complete, the recording Agent is released and the media is not stored.

1.2 Web Server Module

IPCR includes a Web server module. The Web server module is the user-interface for administrative and user functions and features of the application. In addition to configuring the IPCR for registration with the host iPECS systems, the administrator can configure Automatic Back-up of recordings, type of recording (All calls or On-demand), security for signaling and media packets, and server usage thresholds for e-mail notification. The administrator can view and search the Web module activity and the Call Statistics log.

The administrator can configure multiple User admin levels and define the features and functions available to each level. A user may be limited to recording only, search & play, call monitoring and recording, and access to various management and administrative Web pages.

2. Installation Overview

The iPECS Call Recording application has been optimized to run under the Fedora 16 i386 Linux environment from Red Hat and others. The host iPECS platform should be configured for the Call Recording Server as discussed in Chapter 3. The installation follows the steps below:

- Prepare the iPECS host for registration and login of the IPCR application, see *sections 3.1.1 to 3.1.3*
- Install the Fedora-19 Linux OS, *see section 7.1*.
- Install the IPCR application, see *Chapter 4*.
- Prepare the IPPCR application for registration and login with the iPECS host, see *sections 5.2.3 PBX Registration and 5.2.5 IPCR Server Registration*.
- Complete configuration of the iPECS host, see *sections 3.1.4 to 3.1.7.*
- Complete configuration of the IPCR application, see *Chapter 5.*

Once configured for registration and login, the IPCR server registers with the iPECS host using automatic or MAC address registration. The IPCR application then will login to the system employing the SIP Id and password, which must match the User Id and password assigned, if any, in the Device User Login program (PGM 443) where the desired station number can be defined. Once login is complete, the remaining characteristics of the iPECS host and the IPCR application can be configured and calls recorded.

Chapter 6 provides information on using the IPCR Web application to search, play and copy recordings as well as real-time call monitoring and recording.

2.1 IPCR Server General Requirements

Before installing the IPCR application, several items should be considered.

2.1.1 Network Addressing

The IPCR application is designed for use with Static IP addressing only.

2.1.2 Network

The IPCR application is intended for connection to a wired network and must have sufficient bandwidth to handle the expect call traffic. The iPECS object will send RTP traffic to the IPCR application. Depending on the codec and configuration, each recorded call will send 50 packets/second (20-msec. sampling) at about 125 Kbps (G.711).

2.2 OS & Server Requirements

The server as recommended below is capable of handling a maximum of 250 simultaneous calls (Agents). However, it is recommended that the number of agents not exceed 150. Note even though a user does not activate on-demand call recording, RTP traffic is still sent to the IPCR application should the user determine the need to activate recording during the call.

- **Operating System:** Fedora 16 i386 version
- **Server CPU:** Intel Pentium Core 2 Duo 1.8 GHz or higher, AMD Athlon X2-64 2.4 GHz or higher
- **Server RAM:** Minimum 2 GByte
- **Server HDD:** 1-TByte
- **External HDD:** Optional for back up

2.3 Server Environment

During installation, the Fedora OS must be configured to support the IPCR application as discussed in the Appendix A. This includes:

- Create the partition (“/var/REC”) for the application and storage of recording “
- Install the “Web Server” task
- Install the “PostgreSQL” database
- Disable the Fedora Firewall
- Configure the IPCR Sever network parameters
- Establish the “ntsysv” for automatic restart of the Web and database processes.
- Create a back-up directory.

2.4 iPECS Host Platform

The IPCR application has been designed to work with the iPECS family of systems. Specifically, the following platforms are compatible:

- iPECS LIK/UCP version 5.5 or higher, one or more MCIMs are required to record conference calls.
- MCIM is related to 3 more conference and SIP phone two way record. And VOIM is related to relay between local and Remote and Codec conversion.

3. iPECS System Configuration

Prior to starting the IPCR server application, it is recommended that the iPECS host platform be configured. This section provides details to configure the iPECS host for operation with IPCR.

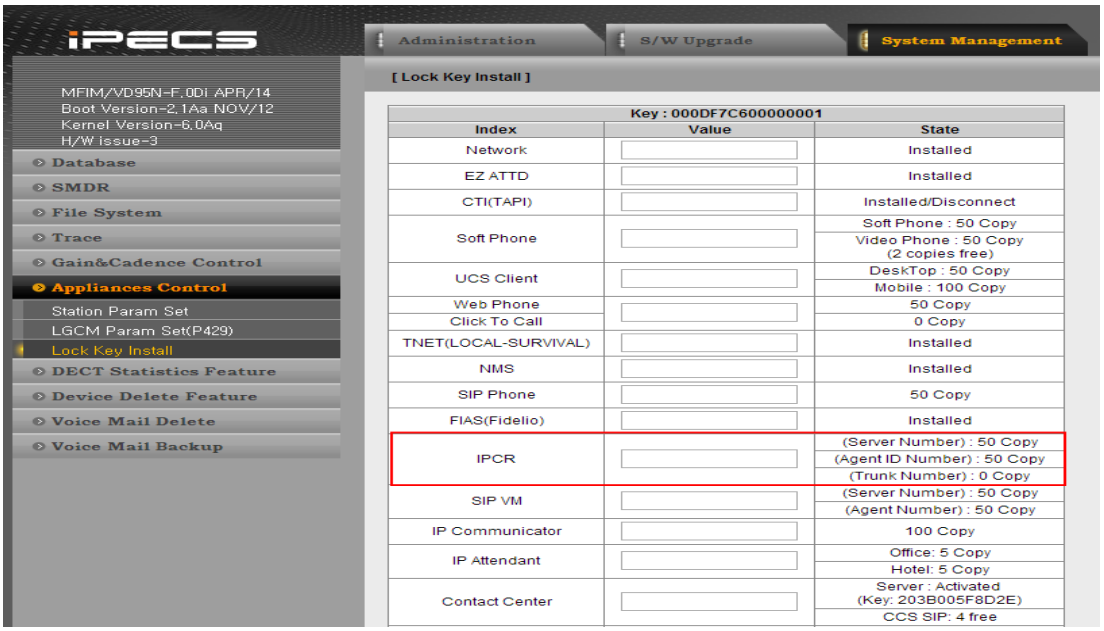
3.1 iPECS LIK/UCP/UCP

3.1.1 Unlock up to number of IPCR server and Agent ID

Unlock (license) codes for the iPECS LIK/UCP permit operation with up to ten (10) Call recording servers simultaneously. In addition, the codes define the number of IPCR servers, recording Agents available and SIP Phone. IPCR server needs at least 1 copy. SIP phone unlock key needs only 1 copy for an IPCR.

In the iPECS LIK/UCP Web Admin,

- Select the System Management tab,
- Select Appliance Control,
- Select 'Lock Key Install',
- Enter the Key code provided from your local LG-Ericsson Enterprise representative, and
- Select 'Save'.

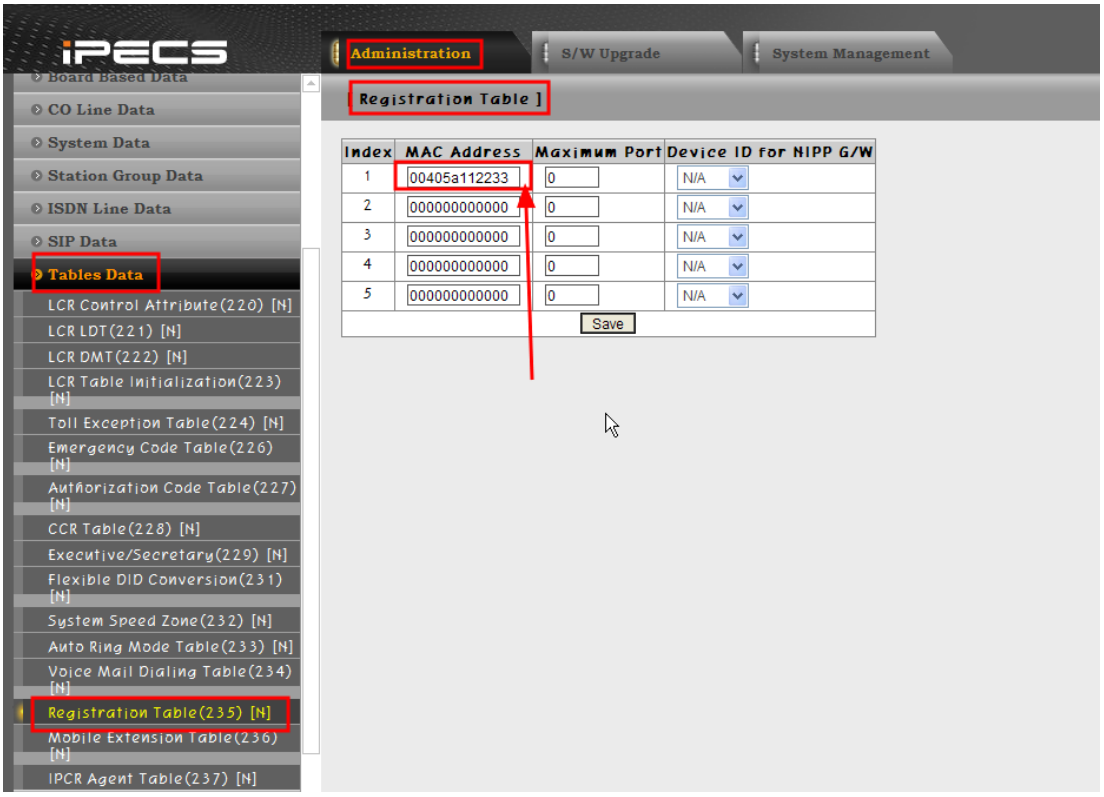


3.1.2 IPCR Server MAC Address

The IPCR server can be registered with the iPECS host either employing the automatic registration method (Dipswitch 3 set to ‘On’) or using the MAC address registration. For MAC address registration, assign the MAC address and number of Agents for the IPCR server in the Registration Table (PGM 235).

In the iPECS LIK/UCP Web Admin,

- Select the Administration tab,
- Select Registration Table, PGM 235,
- Enter the MAC address of the IPCR Server and the number of Agents for the server,
- Select ‘Save’.



3.1.3 Station User Login

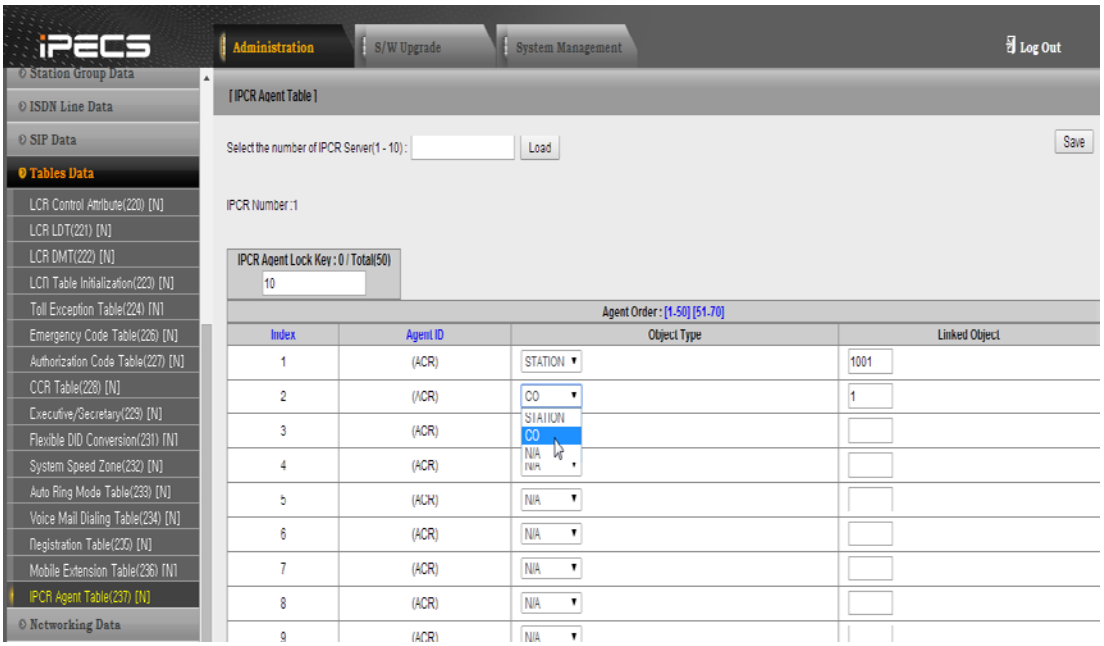
After the IPCR server registers with the iPECS host using either the MAC or automatic registration method, the IPCR application will login for service. The IPCR application will send the SIP Id and password to the host system. The host will then populate the Station User Login (PGM 443) with the received credentials and assign the next available station number to the IPCR application. In normal case, the Station User Login (PGM 443) procedure doesn’t need. It’s automatically assigned by register of IPCR.

3.1.4 IPCR Agent ID Table

Prior to programming the Agent Table, the IPCR server must be registered with the iPECS LIK/UCP and the call recording application must be logged into the iPECS LIK/UCP. In addition, the IPCR Channel registration may be configured to assign agents to channels in the IPCR application. Each Agent is linked to an iPECS LIK/UCP object (a Station) in the IPCR Agent Table (PGM 237). The Agent table indicates the number of agents associated with a specific IPCR server, the Agent Id, and the linked object information.

In the iPECS LIK/UCP Web Admin,

- Select the Administration tab,
- Select IPCR Agent Table, PGM 237,
- Select the IPCR Server number,
- Enter the number of Agents for the sever,
- For each Agent Id select an Object Type and the specific object number (Station number or Co) and
- Select 'Save'.
- Note the IPCR server number, 1 – 10, is the order of registration of the IPCR server with the iPECS LIK/UCP.



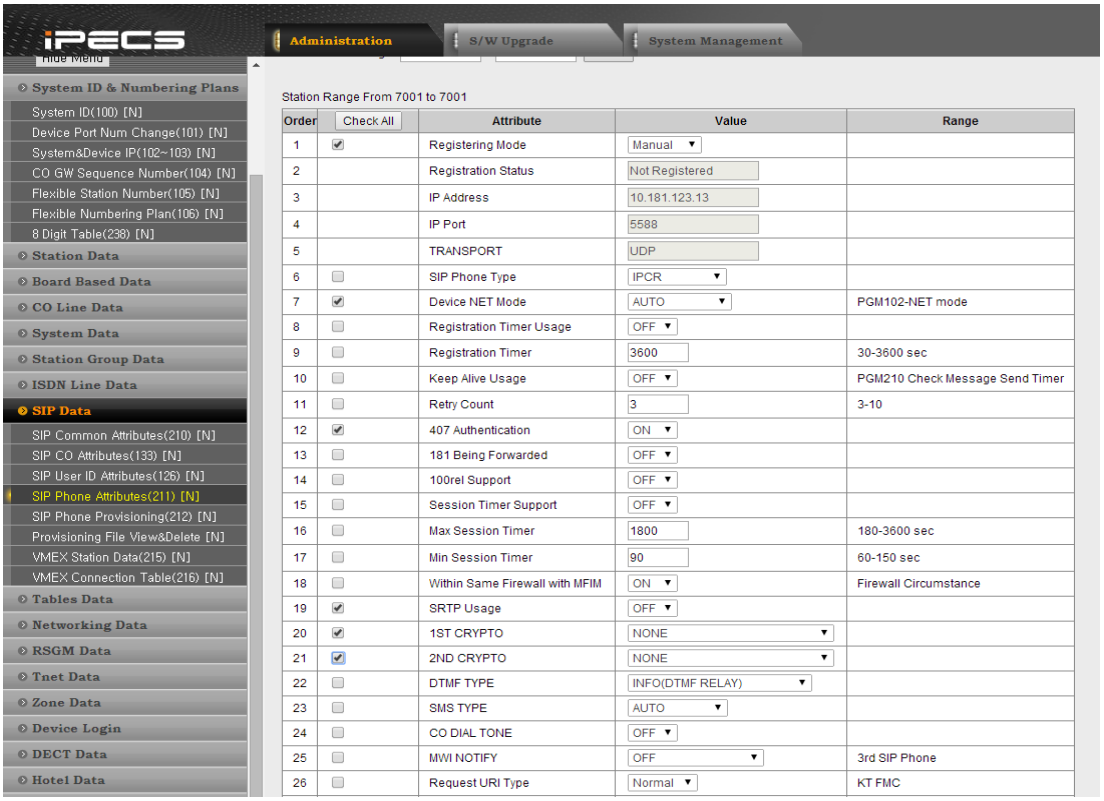
3.1.5 IPCR SIP Station Registration

The IPCR application interfaces to the iPECS LIK/UCP as a single SIP Phone. Registration between the IPCR server and LIK is automatic once both are configured. Under the SIP Phone Attributes, the Registration Mode must be set to Manual and the SRTP Usage, and 1st and 2nd encryption mode can be configured. The encryption algorithm can be selected as AES or, for Korea, ARIA. The remaining SIP Phone Attributes are not used for the IPCR application.

Prior to programming the Agent Table, the IPCR server must be registered with the iPECS LIK/UCP and the IPCR application must be logged into the iPECS LIK/UCP, see *section 5.2.3.* The station number of the IPCR application can be verified in Station User Login (PGM 443) after registration and login.

In the iPECS LIK/UCP Web Admin,

- Select the Administration tab,
- Select SIP Data menu,
- Select SIP Phone Attributes,
- Enter the Station number associated with the IPCR server and select Load,
- Select 'Manual' for the Registration Mode,
- Select the desired configuration for SRTP Usage, 1st and 2nd Crypto, and
- Select 'Save'.
- 407 will support after A.0Ak version of IPCR.

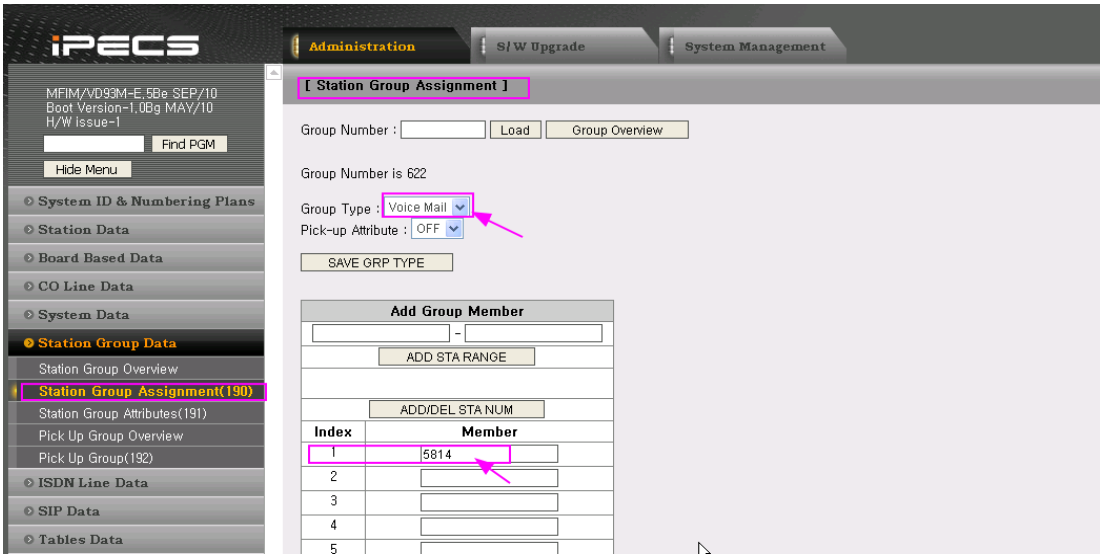


3.1.6 VM Group Configuration for IPCR Server

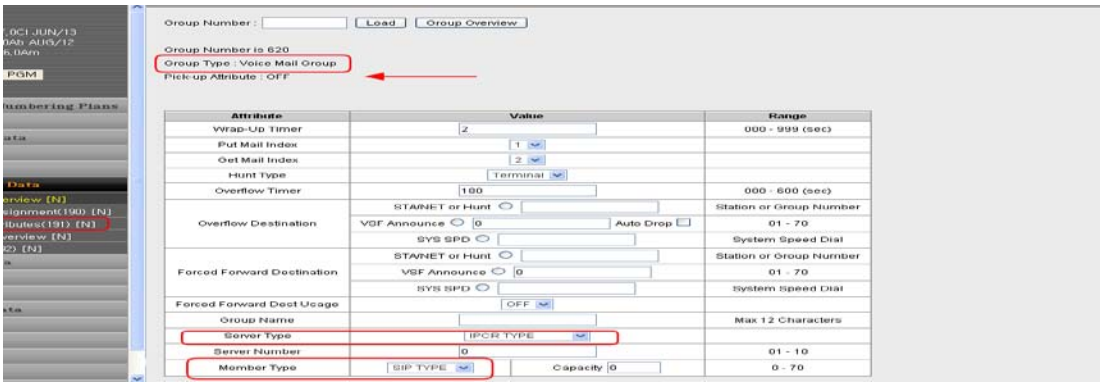
The Station associated with each IPCR server must be assigned to an External Voice Mail Group. The station number of the IPCR server is determined by the order of registration with the host system and the desired station number if requested in the Station User Login (PGM 443) and available. However, verify the station number assigned in PGM 443 before configuring the VM Group.

In the iPECS LIK/UCP Web Admin,

- Select the Administration tab,
- Select Station Group Data,
- Select Station Group Assignment,
- Enter the desired Station Group number and select Load,
- For Group Type, select Voice Mail,
- Enter the IPCR server Station number as the sole member of the group, and
- Select ‘Save.



If it’s not assigned well, you can set IPCR type and SIP for member in ADM 191.



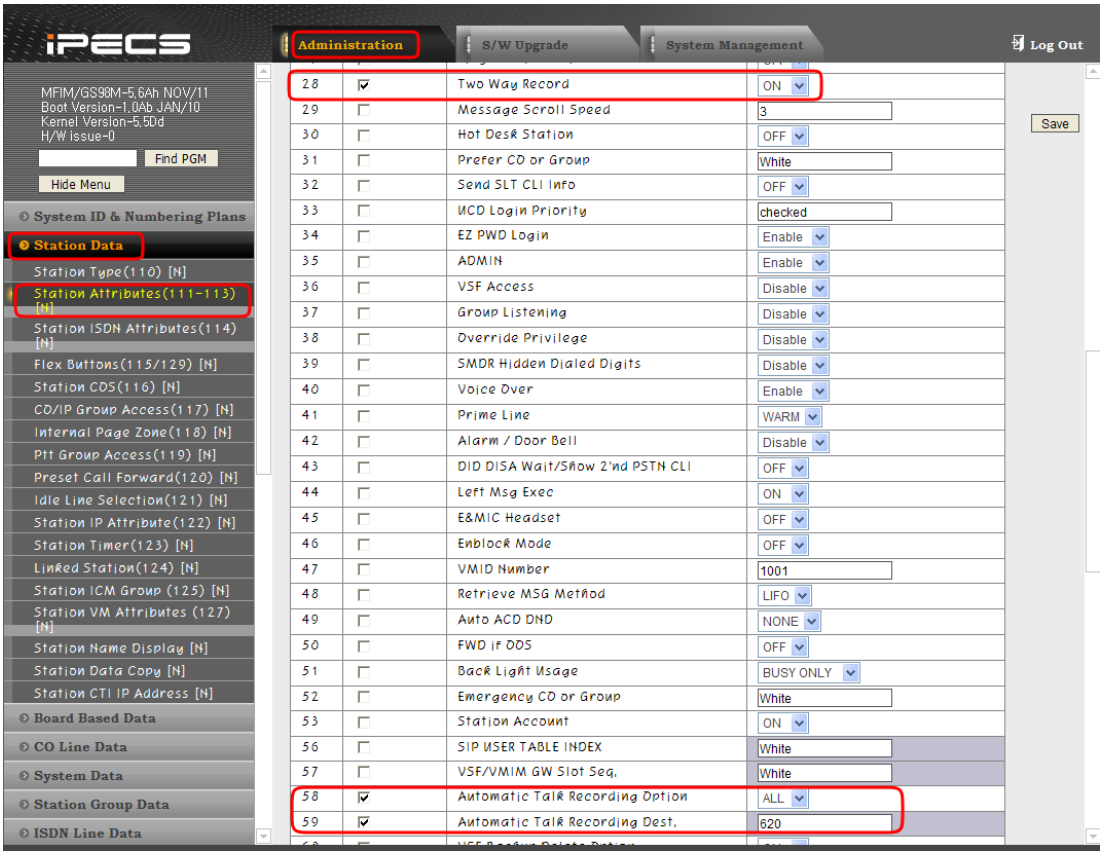
3.1.7 Automatic Station Recording & Destination

The Auto Recording Option and Destination must be defined for Stations linked to an Agent in the IPCR Agent Table. The Auto Record Option enables recording and the Destination defines the Voice Mail Group of the associated Call Recording server. The station number assigned Agent ID is automatically ON 58th item (Automatic Talk Recording Option : ON).

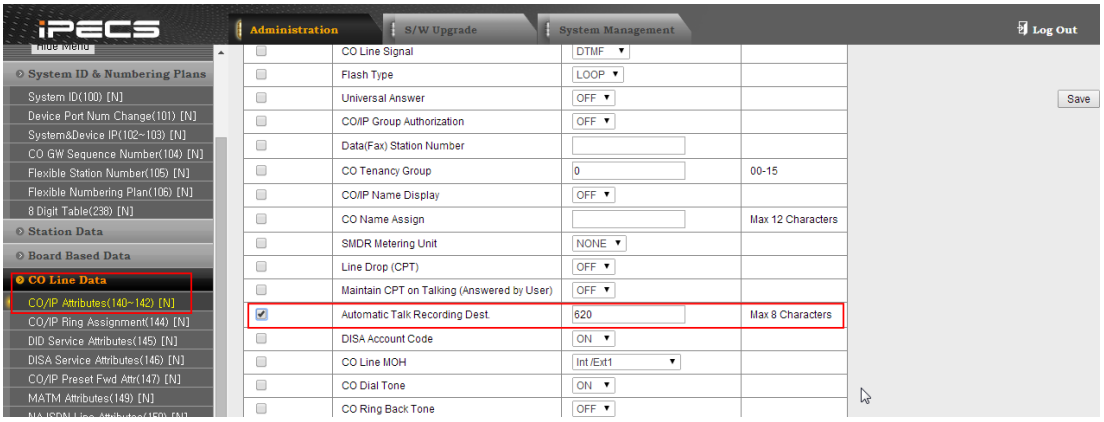
In the iPECS LIK/UCP Web Admin,

- Select the Administration tab,
- Select Station Data,
- Select Station Attributes,
- Enter the desired Station number and select Load,
- Enable the Auto Record Option,
- Enter the destination IPCR server Voice Mail Group number, and
- Select 'Save'.

1. If linked object is station, it should be set as below.



2. If linked object is co, it should be set as below.



3.1.8 Trace and Monitoring

1. If there are some problems, you can trace it as below in MFIM.

```
mon> t s call
mon> t s rawdata
mon> t s debug(there is no agent Id in ADM 237)
mon> t b 5 ( if 5 is slot of IPCR server, server cannot register system)
mon> t s fsipm ( if SIP phone of IPCR cannot register to System LIK)
mon> t v

..
mon> x
..
```

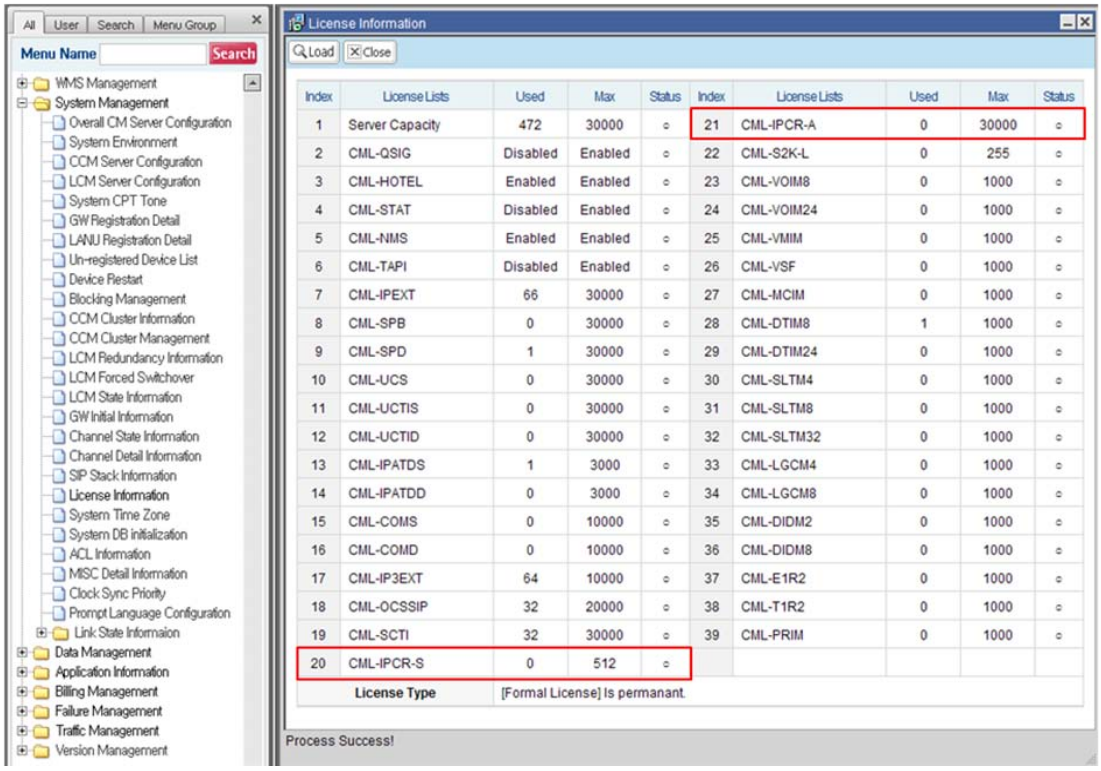
2. You can capture ethereal packets between IPCR and LIK system if there is no recorded files in IPCR.

3.2 iPECS CM

3.2.1 Unlock up to number of IPCR server and Agent ID

Lock key of IPCR should be unlock up to number of server and Agent ID. Server can be register up to 512. And so the servers can unlock up to 30000.

Agent can be register up to System station number, it's depend on system capacity.



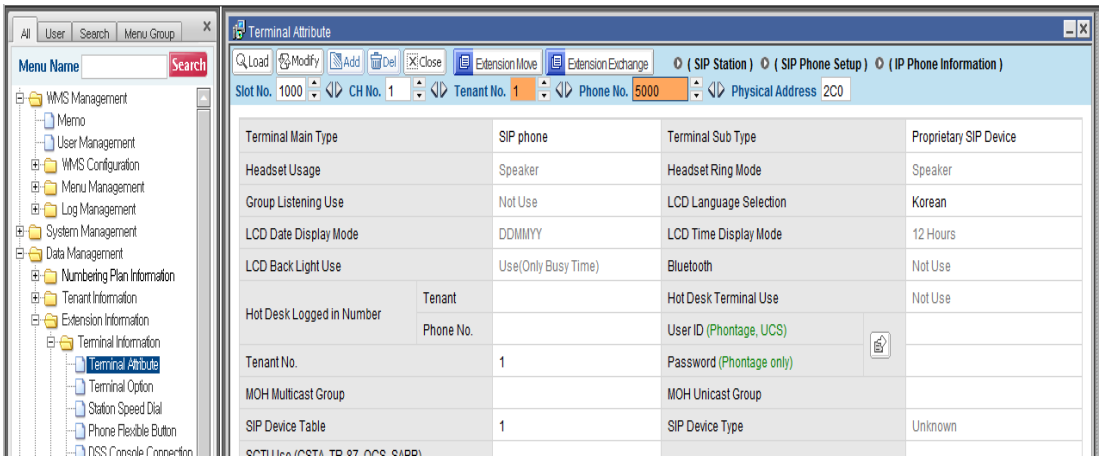
Index	License Lists	Used	Max	Status	Index	License Lists	Used	Max	Status
1	Server Capacity	472	30000	○	21	CML-IPCR-A	0	30000	○
2	CML-QSIG	Disabled	Enabled	○	22	CML-S2K-L	0	255	○
3	CML-HOTEL	Enabled	Enabled	○	23	CML-VOIM8	0	1000	○
4	CML-STAT	Disabled	Enabled	○	24	CML-VOIM24	0	1000	○
5	CML-NMS	Enabled	Enabled	○	25	CML-VMIM	0	1000	○
6	CML-TAPI	Disabled	Enabled	○	26	CML-VSF	0	1000	○
7	CML-IPEXT	66	30000	○	27	CML-MCIM	0	1000	○
8	CML-SPB	0	30000	○	28	CML-DTIM8	1	1000	○
9	CML-SPD	1	30000	○	29	CML-DTIM24	0	1000	○
10	CML-UCS	0	30000	○	30	CML-SLTM4	0	1000	○
11	CML-UCTIS	0	30000	○	31	CML-SLTM8	0	1000	○
12	CML-UCTID	0	30000	○	32	CML-SLTM32	0	1000	○
13	CML-IPATDS	1	3000	○	33	CML-LGCM4	0	1000	○
14	CML-IPATDD	0	3000	○	34	CML-LGCM8	0	1000	○
15	CML-COMS	0	10000	○	35	CML-DIDM2	0	1000	○
16	CML-COMD	0	10000	○	36	CML-DIDM8	0	1000	○
17	CML-IP3EXT	64	10000	○	37	CML-E1R2	0	1000	○
18	CML-OCSSIP	32	20000	○	38	CML-T1R2	0	1000	○
19	CML-SCTI	32	30000	○	39	CML-PRIM	0	1000	○
20	CML-IPCR-S	0	512	○					
	License Type	[Formal License] Is permanant.							

3.2.2 IPCR Agent ID

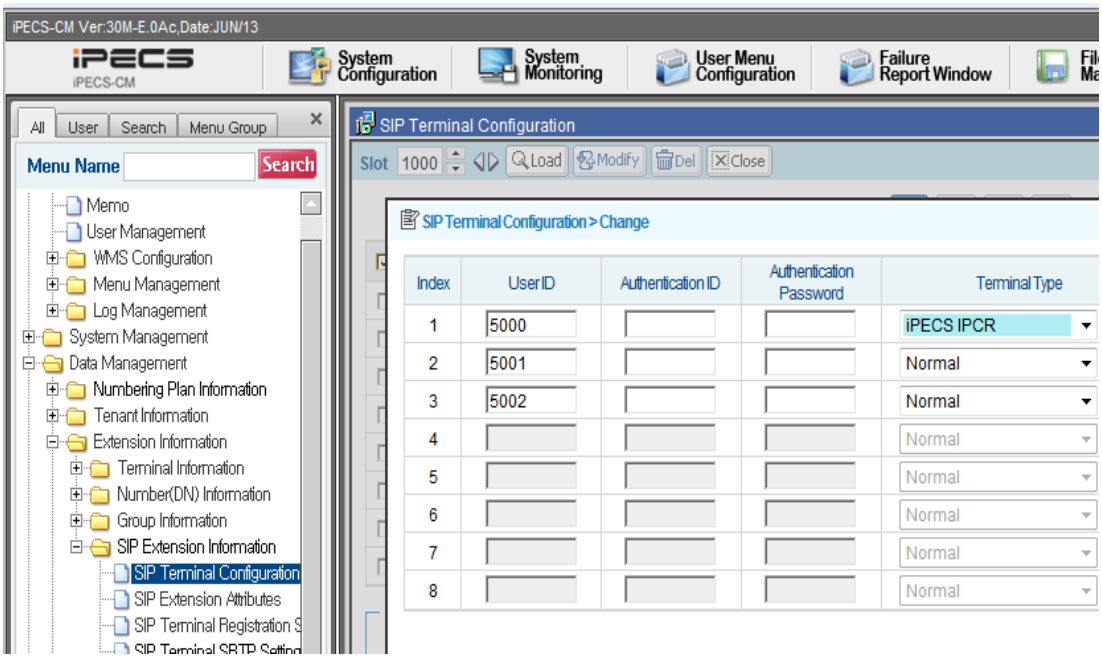
Agent ID should be matched with a station number that wants to be recorded.

3.2.3 IPCR SIP Station Registration

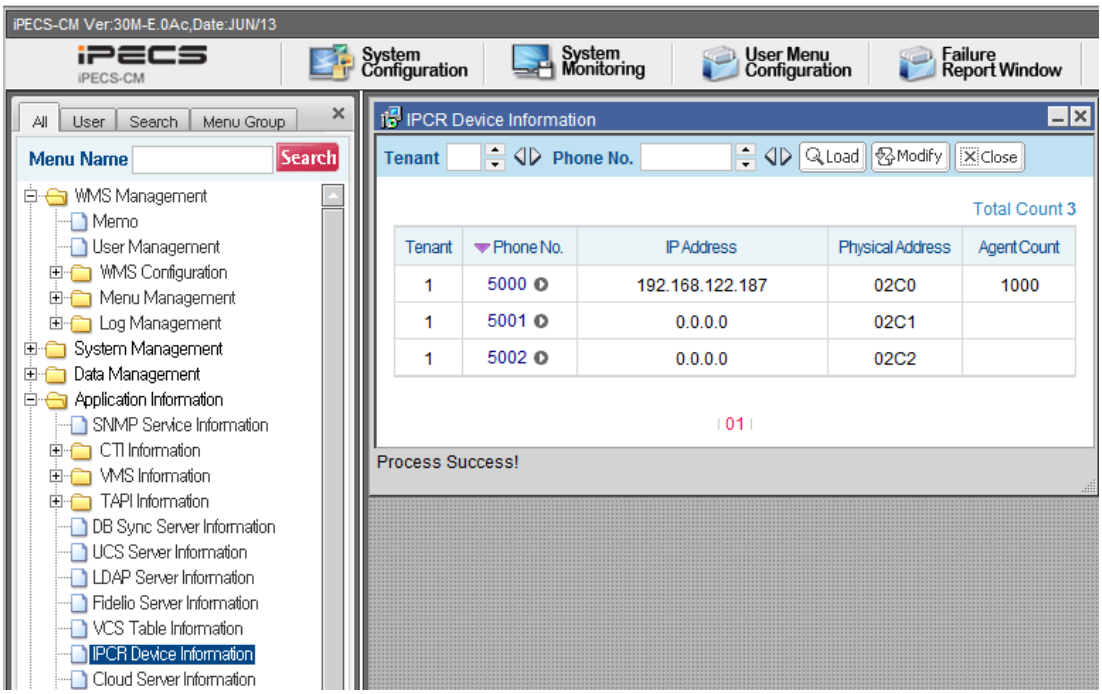
IPCR's sip station should be register through IPCR server process of registration.



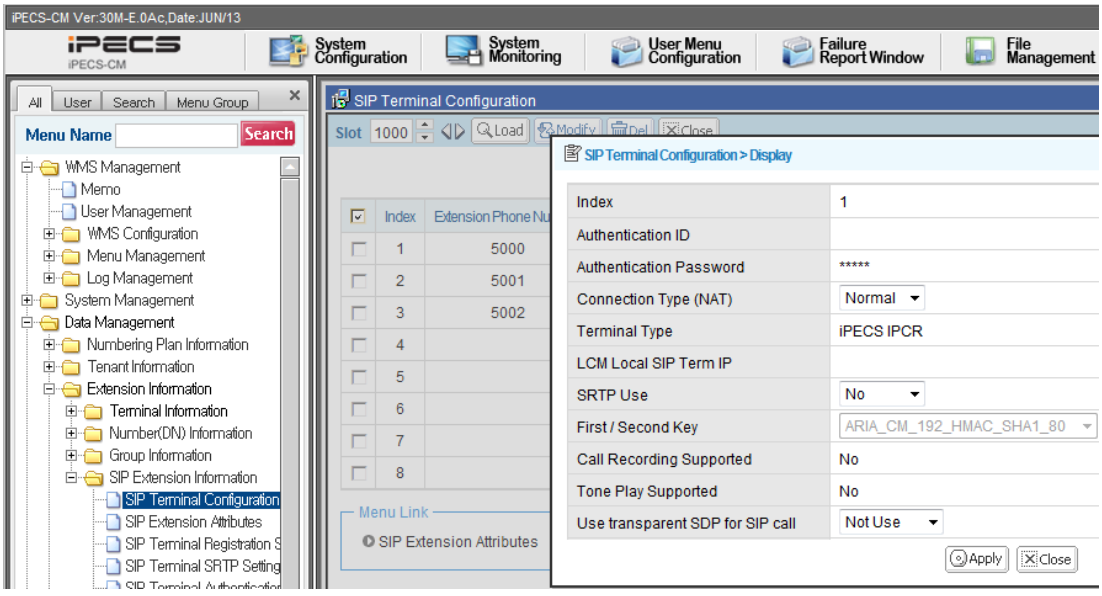
And set SIP user ID with tenant prefix number and make empty auth ID and password.



If a SIP is assigned to “Proprietary SIP Device”, then you can see the IPCR Device Information.



You should set IP address of IPCR and the number of agent count. Agent count is restricted in license. Also, if the IPCR is completely registered to iPECS-CM, you can verify that the Terminal Type of the SIP Station is set to “ IPCR”.

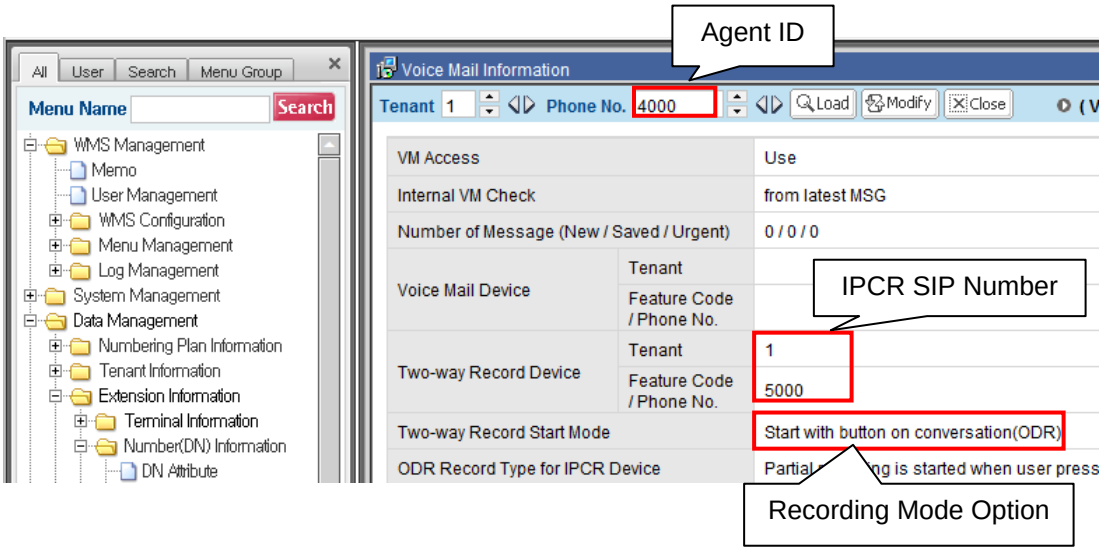


3.2.4 VM Group Configuration for IPCR Server

You don't need to program about this. iPECS CM uses a different mechanism.

3.2.5 Automatic Station Recording & Destination

An agent ID in IPCR means a station number which has to be programmed to record its voice. So, If Agent ID information is sent to iPECS-CM from IPCR, the Two-way record Device information is automatically set with IPCR SIP number on the agent ID number's DN Voice Mail Information Attribute in WMS and also the Two-way record start mode is automatically set according to the Agent ID recording type of IPCR.



3.3 iPECS MG

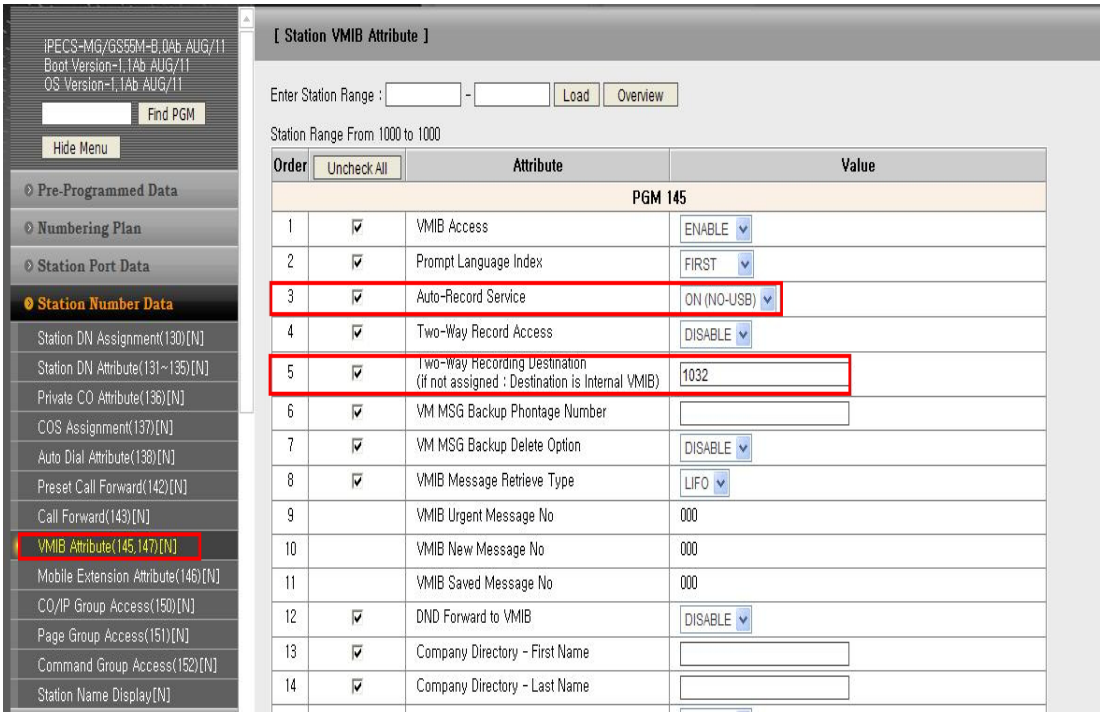
3.3.1 IPCR server and Agent Unlock Codes

Lock key of IPCR should be unlock up to number of server and Agent ID.Only one server can be registered. Agent can be register up to System station number, it's depend on system capacity.

Agent ID should be matched with a station number that wants to be recorded. You don't need to unlock programming

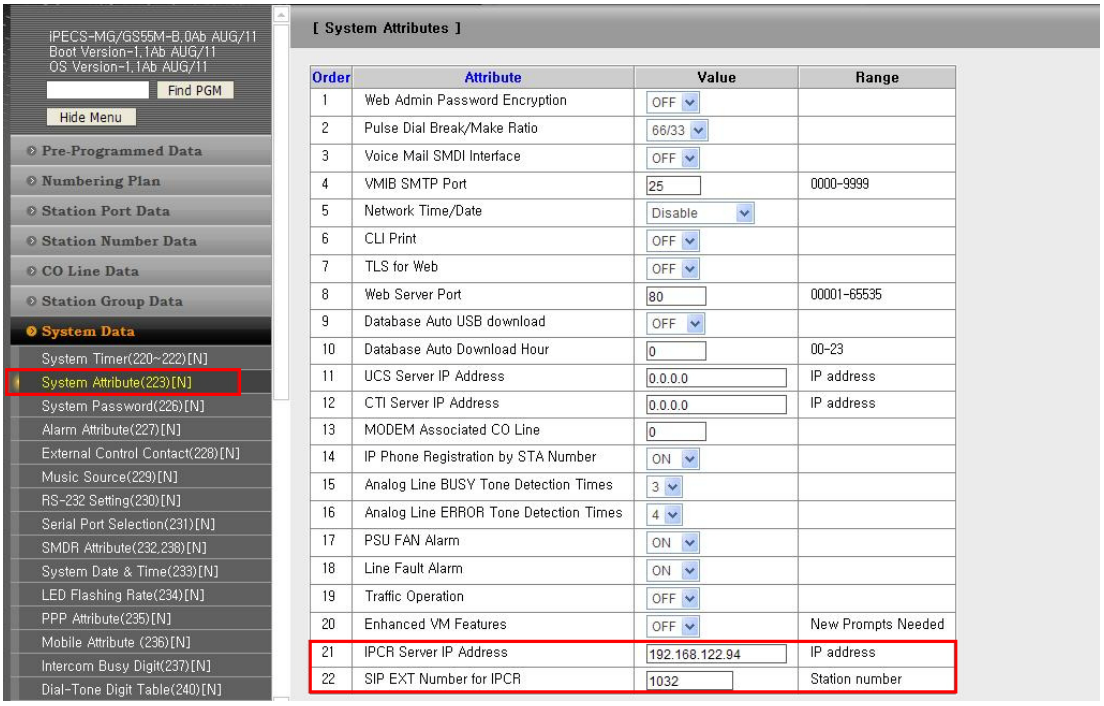
3.3.2 3.3.2 IPCR Agent ID

An agent ID in IPCR means a station number which has to be programmed to record its voice. So, If Agent ID information is sent to iPECS-MG from IPCR, the Two-way recording destination(PGM145-Index5) is automatically set with IPCR SIP number and also the Auto-Record Service mode(PGM145-Index 3) is automatically set according to the Agent ID recording type of IPCR.

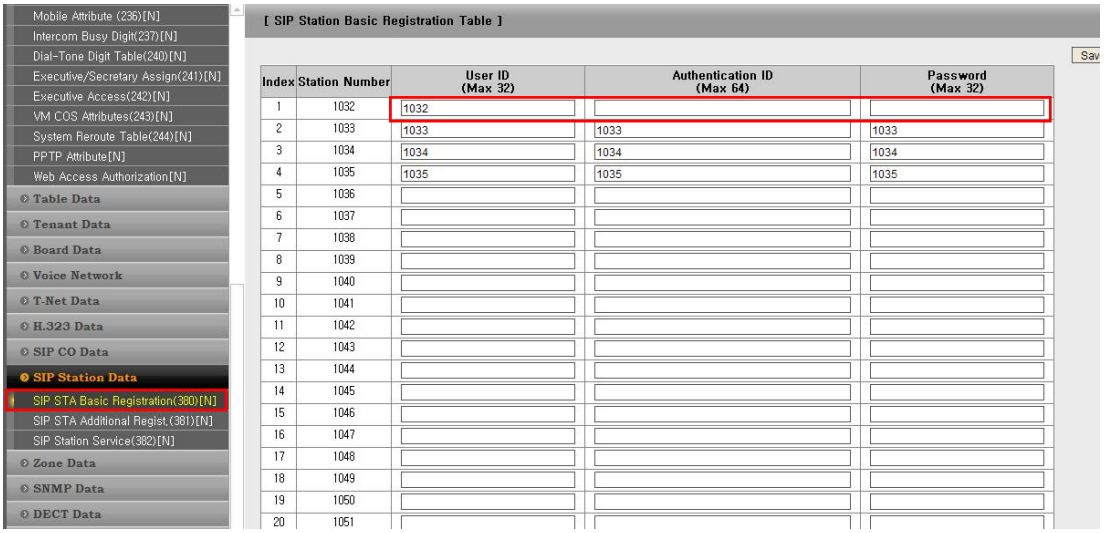


3.3.3 IPCR SIP Station Registration

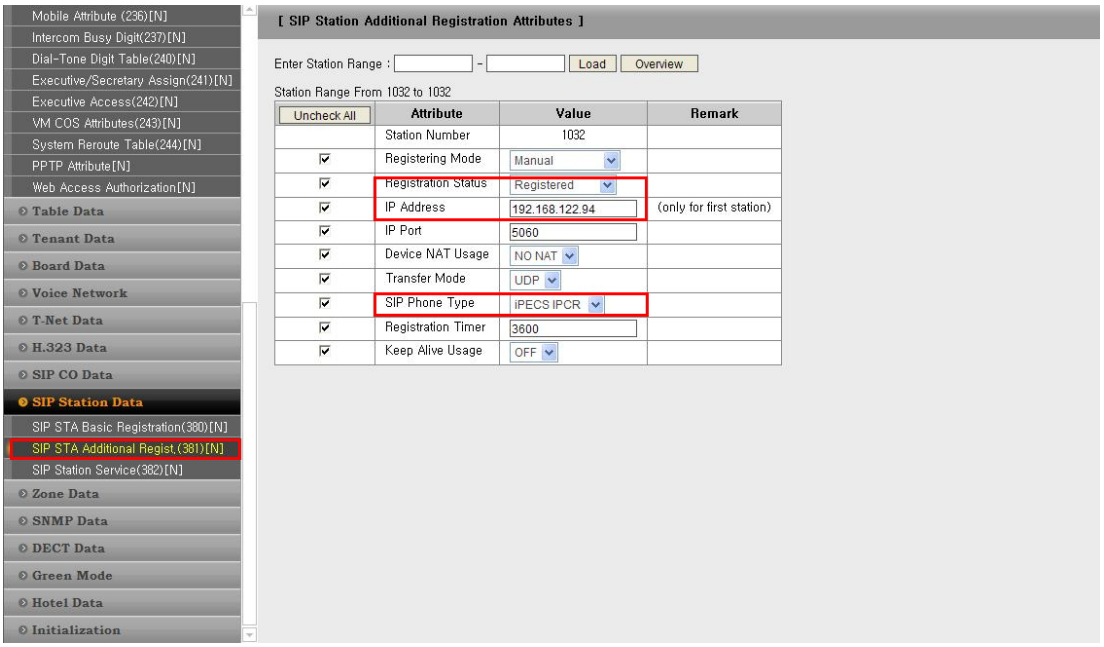
IP address and SIP station number for IPCR server should be programmed in advance.



And set SIP user ID and make empty auth ID and password.



Also, if the IPCR is completely registered to iPECS-MG, you can verify that the Terminal Type of the SIP Station is set to “IPCR”.

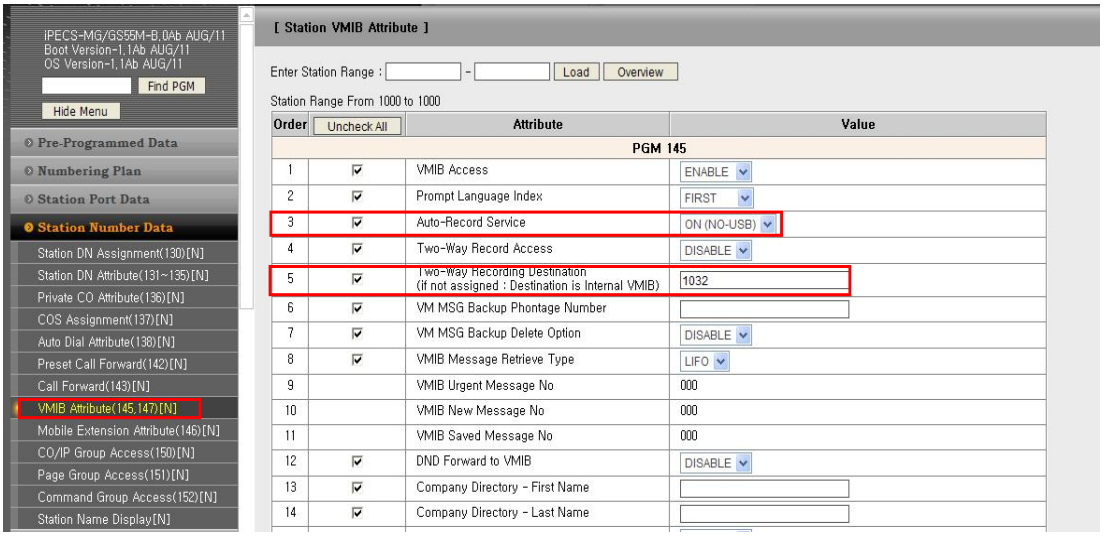


VM Group Configuration for IPCR Server

You don’t need to program about this. iPECS-MG uses a different mechanism.

3.3.4 Automatic Station Recording & Destination

An agent ID in IPCR means a station number which has to be programmed to record its voice. So, If Agent ID information is sent to iPECS-MG from IPCR, the Two-way recording destination(PGM145-Index5) is automatically set with IPCR SIP number and also the Auto-Record Service mode(PGM145-Index 3) is automatically set according to the Agent ID recording type of IPCR.



4. IPCR Installation

4.1 IPCR Installation

Follow the process below to install the IPCR application.

1. Login to terminal with the root Identification.

```
# su root
Password
```

- # su root – Change to root identification
- Password – Input the password

2. Download the Install file (install_ipcr.tar.gz) to the /root folder in the server. Locate the folder with the file and copy to the /root folder.

```
# cd 'located folder'
# cp install_ipcr.tar.gz /root
```

- # cd 'located folder' – Change directory to the folder with the file
- # cp install_ipcr.tar.gz /root – Copy the *install_ipcr.tar.gz* file to /root

3. In the /root folder, extract the file.

```
# tar xvfzp install_ipcr.tar.gz -C /
```

4. Check the install.sh permission.

```
# ls -al install.sh
```

The server response should appear similar to below indicating the insall.sh is available.

-rwxrwxrwx 1 root root 1388 2010-07-21 09:01 install.sh

5. Install the IPCR application with the "install.sh" command.

```
# ./install.sh
…
```

Error Case: If it's failed and cannot create directory error,

You can delete */usr/furence* as following

```
# rm –rf /usr/furence
```

And retry to install again.

```
# tar xvfzp install_ipcr.tar.gz -C /
```

Check the install.sh permission.

```
# ls -al install.sh
```

6. After Installation is complete, the server will reboot.

The system is going down for reboot NOW!

7. After the reboot, the server *fcmanger* will start the IPCR application process.

8. Check the IPCR application status with the below command.

```
# ps –ef | grep IPCR
```

The server should return the message with the PID

```
root      9522     1   0 13:48 ?          00:00:00 ./IPCR
root     10154  9756   0 13:48 pts/2      00:00:00 grep IPCR
```

Note a single line response as below is abnormal.

```
root      9519  9484   0 13:48 pts/1      00:00:00 grep IPCR
```

If the IPCR application is not running, execute the *fcmanager* status command to determine the *fcdaemon* status.

```
# cd /usr/furence/bin
# ./fcmanager status
```

- # cd /usr/furence/bin – Change directory to the folder with the *fcdaemon* executable file.
- # ./fcmanager status – Command to determine the *fcdaemon* status.

If fcdaemon is running, the server should return the PID messages

```
[pid] = 25626, [ppid] = 1, [name] = fcdaemon
[pid] = 25627, [ppid] = 25626, [name] = SCHEDULER
[pid] = 25628, [ppid] = 25626, [name] = EXECUTER
[pid] = 25629, [ppid] = 25626, [name] = MONITOR
```

If the above command does not produce any information, restart as below.

```
# ./fcmanager start
```

- # ./fcmanager start – Command to restart fcmanager and fcdaemon, the IPCR application will restart automatically.

If fcdaemon is running but the IPCR application is not properly executed, verify the permission to run the IPCR application.

```
# ls -al IPCR
```

- # ls -al IPCR – Command to determine the IPCR application status.

The server response should appear indicating the IPCR application is available.

-rwxr-xr-x 1 root root 3184807 2010-09-08 17:17 IPCR

If different from the above, run the following command to change the permission.

```
# chmod 755 IPCR
```

- # chmod 755 IPCR – Change the permission to execute IPCR application.

4.2 Executing IPCR

The IPCR application can be started either directly or automatically.

To directly start the application: Login to the server root directory.

```
# cd /usr/furence/bin
# ./IPCR
```

- # cd /usr/furence/bin – Move to locate fcmanager file
- # ./IPCR – Execute IPCR

To execute automatically: Login to the server using root Identification.

```
# cd /usr/furence/bin
# ./fcmanager start
```

- # cd /usr/furence/bin – Move to the folder containing the fcmanager file.
- # ./fcmanager start – Execute fcmanager and start the IPCR application.

4.3 Terminate IPCR

Login to the server by root Identification though Terminal.

```
# cd /usr/furence/bin
# ps –ef | grep IPCR
# kill -9 xxxx
# ./fcmanager stop
```

- # cd /usr/furence/bin – Change directory to locate the fcmanager file
- # ps –ef | grep IPCR – Check Pid of IPCR
- # kill -9 xxxx – When you get the PID from grep command, terminate the process
- # ./fcmanager stop – Quit the fcmanager. If the IPCR application was initiate directly, there is no need to quit the fcmanager.

5. IPCR Administration

The IPCR application includes an integrated Web server that is employed for access to Administrative and User functions.

5.1 Access and login to Home Page

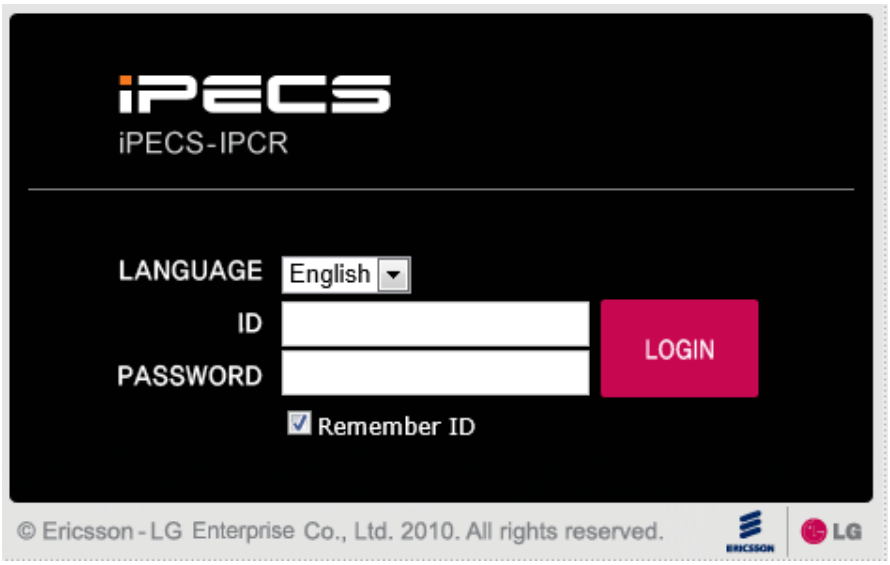
To access the Administrative and User functions:

1. Open a Web Brower, IE 8 or later is recommended.
2. Input IPCR Server IP address in the browser address box (Ex. http://150.150.150.56) and select Go.

- The IPCR Login screen will appear.

To login,

1. Select English or Local LANGUAGE, see Appendix B.
2. Input ID and PASSWORD, default ID and password are ‘admin’.
3. If desired, check the ‘Remember ID’ box.
4. After login, you can configure Login ids and passwords for each User, see *section 5.2.1.2.*



5.2 Configuring IPCR

The IPCR Administration menu includes tabs at the top of the page for User registration, User admin level, PBX Registration, Channel registration, and Setting menus. Each tab displays the Web page associated with the menu and may include several lower level tabs.

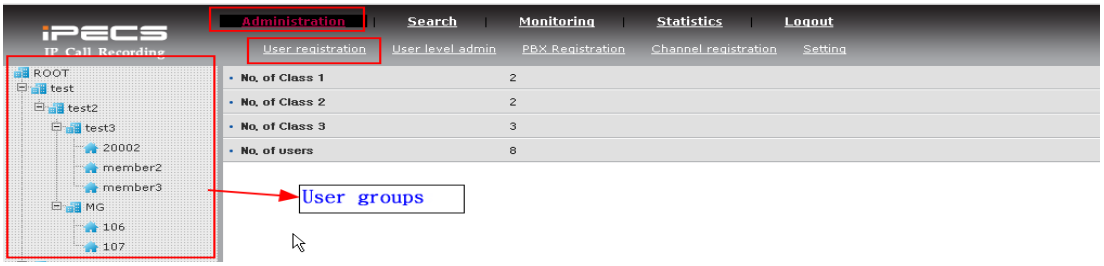
Prior to configuring the User, Channel, and Settings menus, the IPCR server and application must be registered with and logged into the iPECS host. The host should be configured for registration and login, *see sections 3.1.1 to 3.1.3*, and the IPCR Server Registration, *section 5.2.5.1*, and the iPECS PBX Registration, *section 5.2.3*, should be configured in IPCR prior to registration and login.

5.2.1 Registering a User

User Registration establishes User Groups and details for each user. Each user is registered with the IPCR application at one of three class or group levels, establishing a hierarchy. This function is often used to separate departments and groups for easier user and administration access. The initial Web page indicates the number of Users for each Class level in the main window and a tree display of user groups in the left window.

To access the User Registration page,

- Select the Administration tab from the Home page,
- Select the User Registration tab



After selecting a Class (User Group) in the left window, the User details are defined under the User Registration menu, *section 5.3.1.2*.

5.2.1.1 User Group Registration

To add or modify a Class (User group),

- Select (click) a Class,
- Select the Add button,
- Enter a Class Name up to 40 characters,
- Select Save.

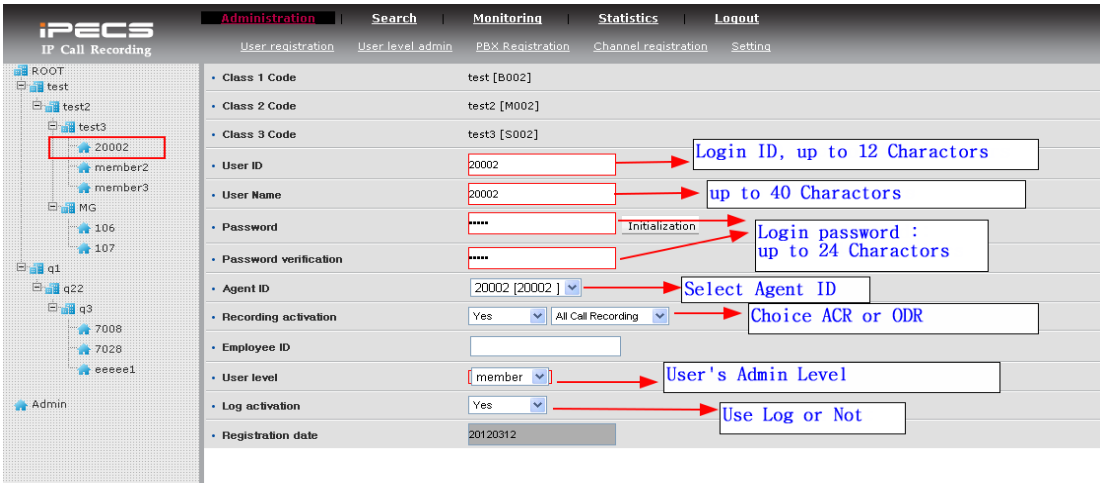
The Class code is automatically assigned and cannot be changed. A Group can be deleted using the delete button at the bottom of the page.

5.2.1.2 User Registration

Each user is identified and a Name assigned. The User Id and password are the credentials employed by the user for login to the IPCR Web functions. The User Level is the User Admin Level that determines the functions and features available to the user as configured in *section 5.2.2*. Note the Agent Ids are available only after registration and login to an iPECS host with licensed Agents. If enabled, the user activity in the IPCR Web application is logged.

To add a user,

- Select a Class,
- Select Add,
- Enter the required User details, in red boxes,
- Enter any optional information as desired,
- Select Save.



To modify user information or delete a User,

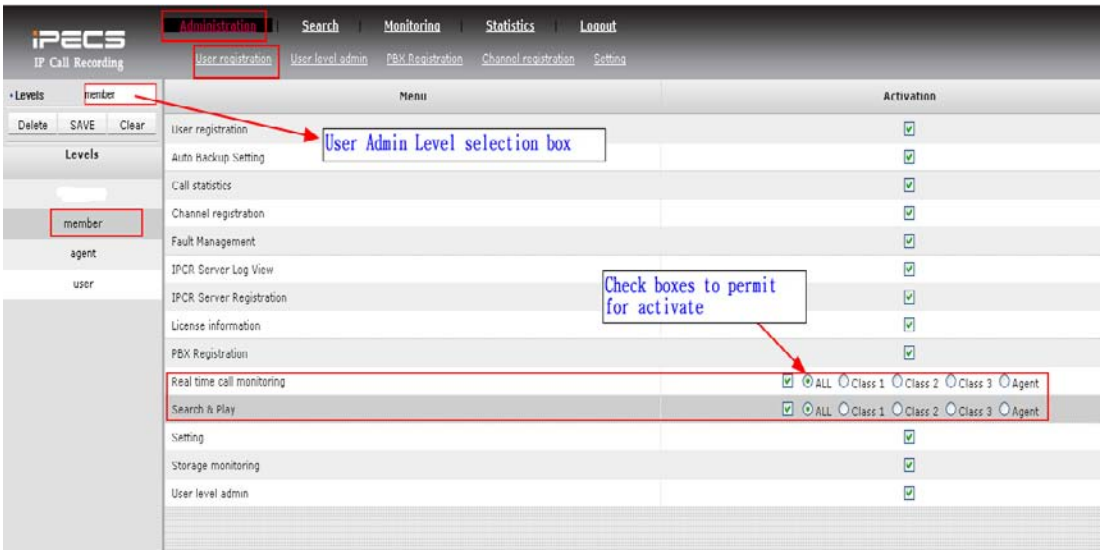
- Select the User Name,
- Modify the data and select Save or,
- Select Delete.

5.2.2 User Admin level

Based on the User Admin Level, a user is allowed access to specified features and functions of the IPCR Web Server. A maximum of 10 User Admin levels can be configured.

To access the User Admin Level settings,

- Select the Administration tab from the Home page,
- Select the User level admin tab,
- Input a Level, up to 15 characters
- Check appropriate ‘Activation’ boxes for the User Level Admin
- Select Save.



A User admin level can be deleted using the Delete button.

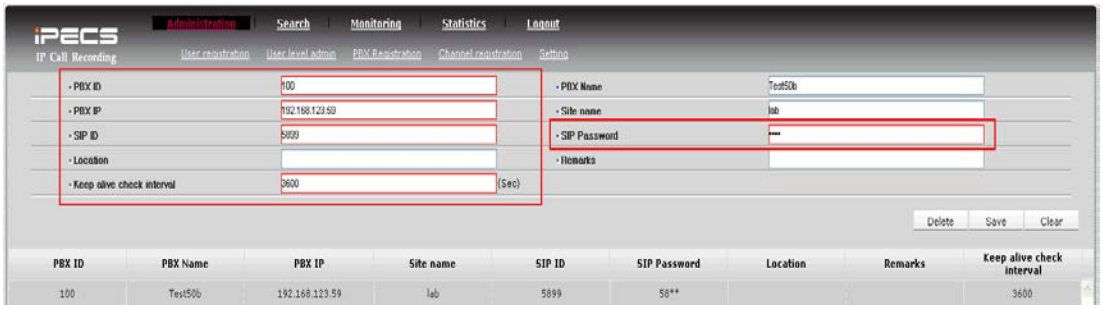
5.2.3 iPECS PBX registration

IPCR can be configured to work with ten (10) iPECS systems simultaneously. Each iPECS system is defined under the PBX Registration tab. The SIP Id and password, the iPECS system Id and IP address are required. The Keep Alive timer is not used. The SIP Id and password are sent to the iPECS host during login. If assigned in the host, must match the Station User Id parameters in the iPECS host. Once the IPCR application is configured for PBX Registration and the iPECS host is configured for registration and login, the IPCR sever should be registered with the host.

Note a value must be entered for the Keep-alive timer however, the timer is not used.

To configure the iPECS host information for IPCR,

- Select the Administration tab from the Home page,
- Select the PBX Registration tab,
- Input the required iPECS host (PBX) information.
- Input optional information as desired.
- Select Save.



PBx ID : up to 5 Characters	PBx Name : up to 99 Characters
PBx IP : IP v4	Site Name : up to 99 Characters
SIP ID : up to 20 Characters	SIP Password : up to 20 Characters
Location : up to 99 Characters	Remark : up to 99 Characters

To delete a PBX ID,

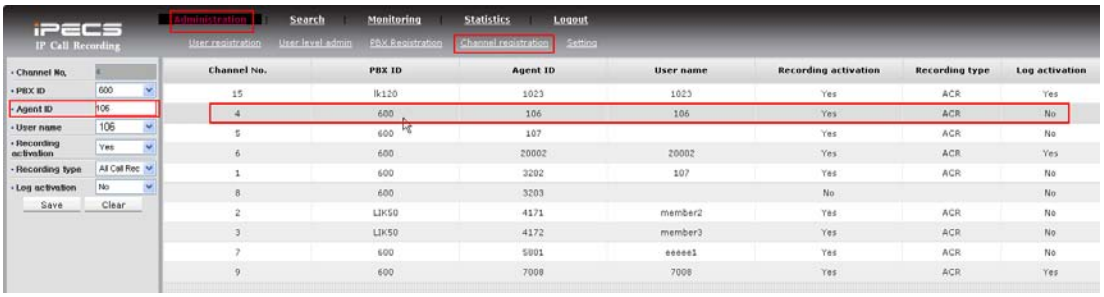
- Select the PBX Id from the lower chart,
- Select Delete.

5.2.4 Channel registration

The IPCR will allocate channels based on the number of licenses defined for the server. Each channel is assigned an Agent Id, which is assigned a User name and is further associated with an object in the host iPECS database (PGM 237). The channel is configured to activate recording for all calls or on-demand, and log activation. One PBx needs at least one more channel. If there is no channel for one PBx, SIP of IPCR cannot work. Channel cannot erase it after register.

To configure IPCR channels,

- Select the Administration tab from the Home page,
- Select the Channel Registration tab,
- Input the channel characteristics including the Agent ID (up to 6-characters).
- Select Save.



5.2.5 Setting

5.2.5.1 IPCR Server Registration

IPCR Server Registration defines the IPCR server information for the application including IP address and path for Back-up services. At least one back-up path must be assigned. When assigning a back-up path, first define the path then click the 'Path Test' button to verify the path exists then 'Save' to store the path information. Server IP and ID should be assigned for IPCR's operations.

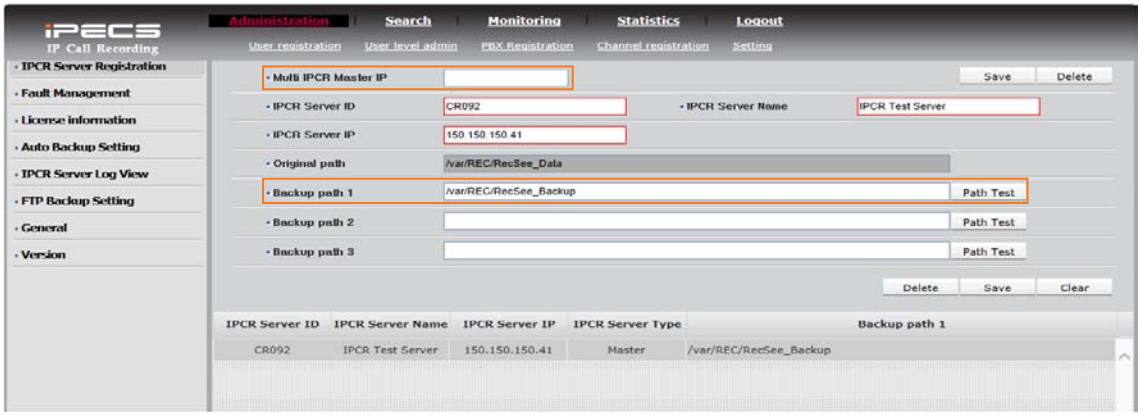
To configure the IPCR server information,

- Select the Administration tab from the Home page,
- Select the Setting tab,
- Select IPCR Server Registration,
- Input information as desired.
  - **ID:** up to 5 character,
  - **Server name:** up to 20 characters.
- Select Save.

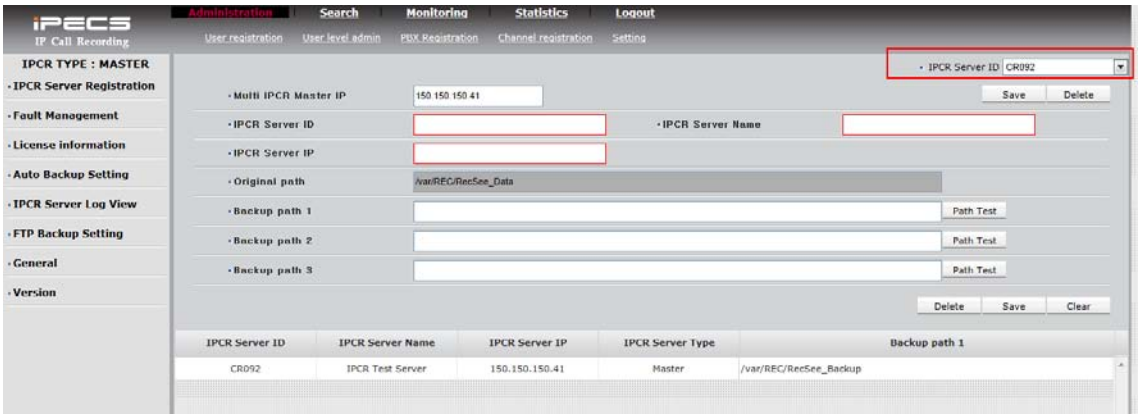
5.2.5.2 Set Multi IPCR Master IP

Multi IPCR Master IP: If this is inserted, it will work as Multi. If it's not, it will work as single.

In case of Multi, user should set Master IP. If the IP is same as mime, I am Master. If it's not, I am Slave.



IPCR Server ID is shown after multi IPCR Master IP set.



5.2.5.3 Delete Multi IPCR Master IP

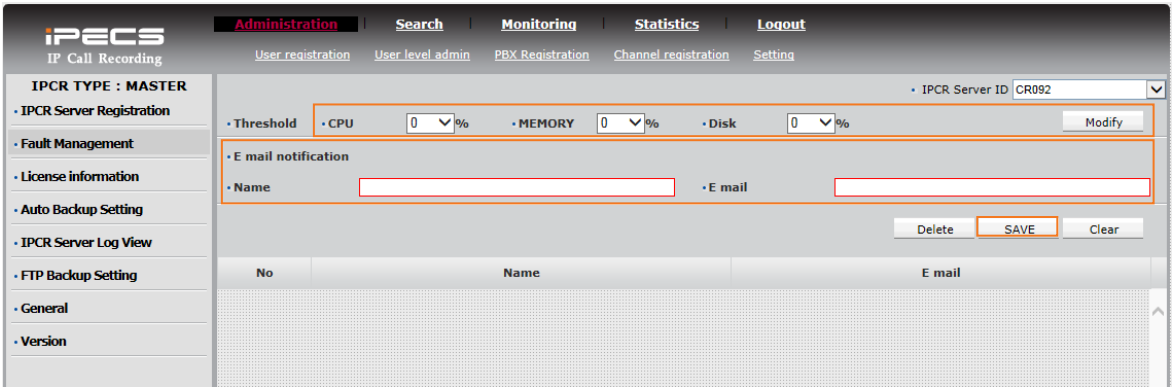
1. Click Delete Button
2. It's work as single. All information related to Multi functions will be deleted.

5.2.5.4 Fault Management

Fault management establishes CPU, Memory, and disk usage thresholds for notification to an assigned e-mail. The maximum notification settings should be limited to twenty (20).

To configure Fault thresholds and notification,

- Select the Administration tab from the Home page,
- Select the Setting tab,
- Select Fault Management in the left window,



- Input the CPU, Memory, and Disk usage fault threshold levels.
- Input the Name and E-mail address to notify.
- Select Save.

To delete a notification,

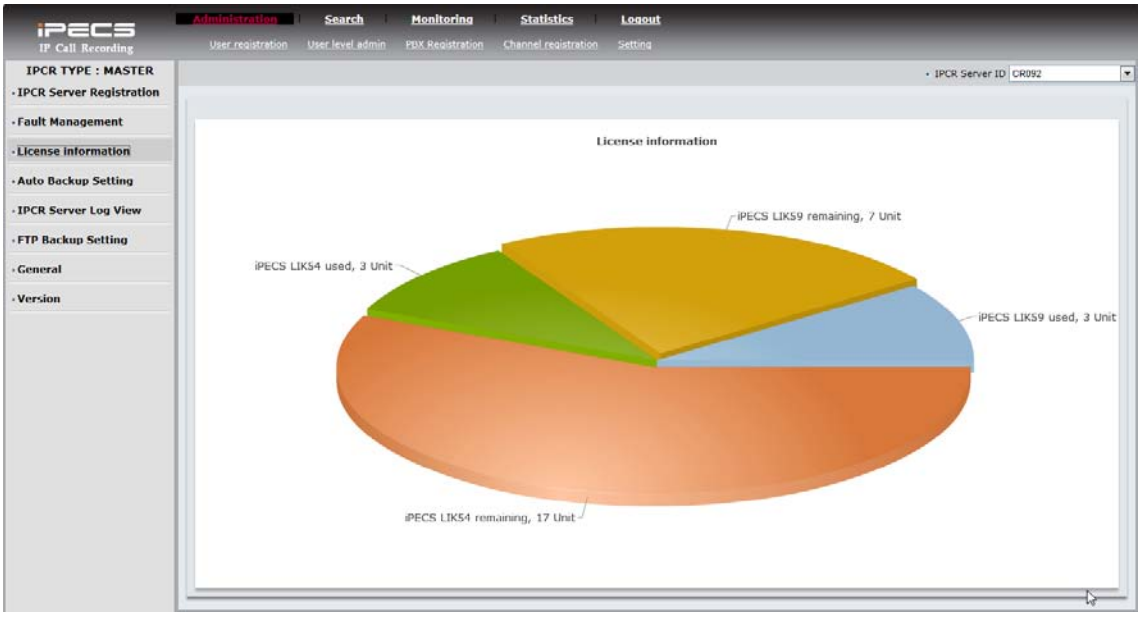
- Select a notification number from the chart in the lower portion of the main window,
- Select Delete.

5.2.5.5 License Information

Selecting License Information displays the total available agents, assigned agents and available agents for each host iPECS platform.

To view the license information,

- Select the Administration tab from the Home page,
- Select the Setting tab,
- Select License Information.

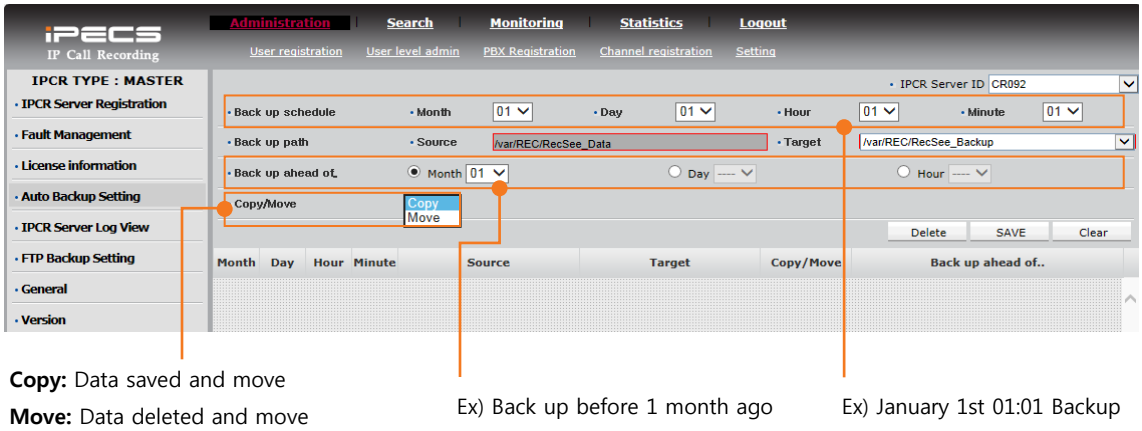


5.2.5.6 Auto Backup Setting

The IPCR application will perform a periodic backup of recordings. Automatic Backup defines the interval between backups, the source and destination paths, and copy or move. When the backup is copied, the original recording is maintained on the IPCR server and copied to the back-up path. When 'Move' is selected, the recording files are moved to the back-up path and deleted from the IPCR server. A log of back-up activity is maintained.

To set-up Automatic Backup,

- Select the Administration tab from the Home page,
- Select the Setting tab,
- Select Auto Backup Setting
- Select the Add button
- Configure the desired Automatic Back-up parameters,
- Press the Save button



Copy: Data saved and move

Move: Data deleted and move

Ex) Back up before 1 month ago

Ex) January 1st 01:01 Backup

To delete an Automatic Backup setting,

- Select the setting in the lower chart,
- Select the Delete button

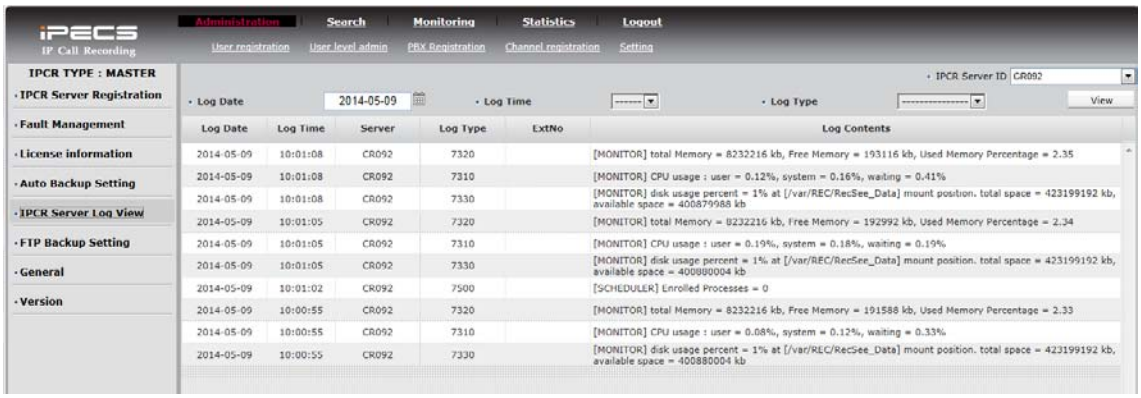
5.2.5.7 IPCR Sever Log view

The Log view displays a log of various events and errors that occurred on the selected date, time, and type of log.

To view the IPCR Server log,

- Select the Administration tab from the Home page,
- Select the Setting tab,
- Select IPCR Log View from the left pane,

- Select the Log Date, Time, and/or Type,
- Select View.



5.2.5.8 FTP Backup Setting

This is setting for backup using FTP. It can be backup automatically monthly, weekly and daily.

1. **Setting:** Administration > Setting > FTP Backup Setting, Check term can be used for interval of checking ftp backup. It can be saved using **SAVE** button.
   - **Data Setting:** monthly, weekly, and daily
   - **Daily:** It will work daily on the time
   - **Monthly:** It will work monthly on the day and time as below.

   - **Weekly:** It will work weekly on the day and time as below.

2. **Delete:** Press **Delete** button.
3. **Initialize:** If you press **Clear** button, you can set an initial format.

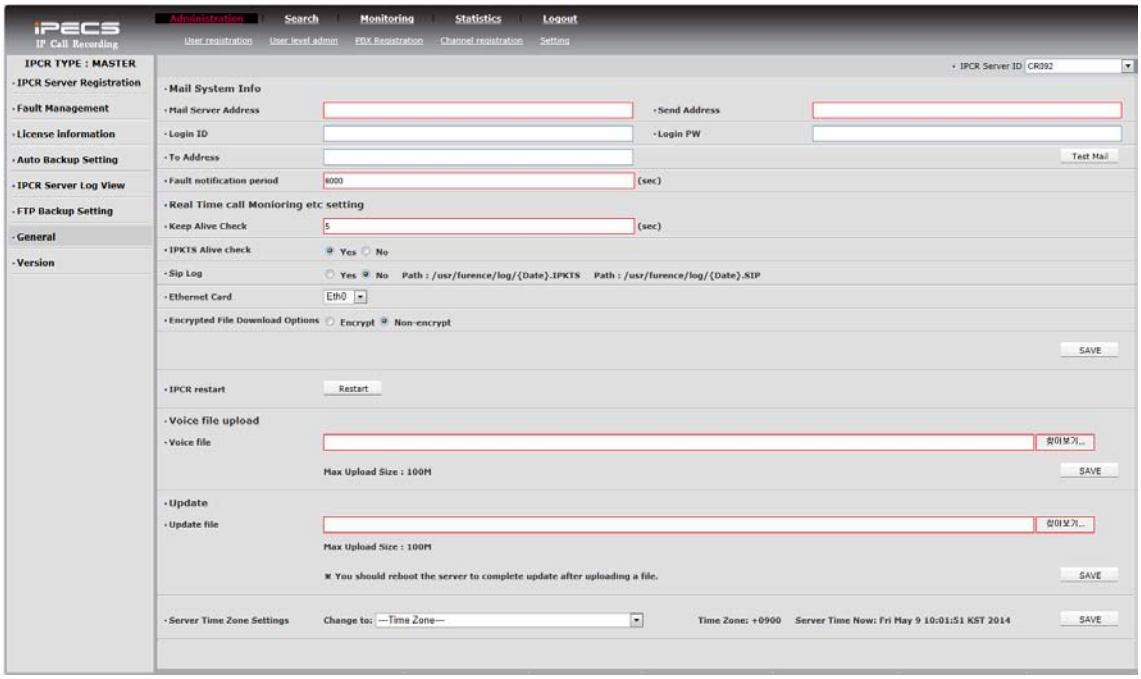
5.2.5.9 General (Etc.) Setting

The general Settings encompass e-mail settings, notification interval, and a Keep Alive timer. The e-Mail System Info defines the e-mail account the IPCR application will use to send e-mail fault notifications. The notification will be sent at intervals defined by the Fault notification period until the fault is cleared. It is recommended this be a sufficiently long period, greater than 3600-seconds, to allow correction of the fault. The Keep Alive check establishes the update timer for agent status on the Real Time monitor page.

This Web page also includes a Restart button. After changing information on a Web page, the button can be used to restart the IPCR application.

To modify the general settings,

- Select the Administration tab from the Home page,
- Select the Setting tab,
- Select Etc. Setting from the left pane,
- Input the desired settings,
- Select Save.



1. Mail Server Address, Second Address are up to 50 characters.
   - This Mail Server is used for testing.
2. IPKTS Alive Check is used for polling with LIK or UCP.
3. Voice file upload is used for announce of call recording. This wave file should be G.711 u-law.
4. You can upgrade it using *upgrade.tar.gz* file. You should not upgrade it using *install_ipcr.tar.gz. install_ipcr.tar.gz* should install only first time after install Fedora 16.

5.3 Server and Call Statistics

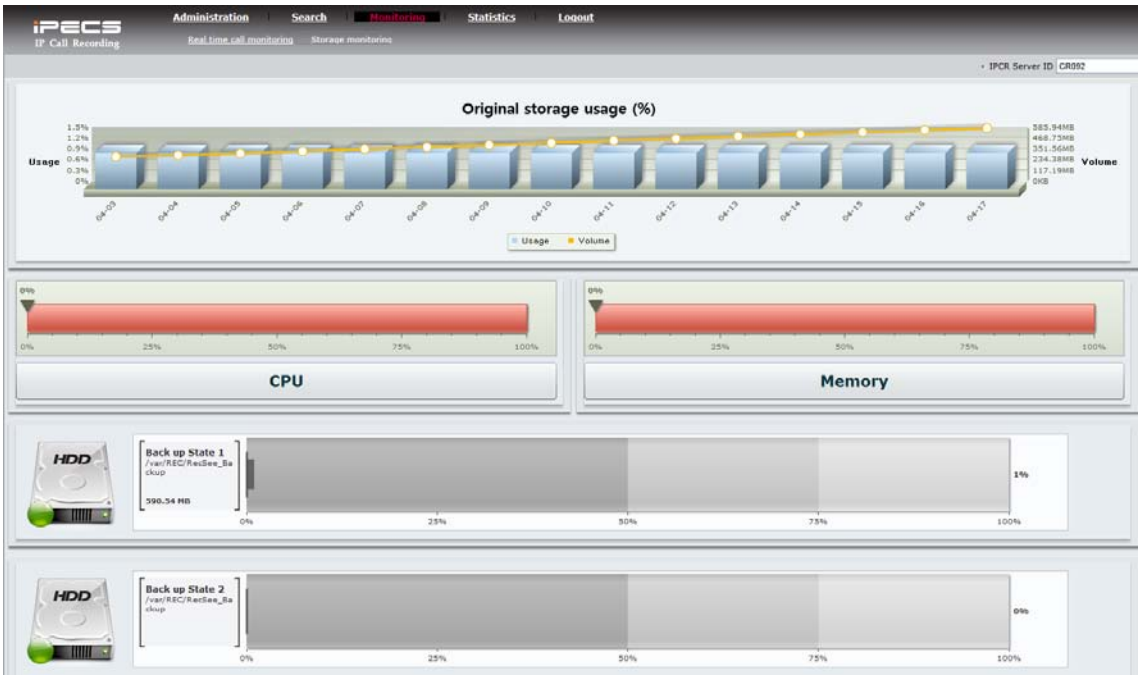
In addition to logs, the Administrator and allowed Users can view the status of the Server and the Call Statistics report.

5.3.1 Server Status Report

The Storage Monitor graphically displays the current CPU, memory and backup memory usage as well as a graph of memory use over time.

To view the Server status report,

- Select the Monitoring tab from the Home page,
- Select the Storage Monitoring tab,
- The Server Status report displays.



5.4 Call Statistics

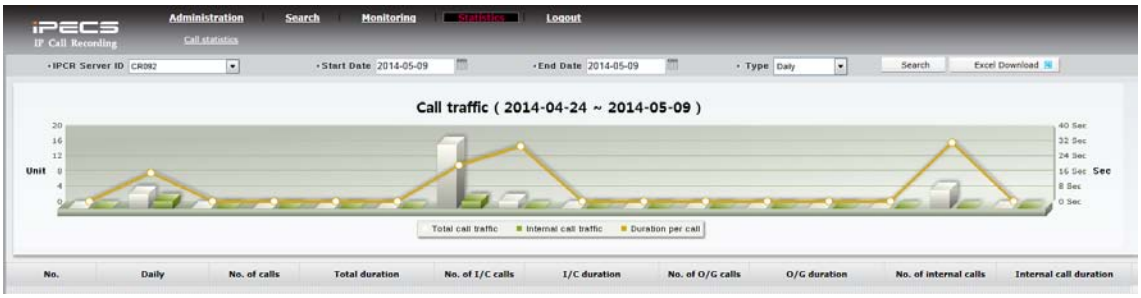
The Call Statistics Web page delivers a graphical and tabular view of call traffic to the IPCR application. The type of call (incoming or outgoing), number of each call type and duration of the calls is provided. In addition, the Call Statistics report can be downloaded as a worksheet file for further analysis. The drop-down at the bottom left of the page can be used to select the number of records displayed on the page in multiples of ten (10).

To view the Call Statistics report,

- Select the Statistics tab from the Home page,
- Select the Call Statistics tab,
- Enter search criteria (Start date, End date, and Type),
- Select Search

To download the Call Statistics report

- Select Excel Download while viewing the desired report
- Follow the instructions to save the file locally.



6. Using iPECS Call Recording Server

Each Agent is assigned a User Id that is assigned with a User Admin level. The User Admin levels are configured to allow the user access to the various IPCR functions and features. In addition to access to the administrative and statistics, the User Admin Level can be configured to allow the user to search and play recordings, and monitor, in real-time, other users.

6.1 Search (Search & Play)

When a user is assigned a User Admin Level permitted access to Search and Play, the user may access the Search page. In the Search page, the user can input search criteria to locate specific call recordings. The user can listen to recordings, add a text memo to the recording log, and download the recording or log. In the upper left pane, the user can enter search criteria. Below the search entry area is the tree of users. At the top of the right pane are the typical playback controls (play, pause mute, volume, playback speed, etc.). Below the playback controls is a chart that will display a log of recordings matching the entered search criteria.

6.1.1 Search the Recording Log

The user can input various search criteria and display logs for recordings matching the search criteria. The Search page will display a list of recordings that match the search criteria. The number of records displayed on the page can be adjusted using the drop-down at the lower left of the main screen. Each record displays the Date, Time, CID, Agent and Call type as well as icons for listen, add a memo, or download the recording or log.

To search the recording log,

- Select the Search tab from the Home page,
- In the left pane, enter search criteria (Agent Id, User Id, CID, Type, Time and date),
- Select Search.

6.1.2 Listening to a Recording

To listen to a recording,

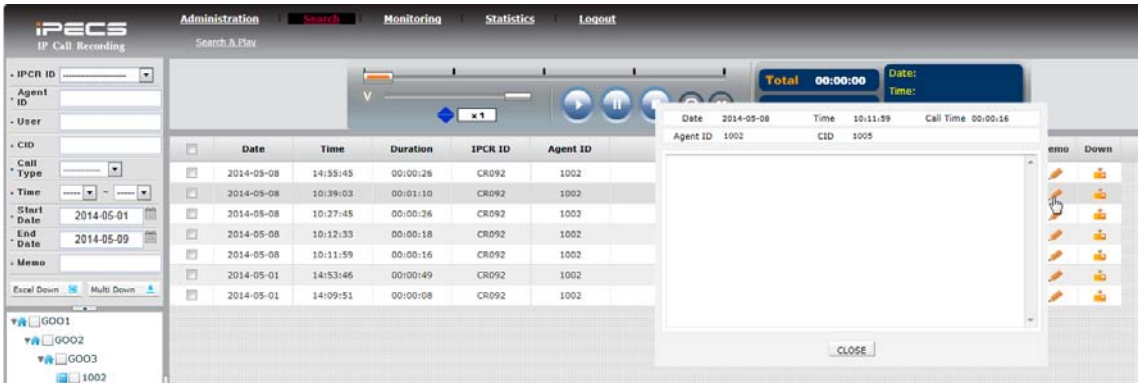
- Select the Listen icon, , to the right of the desired recording,
- Use the controls at the top of the window to control playback of the recording.

6.1.3 Add a Memo to a Recording

To add or display a memo,

- Select the Memo icon, , to the right of the desired recording
- In the pop-up screen enter the desired memo,
- Select 'Save' to store the memo and 'Close' to close the memo pop-up screen.

If a memo has been entered for a recording, additional memos can be added. In this case, the additional memos will display in different colors.



6.1.4 6.1.4 Download Logs or Recordings

To download the recording logs,

- Check the box to the left of the desired records,
- Select the Excel download button, Excel Down ,
- Follow the on-screen instructions to name and save the log file.

To download a call recording,

- Check the box to the left of the desired recordings log,
- Select the Multi download button, Multi Down ,
- Follow the on-screen instructions to name and save the log file.

6.2 Real Time Call Monitoring

The Real-time Call Monitoring page presents the status of the recording Agents and permits monitoring in-process call recordings. Agents are displayed as an icon, see *section 6.2.1*, or a tabular entry (Grid), see *section 6.2.2*. The user may select the view using the 'Icon View' or 'Grid View' buttons at the top of the left pane.

Users can monitor an active recording by selecting the listen icon, , for the agent. For On-demand recording Agents, a user can activate on-demand recording and listen to the live call. If desired the user can deactivate the on-demand recording. Note to monitor a call the user must have the 'RecSeeRM.ocx' component installed on their PC. When attempting to access an active Recording Agent without the component installed, the user will be asked to install the component.

6.2.1 Icon view

Selecting the Icon View button in the upper area of the left pane displays the recording Agent Icon View page below. Each Agent is represented by an icon with the User Id and name.

The icon indicates the Agent status as:

- : Agent not active, logged out
- : Agent logged in and idle
- : ACR Agent busy and recording in process
- : ODR Agent busy, the call recording button will flash to indicate recording in process

To monitor the call of an Agent that is in the recording state,

- Click the yellow headset in the Agent icon, the headset will flash and audio for the call is presented to the PC. The ActiveX 'RecSeeRM.ocx' component is required for monitoring an Agent.
- This real time monitoring use port 5800 and 5801. If your Client wants to monitor it in NAT surroundings, you need port forwarding 5800 and 5801.

To activate call recording for an On-demand recording Agent,

- Select the record button, , in the Agent icon, the button will flash and the Agent can be monitored as described above.
- To cancel the recording, press the record button again prior to completion of the call.

6.2.2 Grid view

Selecting the Grid View button in the upper area of the left pane displays the recording Agent Grid View page below. Each Agent is represented by an entry in the listing with the User Id name, Class (user group), Agent Id, and status icons.

The Agent status is indicated by the icons as below:

- LogOut : Agent not active, logged out
- Login : Agent logged in and idle
- Busy : ACR Agent busy and recording in process
- Busy : ODR Agent busy, the call recording button will flash to indicate recording in process

To monitor the call of an Agent that is in the recording state,

- Click the yellow headset in the Agent icon, the headset will flash and audio for the call is presented to the PC. The ActiveX 'RecSeeRM.ocx' component is required for monitoring an Agent.

To activate call recording for an On-demand recording Agent,

- Select the record button, , for the Agent, the button will flash and the Agent can be monitored as described above.
- To cancel the recording, press the record button again prior to completion of the call.

6.3 Logout

When completed with an IPCR Web session, the user should log-out of the application.

To Log-out,

• Select the Logout tab from the Home page,

6.4 Change Language

IPCR Web Application can change a local language for your country as below. You can download language pack from ftp Client.

1. Connect IPCR server with general FTP Client Program.
2. Enter /var/www/html/work/lang/kr
3. Copy all files to your directory from the directory(/var/www/html/work/lang/kr).
4. You can change the red refer to the blue character.

- **Example:** This is Korean.

```
<?xml version='1.0' encoding='EUC-KR'?>
<Request>
<data>
 <list>
        <FRC_HeadTitle Stitle='====Setting====' Ttitle='====Setting====' />
        <FRC_BTN_save Stitle='저장' Ttitle='SAVE' />
        <FRC_BTN_modify Stitle='수정' Ttitle='Modify' />
        <FRC_BTN_del Stitle='삭제' Ttitle='Delete' />
        <FRC_BTN_clear Stitle='초기화' Ttitle='Clear' />
        <FRC_ProName Stitle='프로그램 이름' Ttitle='Program Name' />
        <FRC_GroupAuthority Stitle='계정 권한' Ttitle='Group Authority' />
        <FRC_Read Stitle='사용' Ttitle='Read' />
        <FRC_Write Stitle='쓰기' Ttitle='Write' />
 </list>
</data>
</Request>
```

5. You should upload all files to the directory of IPCR server after modifying.

- **Object file list:**
  - ProcSendControl.xml
  - a_user_regist.xml
  - agent_monitoring.xml
  - clNavigation.xml
  - detail.xml
  - lgnortel_top.xml
  - login.xml
  - mainframe.xml
  - permission.xml
  - r_channel.xml
  - r_logcheck.xml
  - r_user_regist.xml
  - report.xml
  - search_listen.xml
  - setting.xml
  - system_monitoring.xml
  - system_regist.xml
  - system_regist_ipcr.xml

7. Useful Information

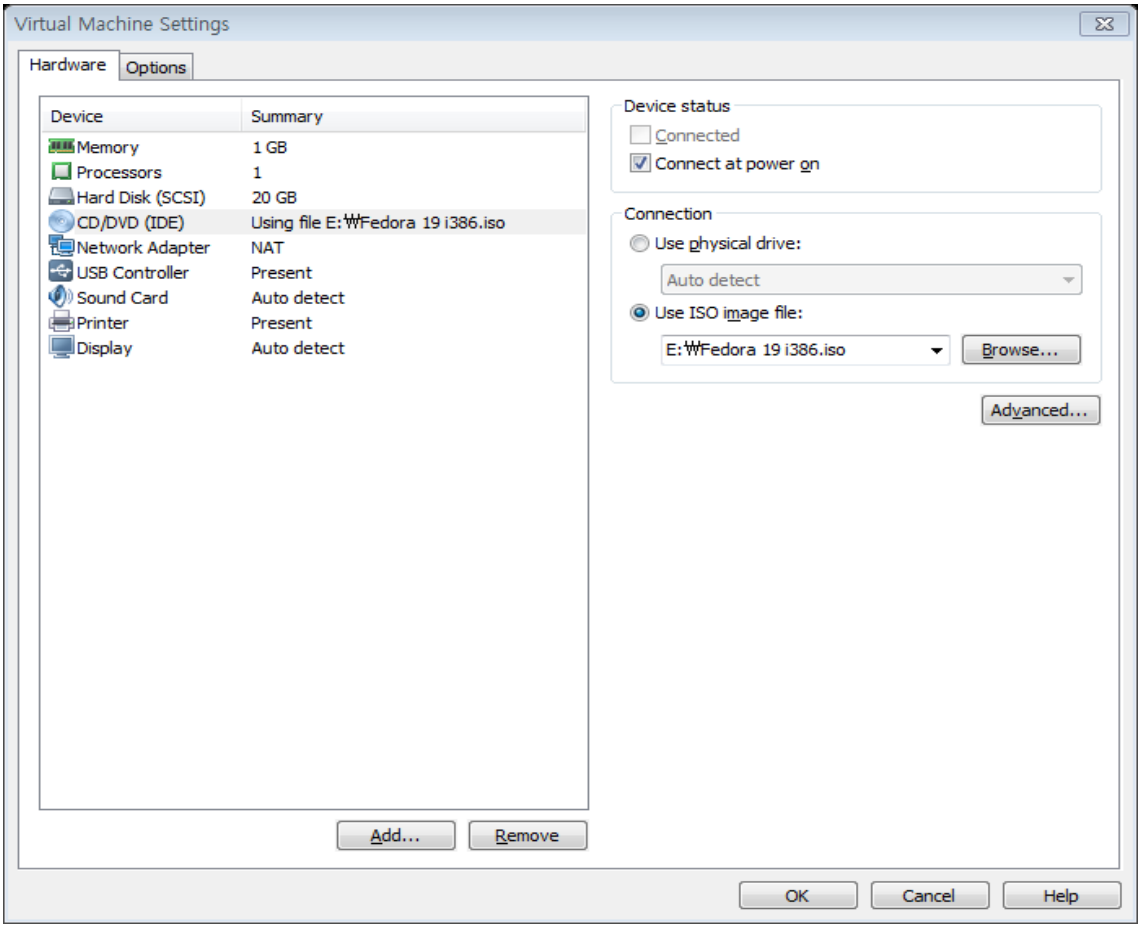
7.1 Fedora-19-i386 Install Guide

7.1.1 Download path for installation file

IPCR employs Fedora-19 Linux provided by Red Hat and others. A copy of the Linux OS can be obtained from the below link.

http://ftp.neowiz.com/fedora/releases/19/Fedora/i386/iso/Fedora-19-i386-DVD.iso

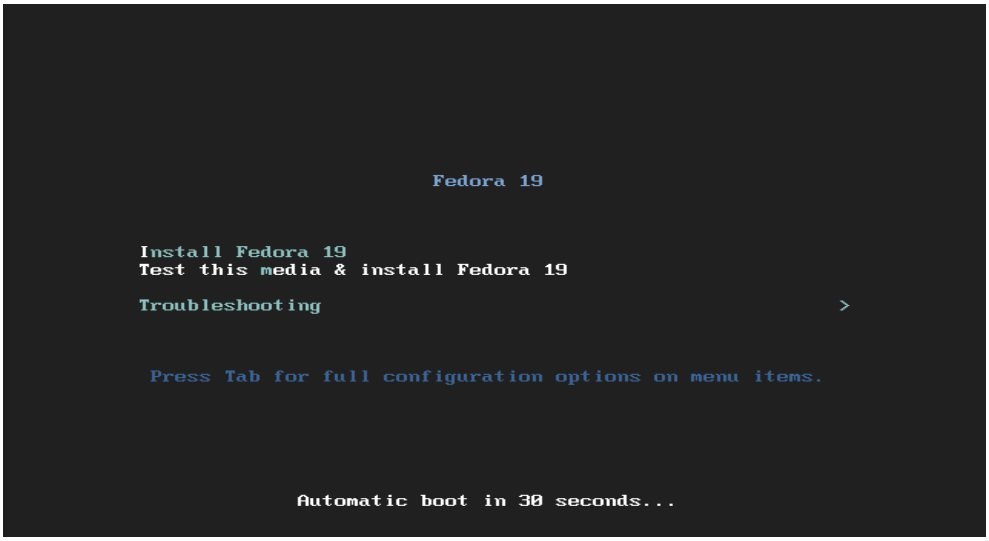
This is the installation guide in VM-ware using Fedora-19. You can set as following using Fedora-19-i386-DVD.iso. It's the same as installation in your real PC.



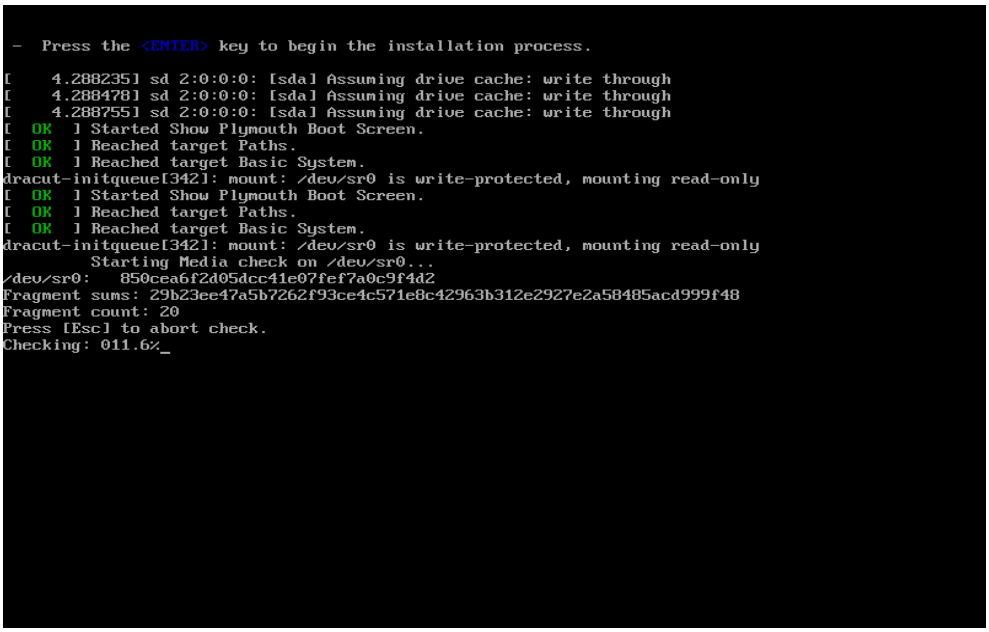
Or you can install Fedora-19 using DVD as following after making Fedora-19-i386-DVD.iso DVD.

7.1.2 Install Fedora-19-i386

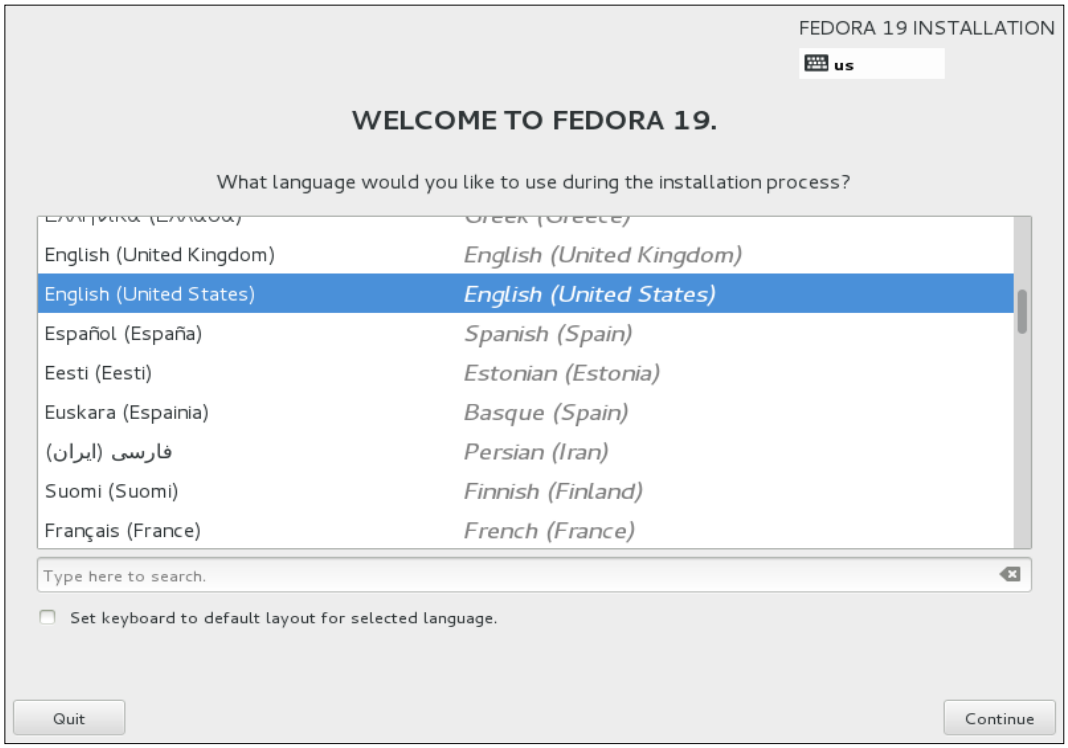
► Select the "*Install system with basic video driver*" **Option** > **Enter**.



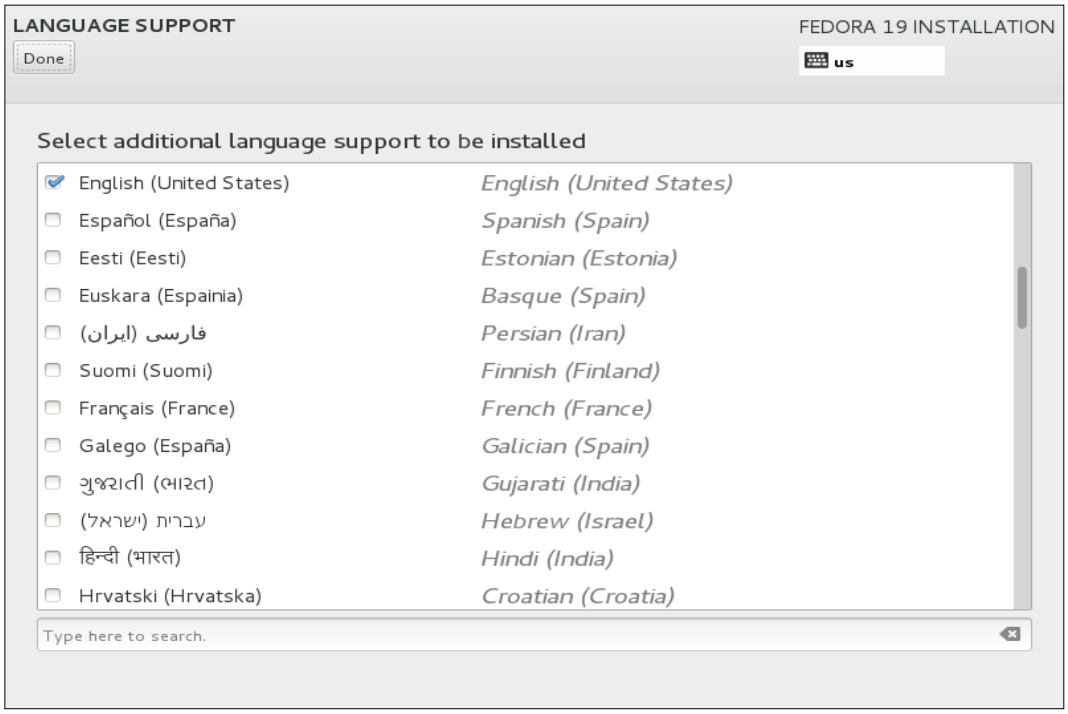
► The media test is not required. Select "**Skip**" or practice as below.



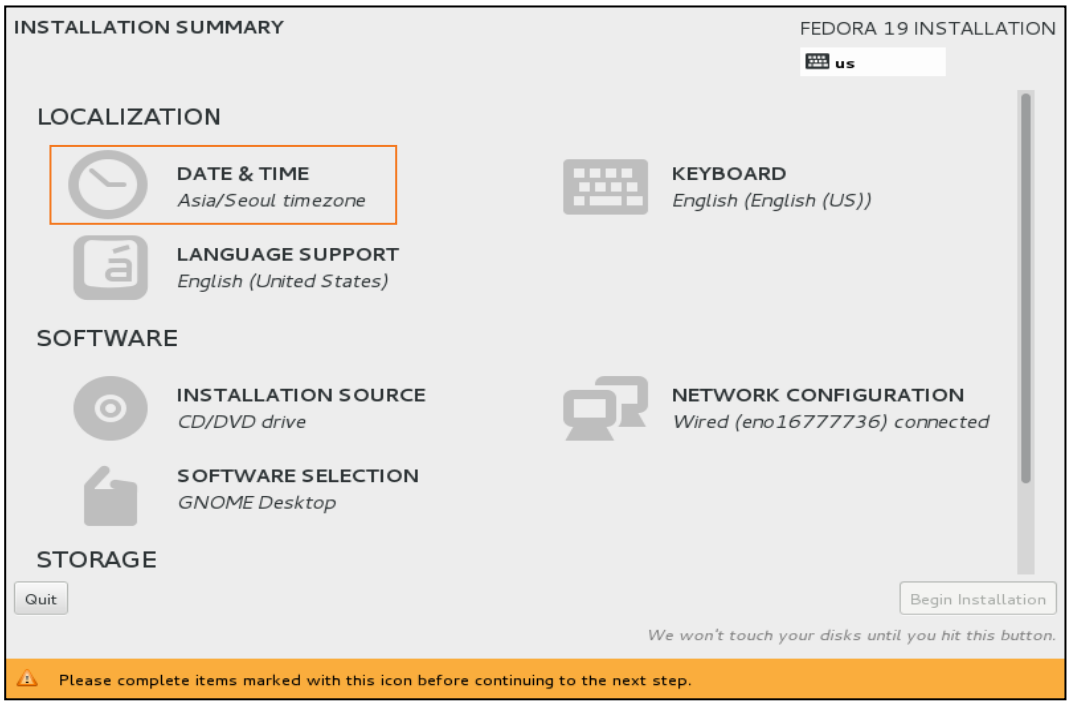
1. Install language and Next.



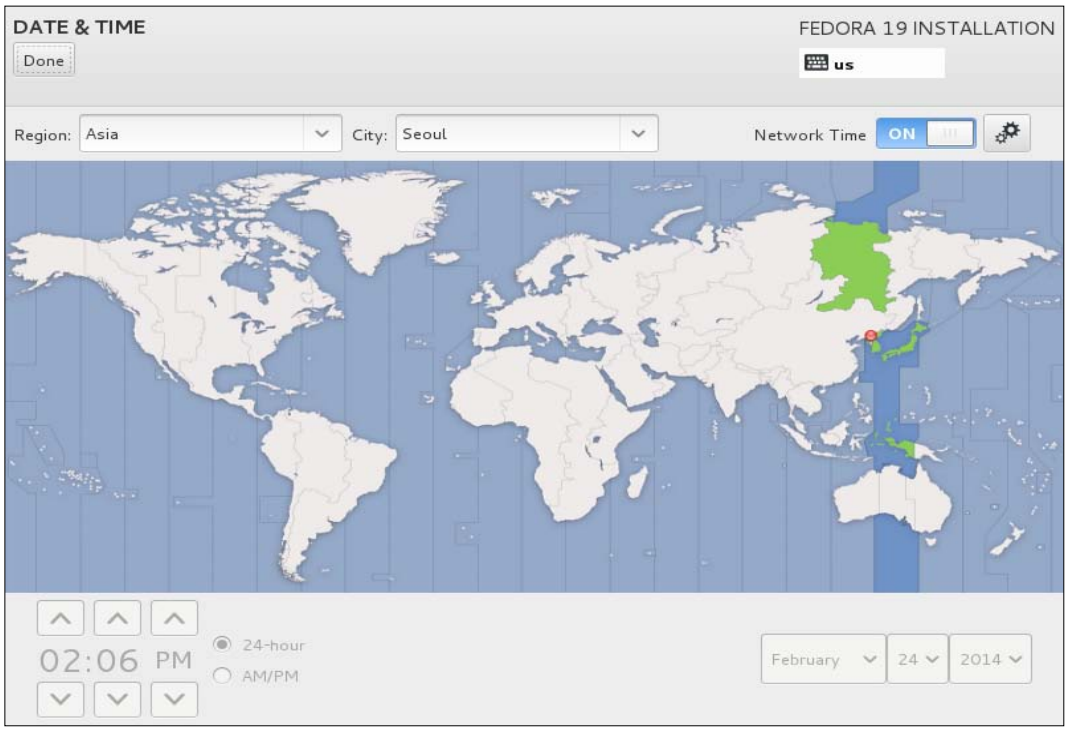
2. This is optional by language.



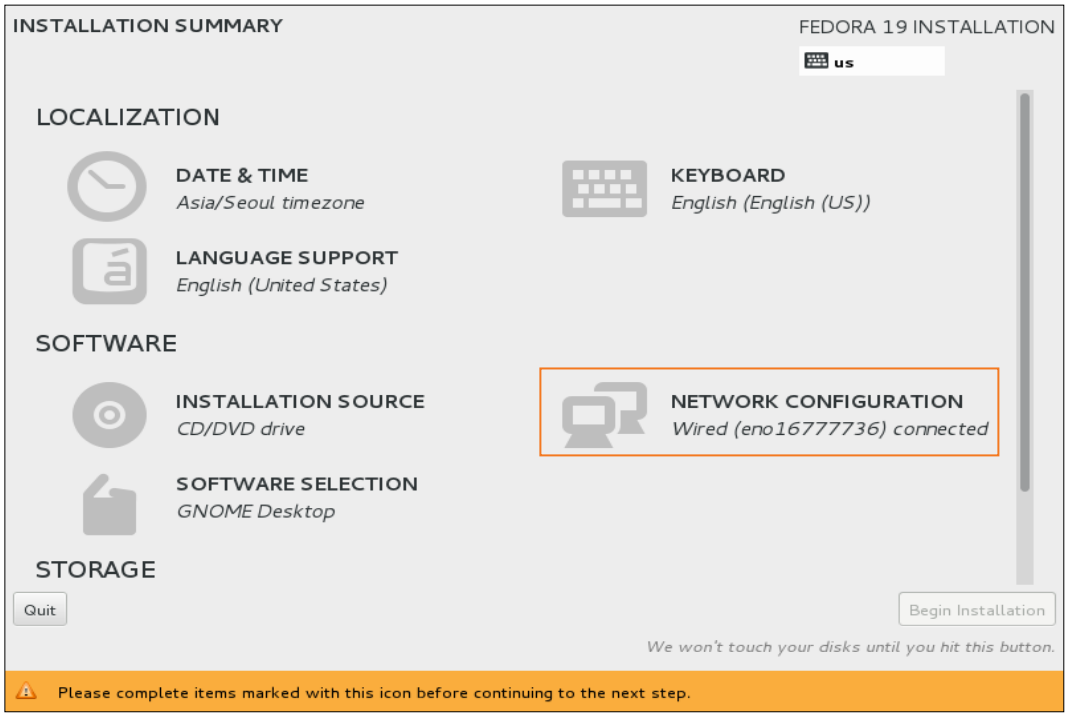
3. DATE & TIME click.



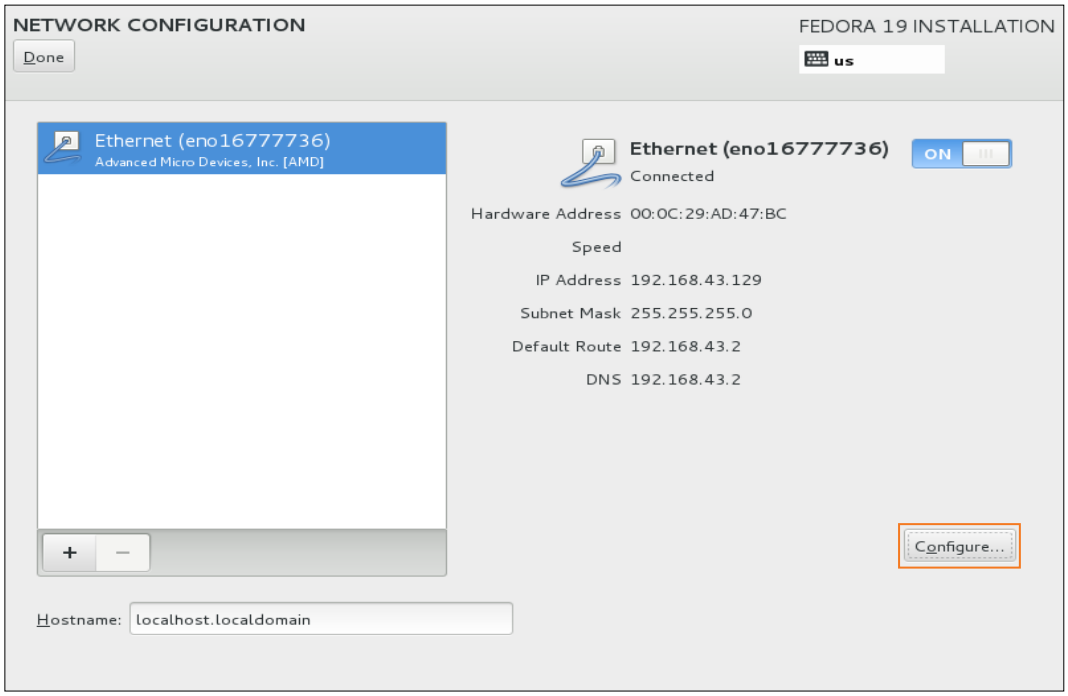
4. TIME Select and click Done.



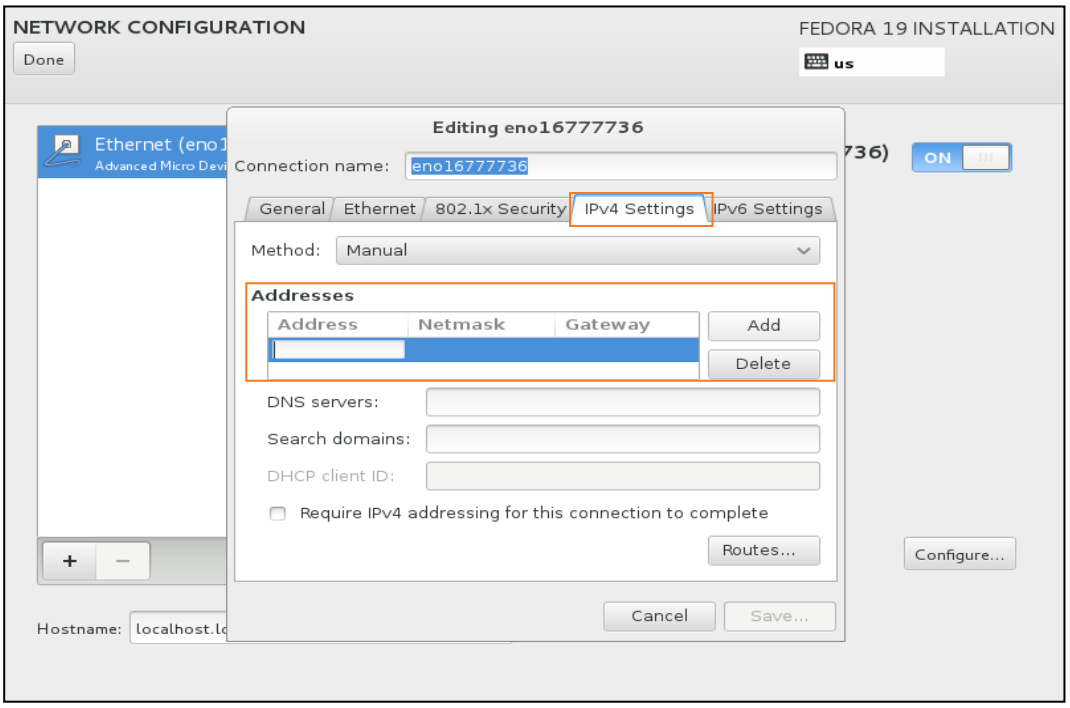
5. NETWORK CONFIGURATION Click.



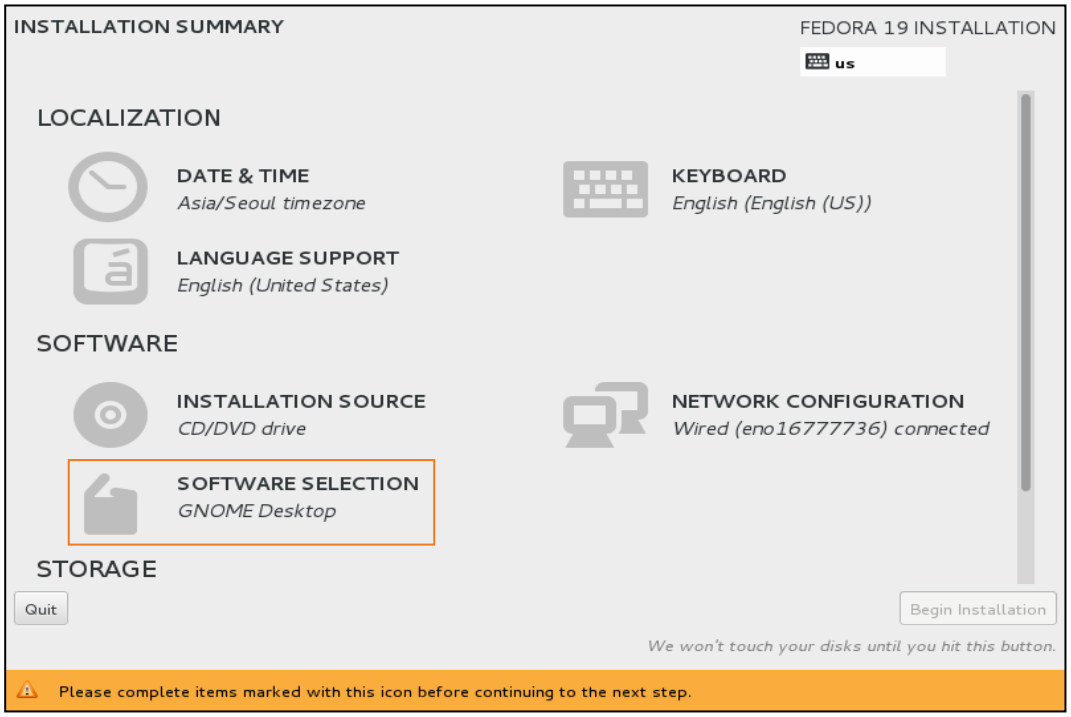
6. Configuration Click and Set IP.



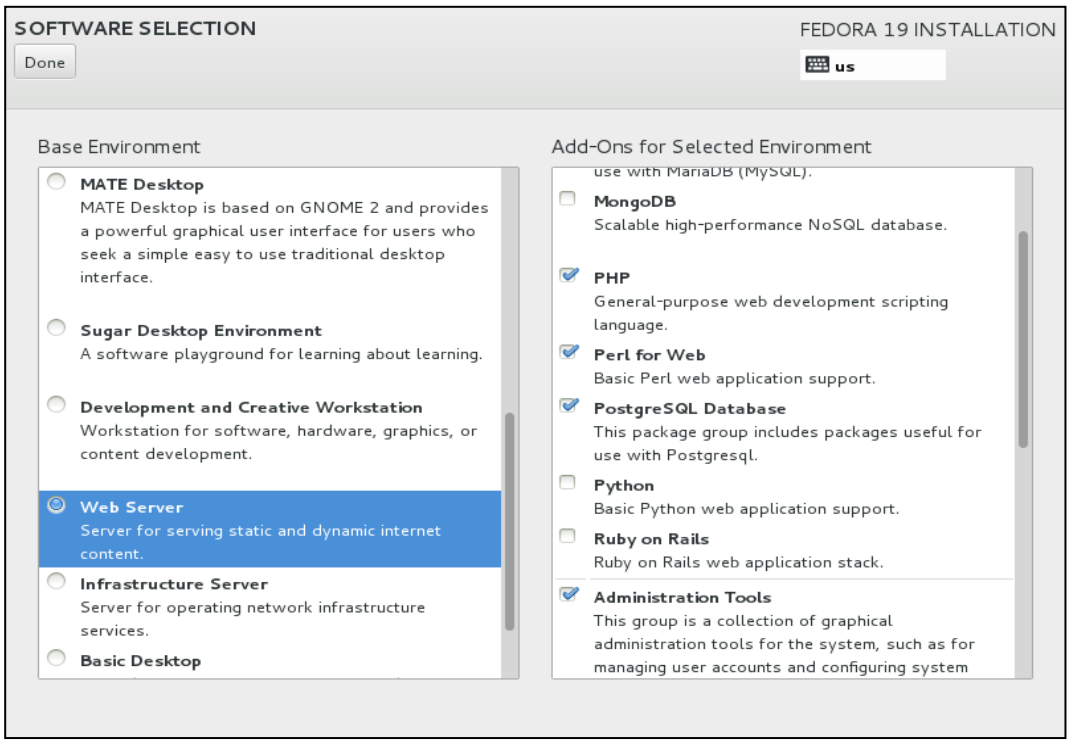
7. **IPv4 Settings > Manual > Add > Set IP** and Save – Done.

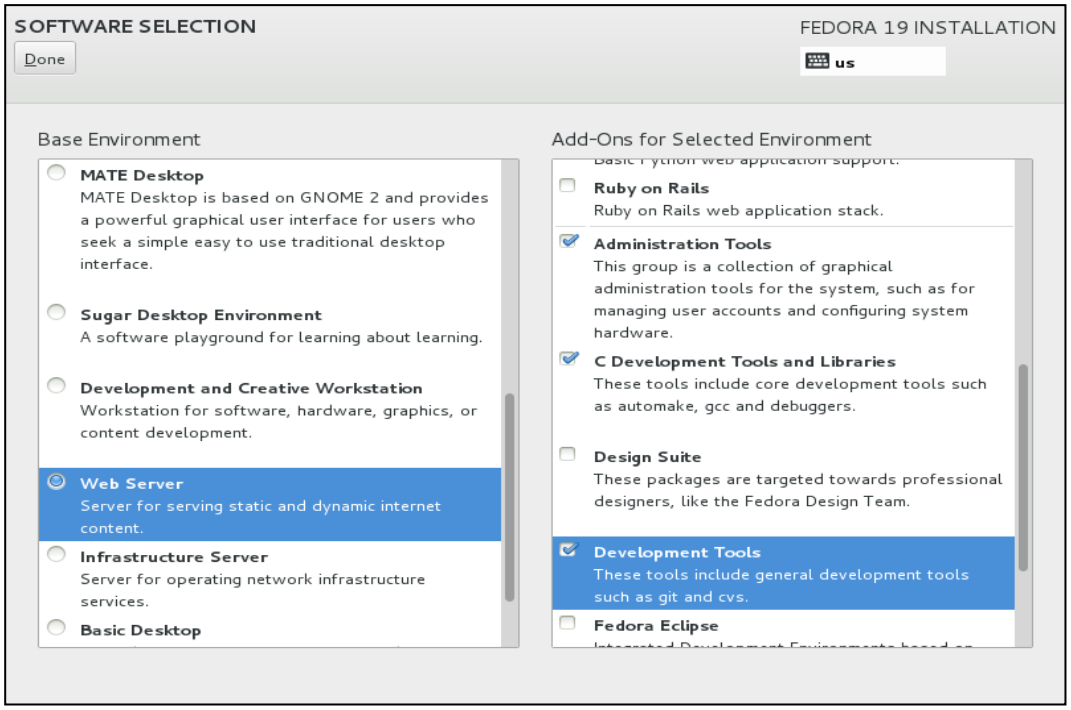


8. Set Server and SOFTWARE SELECTION Click.

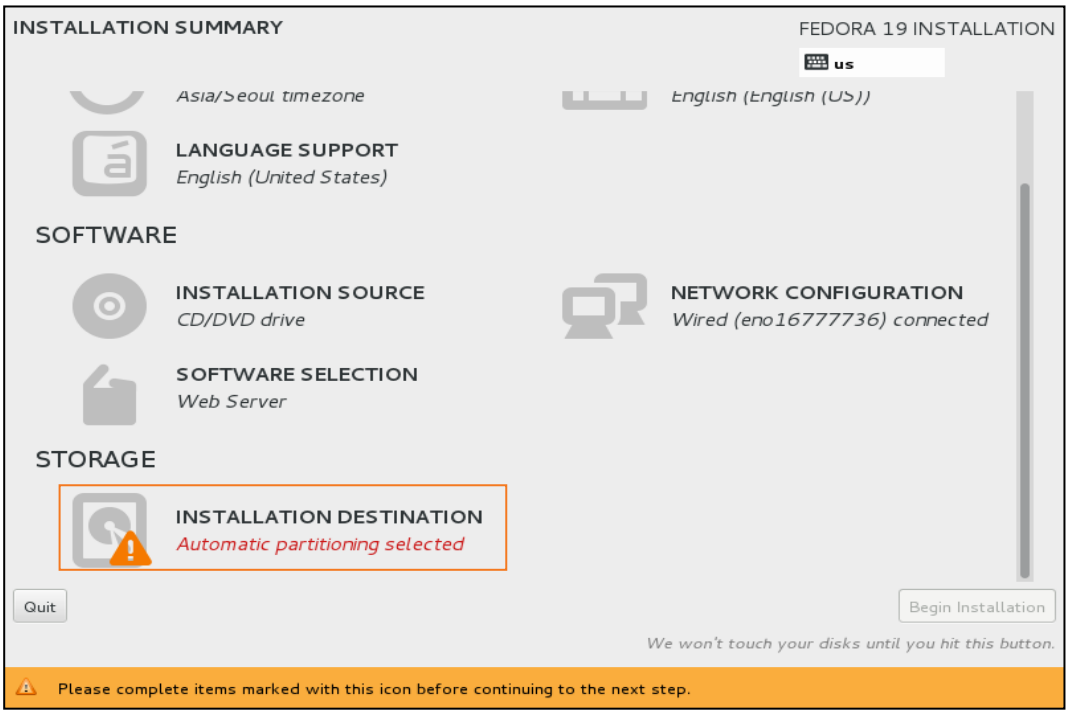


9. Set Web Server and PHP in right Add-Ons, and choice Perl for Web, PostgreSQL Database, Administratoin Tools, C Development Tools and Libraries, Development Tools & Done.

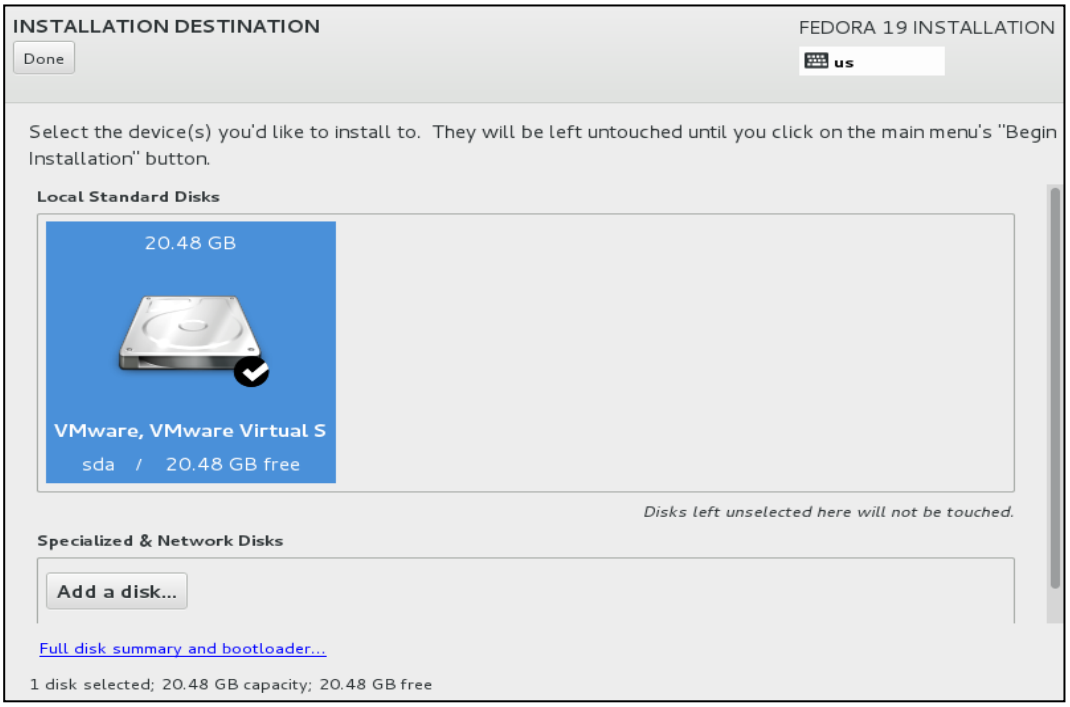




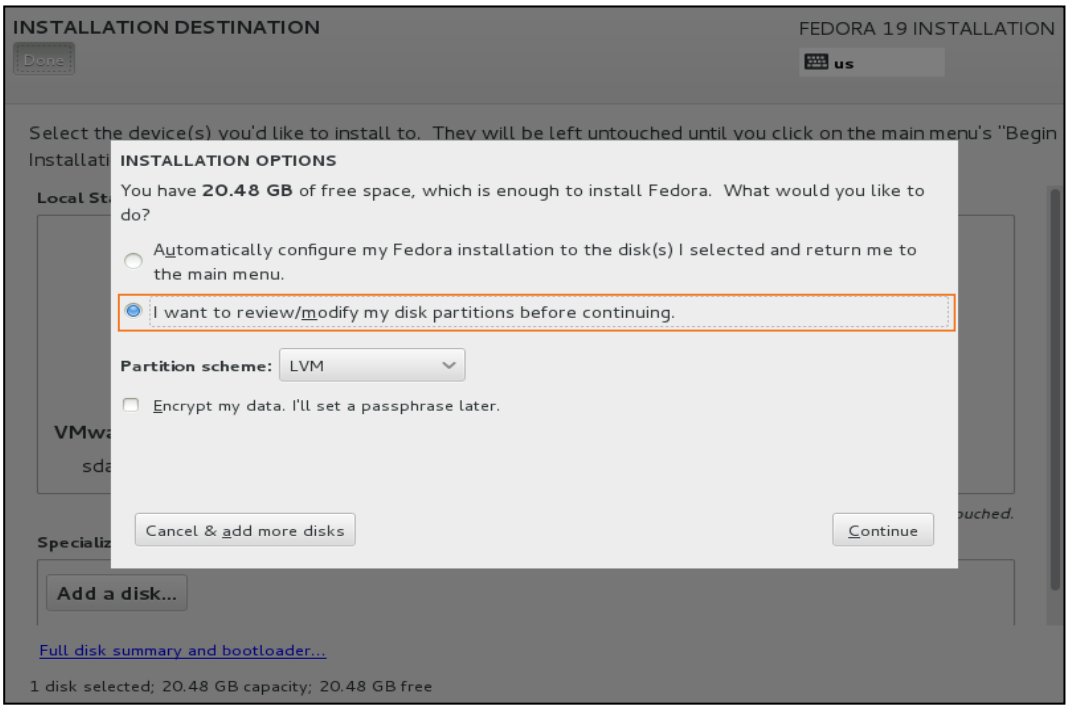
1 0 . Setting Disk& STORAGE Click.



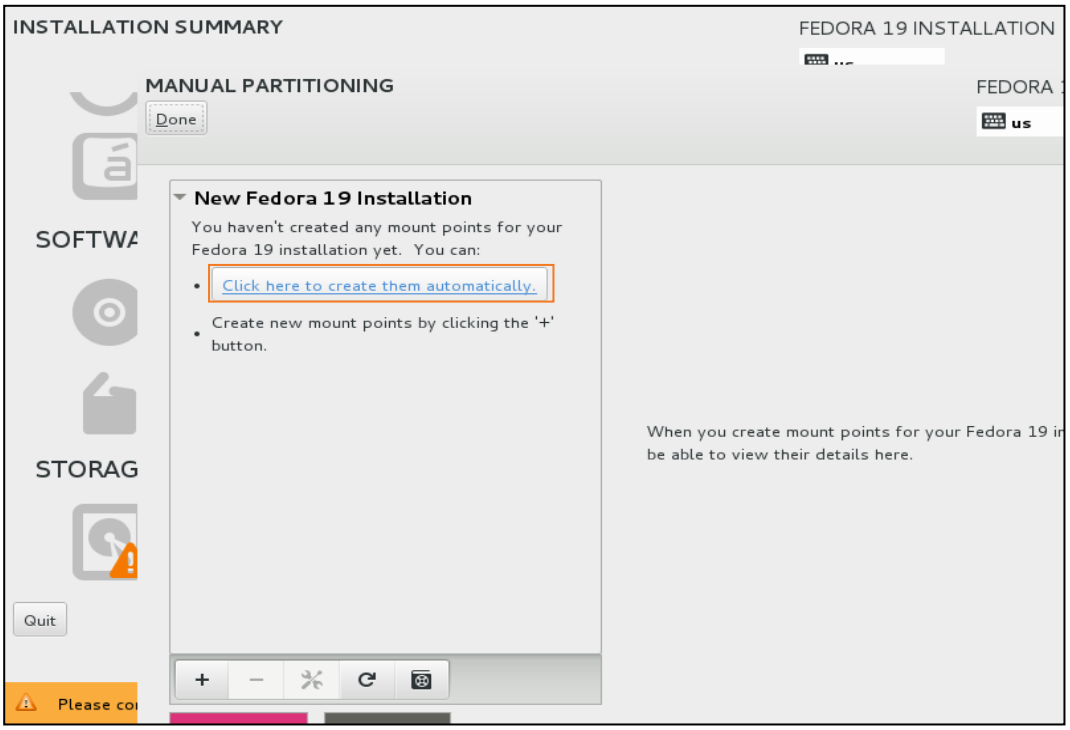
1 1 . Choice Disk for intall.



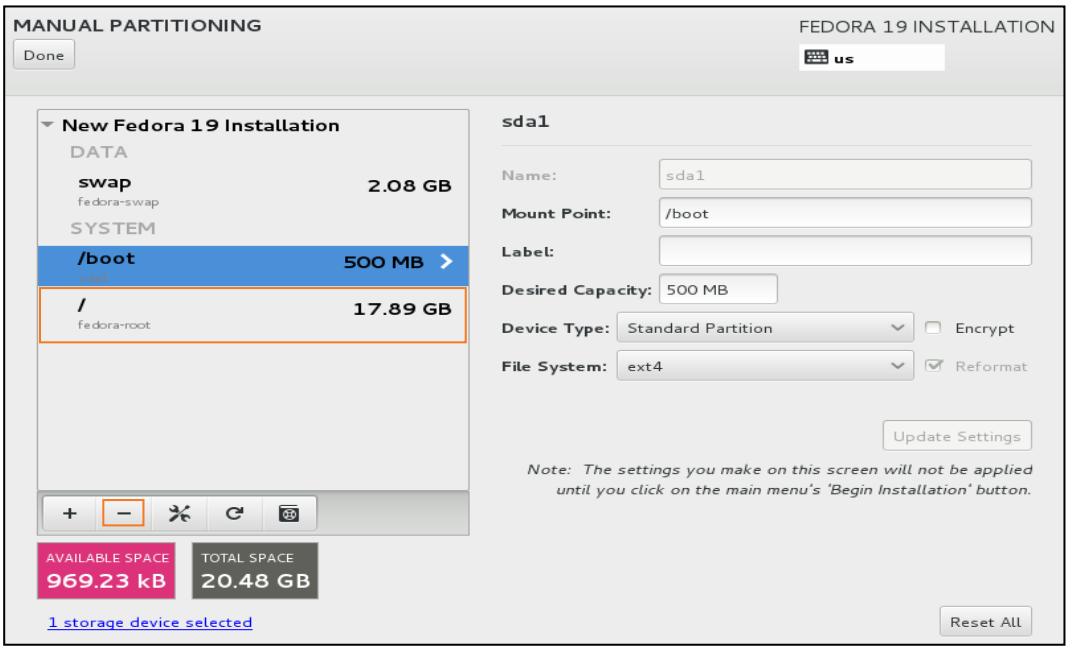
12. Set partition user and Continue.

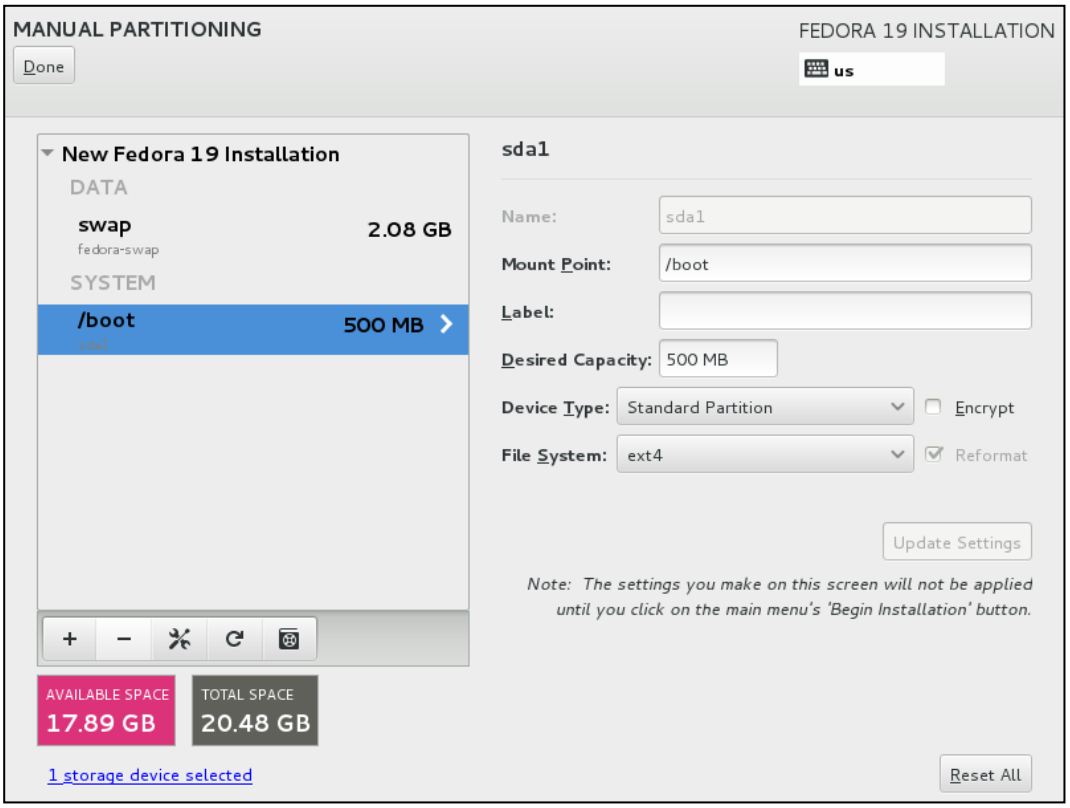


13. Set Basic partition and Click.

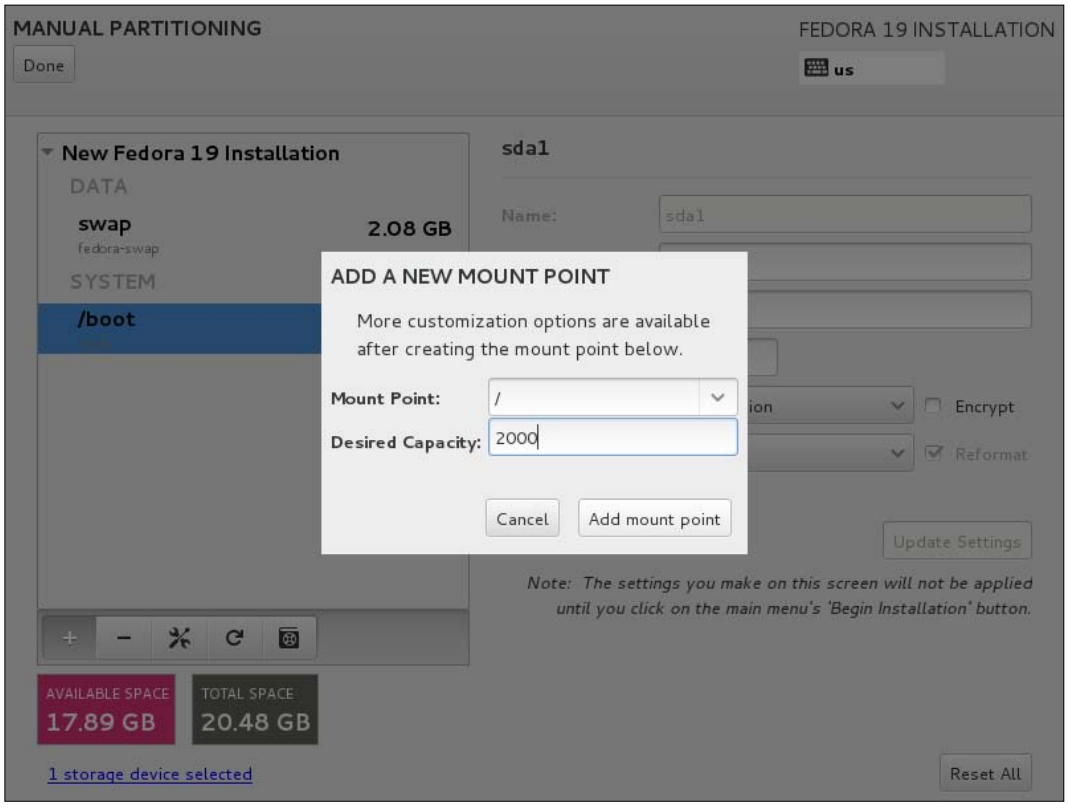


1 4 . Size of swap is twice of physical memory. “ / ” chosen and ‘—’ Click & delete.

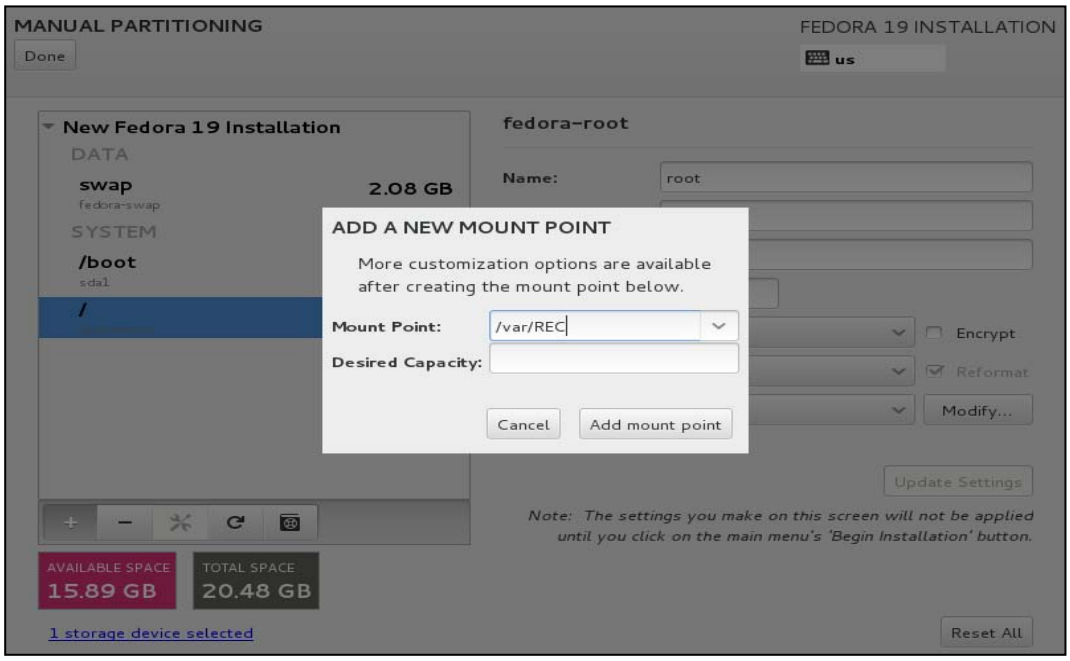




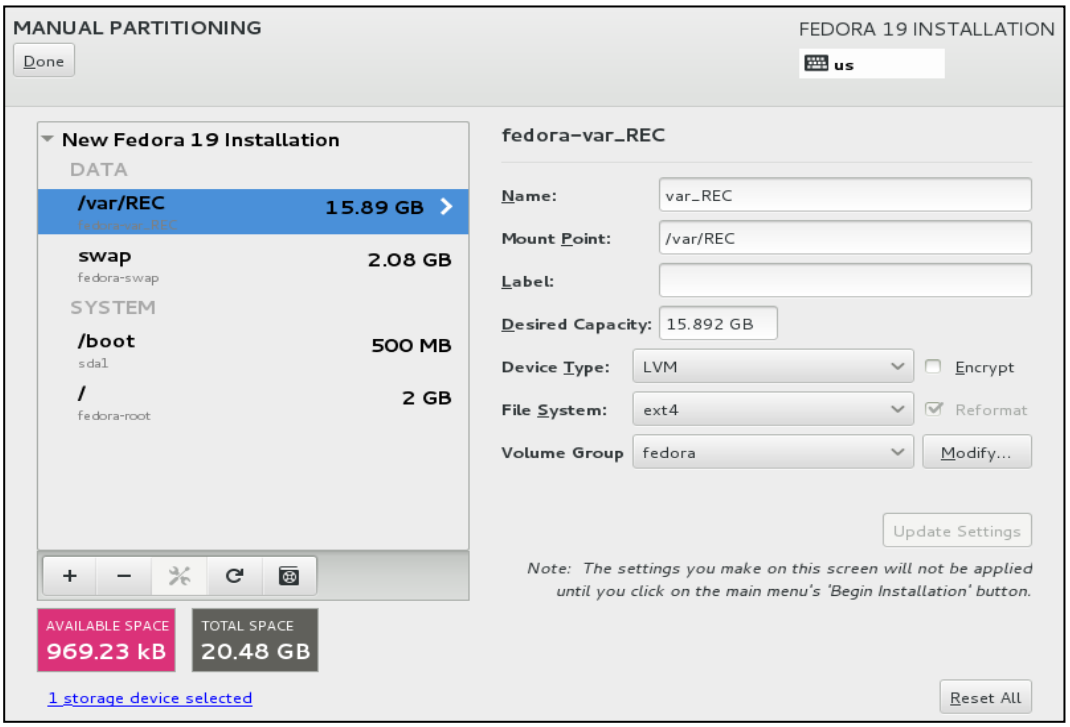
15. Press + and partition " / " is amount of 10% of total space.



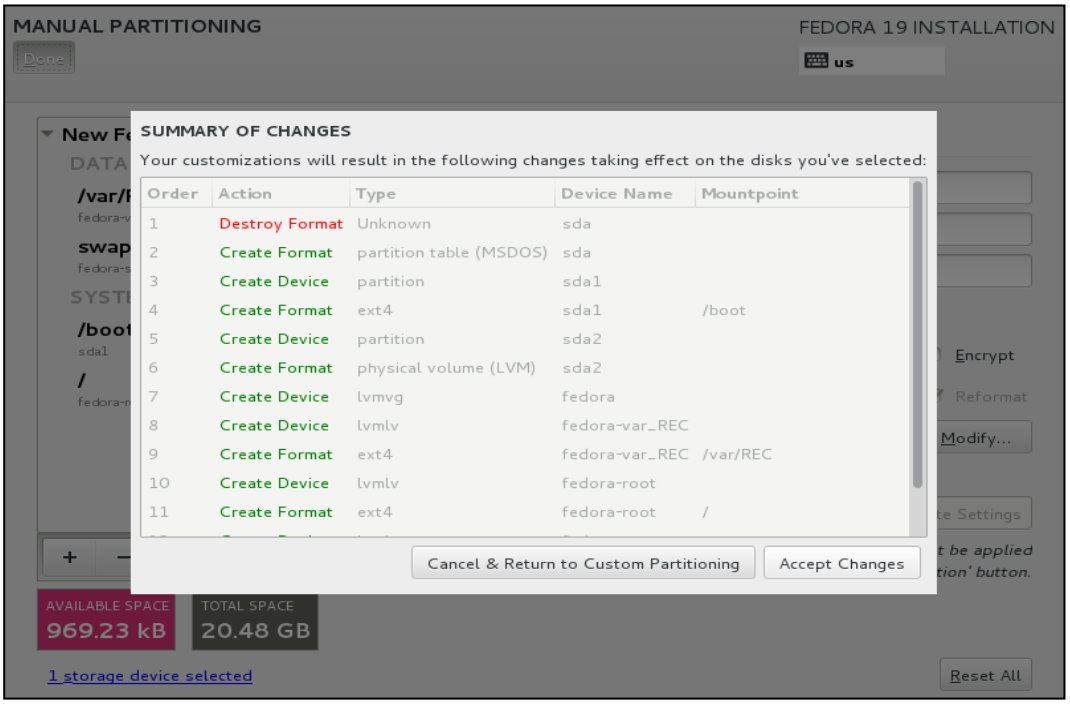
16. Press + partition "/var/REC" as remained total space.



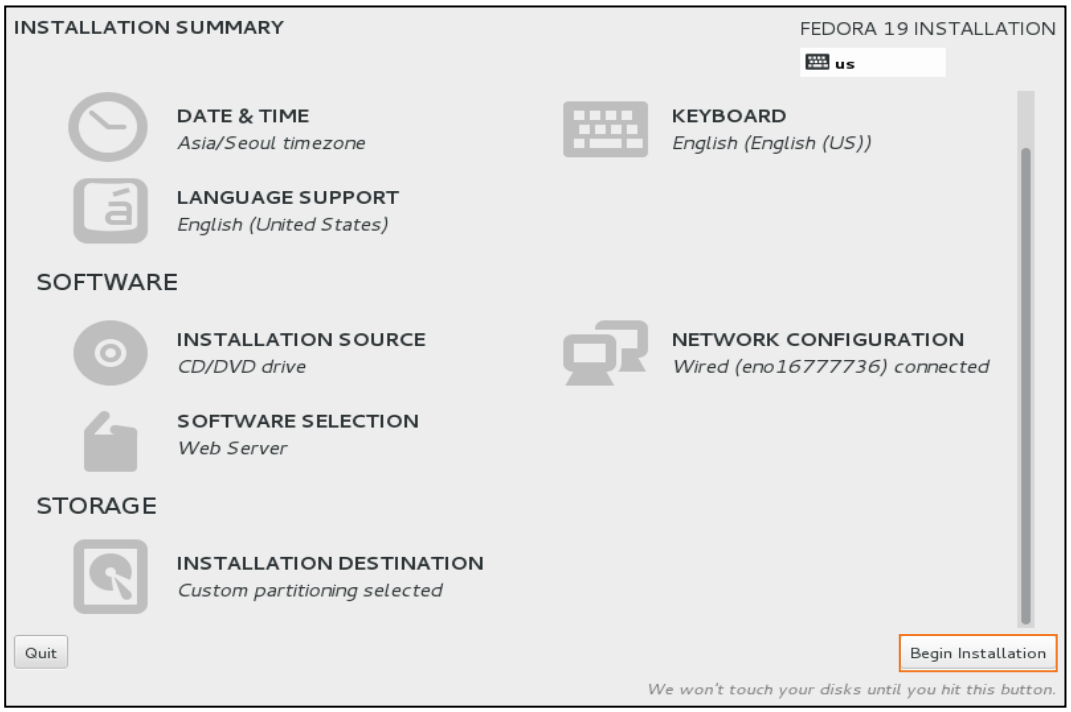
17. Finally set as below structure and Click Done.



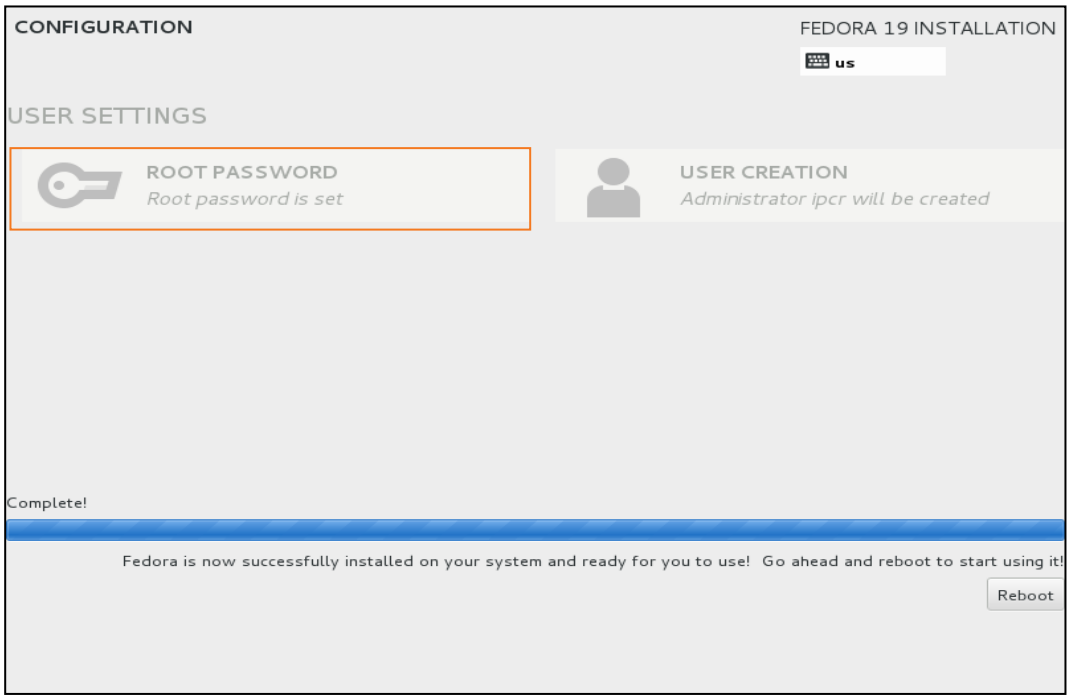
18. Click Accept Changes and Accept Change.



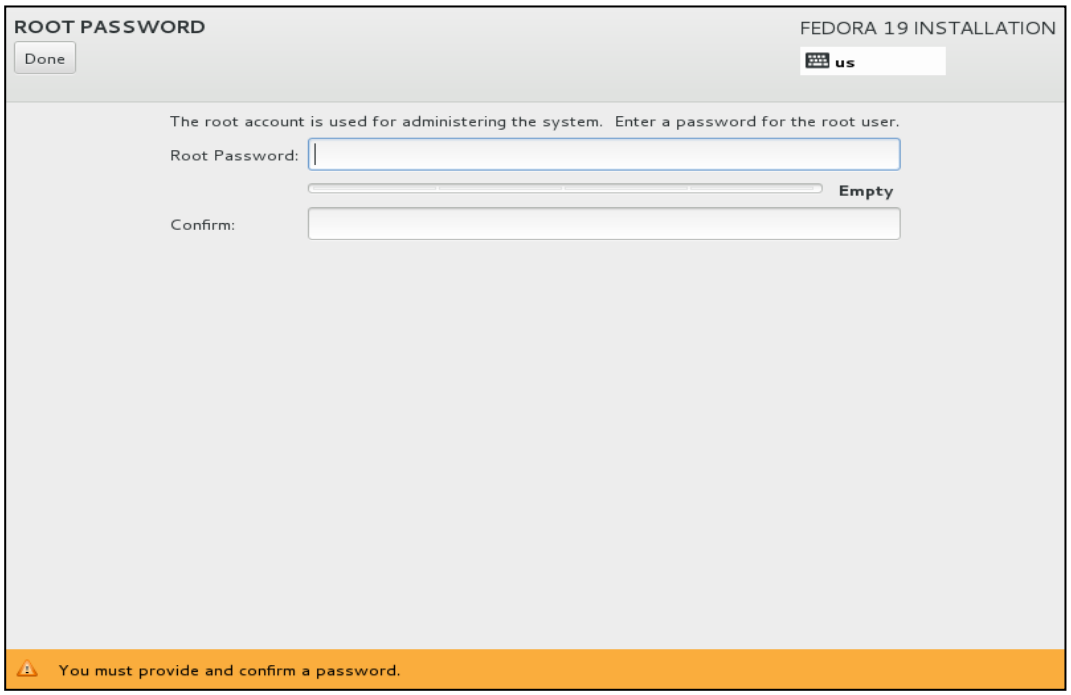
19. Click Begin Installation and start install.



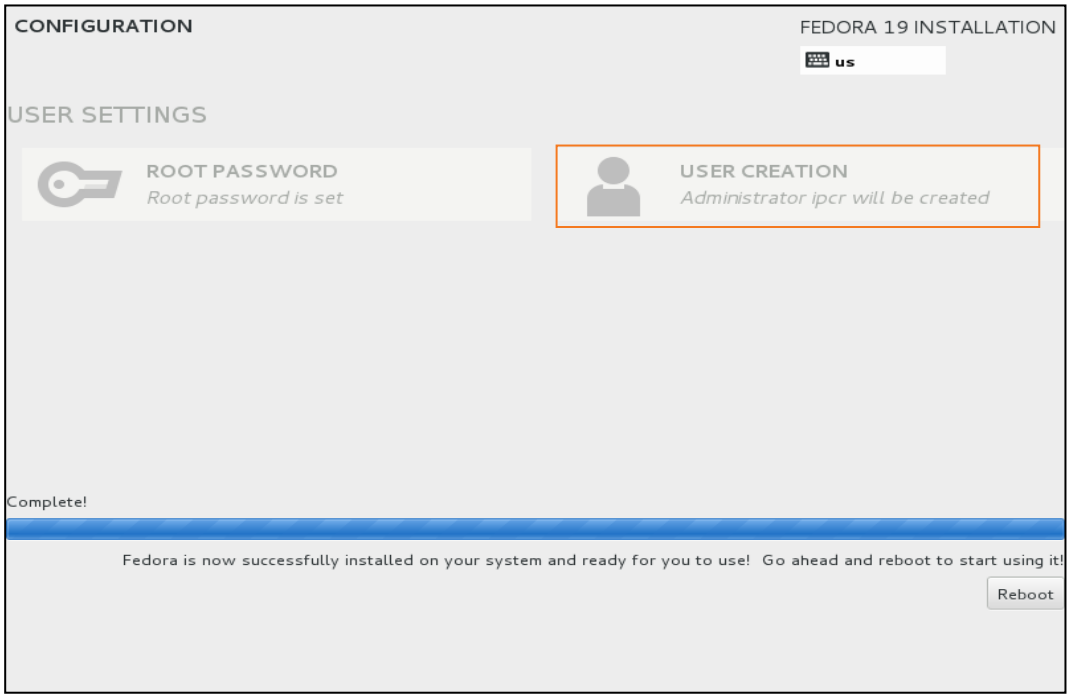
20. Set root password.



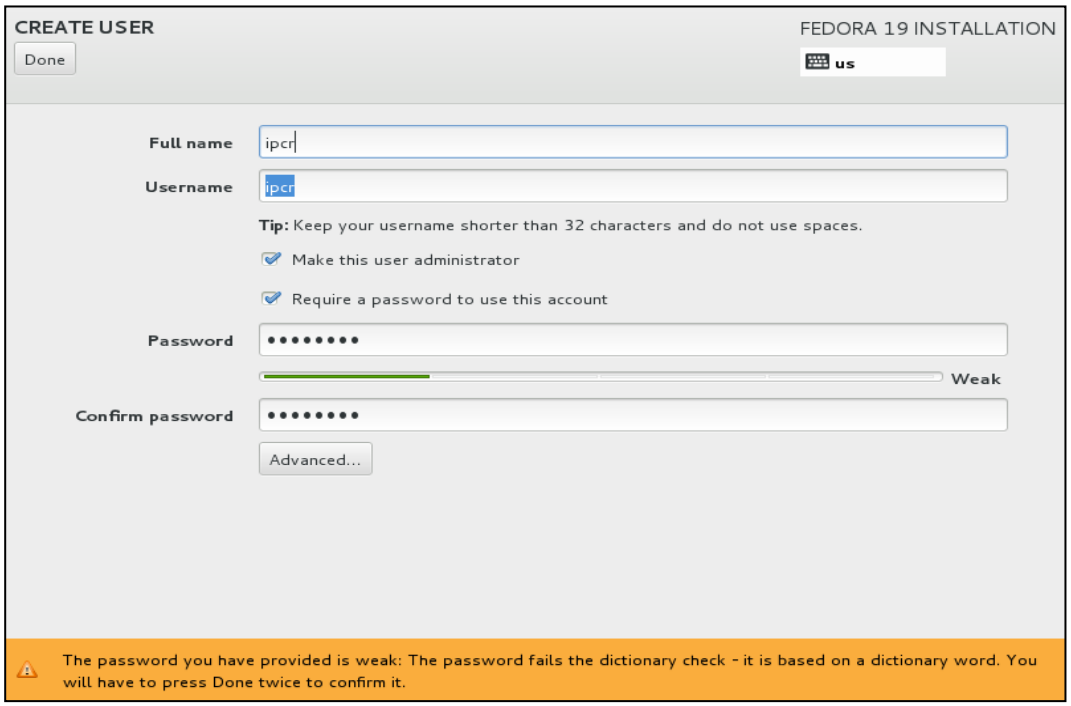
21. If it's asked once again, click Done.



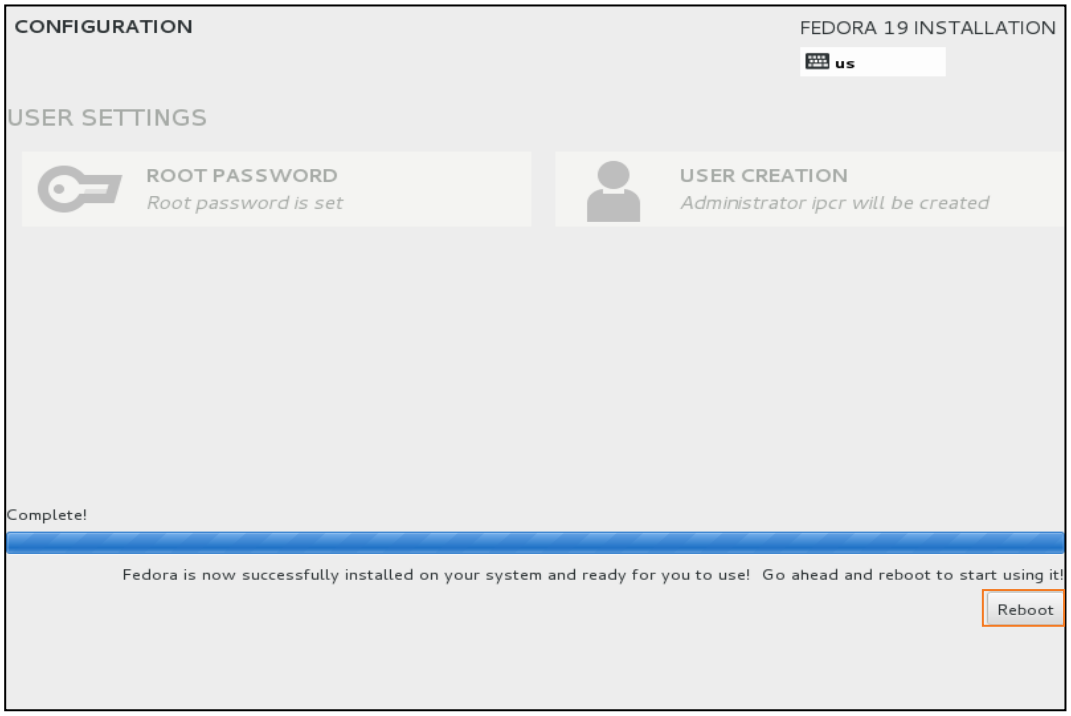
22. Click USER CREATION.



23. Click User Register and register IPCR user and Done.



24. Click Reboot in right below after installation.



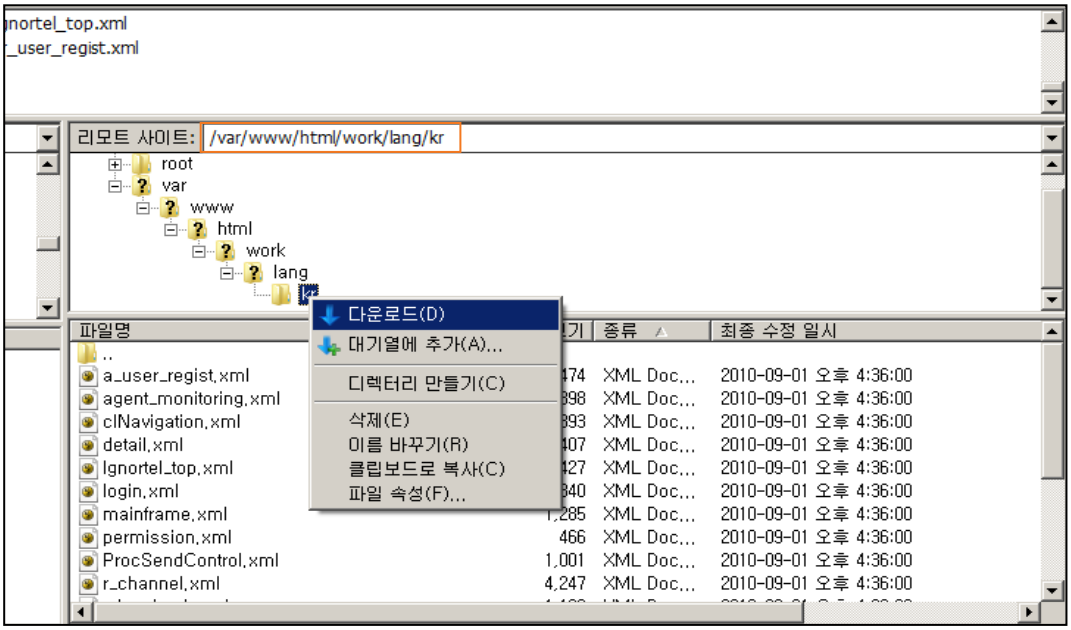
7.2 IPCR Language

7.2.1 Creating a Local Language File

The IPCR application supports two (2) languages, English and a 'Local' language. At login, the user can select the language for text displays. The text displays are contained in a number of XML files in the */var/www/html/work/lang/kr* directory. The XML files deliver text to the application for a specific screen or sequence of displays. The XML file defines a 'Stitle' (Secondary title) for the Local language and the "Ttitle for English text. The files can be downloaded to a local computer, modified, and saved back to the */var/www/html/work/lang/kr* directory to support a local language.

To create 'Local' language files'

1. Download all xml files from the /var/www/html/work/lang/kr directory to the local PC,



2. Open one of the XML files,

- **Example file:**

```
<?xml version='1.0' encoding='EUC-KR'?>
<Request>
<data>
 <list>
        <FRC_HeadTitle Stitle='====Setting====' Ttitle='====Setting====' />
        <FRC_BTN_save Stitle='저장' Ttitle='SAVE' />
        <FRC_BTN_modify Stitle='수정' Ttitle='Modify' />
        <FRC_BTN_del Stitle='삭제' Ttitle='Delete' />
```

```
        <FRC_BTN_clear Stitle='초기화' Ttitle='Clear' />
        <FRC_ProName Stitle='프로그램 이름' Ttitle='Program Name' />
        <FRC_GroupAuthority Stitle='계정 권한' Ttitle='Group Authority' />
        <FRC_Read Stitle='사용' Ttitle='Read' />
        <FRC_Write Stitle='쓰기' Ttitle='Write' />
 </list>
</data>
</Request>
```

3. Modify the Stitle, using the English text as a guide to the purpose of the text. Assure the text is located between the single quotes, ‘ ’, ‘immediately to the right of “Stitle”.

4. Repeat for each XML file.

   - **XML Language File List:**
   - ProcSendControl.xml
   - a_user_regist.xml
   - agent_monitoring.xml
   - clNavigation.xml
   - detail.xml
   - lgericsson_top.xml
   - login.xml
   - mainframe.xml
   - permission.xml
   - r_channel.xml
   - r_logcheck.xml
   - r_user_regist.xml
   - report.xml
   - search_listen.xml
   - setting.xml
   - system_monitoring.xml
   - system_regist.xml
   - system_regist_ipcr.xml

7.3 IPCR Database Backup, Create and Restore

7.3.1 IPCR Database Backup

Follow below process for backup IPCR Database

Login to terminal by root Identification and change to Database admin identification

```
# su root
Password:
# su - postgrest
```

- # su root – Change to root identification
- Password: – Input the password
- # su - postgrest – Change to Database admin identification.

Change to IPCR Database path and Database backup

```
# cd /var/furence/data
# pg_dump -F c recsee > recsee.sql
Password:
```

- # cd /var/furence/data – Change to Database path
- # pg_dump -F c recsee > recsee.sql – Backup Database
- Password: – Input the password

7.3.2 PCR Database Create

Follow below process for create IPCR Database

Login to terminal by root Identification and change to Database admin identification.

```
# su root
Password:
# su - postgrest
```

- # su root – Change to root identification
- Password: – Input the password
- # su - postgrest – Change to Database admin identification.

Change to IPCR Database path and Database backup

```
# cd /var/furence/data
# createdb recsee
Password:
```

- # cd /var/furence/data – move to Database path
- # createdb recsee – create IPCR Database
- Password: – Input the password

7.3.3 IPCR Database Restore

Follow below process for restore IPCR Database

Login to terminal by root Identification and change to Database admin identification.

```
# su root
Password:
# su - postgrest
```

- # su root – Change to root identification
- Password: – Input the password
- # su – postgrest – Change to Database admin identification.

Change to IPCR Database path and Database backup

```
# cd /var/furence/data
2# pg_restore -d recsee1 recsee.sql
Password:
```

- # cd /var/furence/data – Move to Database path
- # pg_restore -d recsee1 recsee.sql – Restore IPCR Database
- Password: – Input the password

7.3.4 Another Method, using PgAdminIII application.

Recommend pgAdminIII. PgAdminIII are provides a GUI environment. You can download pgAdminIII from http://www.pgadmin.org/.

1. Connection to IPCRserver after pgAdminIII is installed.
   - **ID :** postgres
   - **Password:** postgers012
2. You can backup and restore easily using backup menu and restore menu in pgAdminIII.

7.4 Easy install with CloneZilla

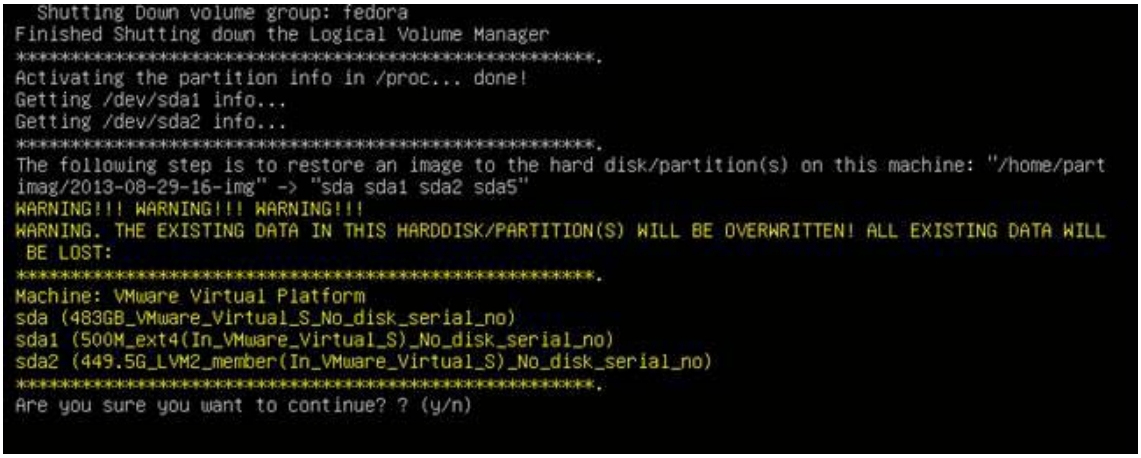
Clonezilla with Fedora19 & 1.0Bh IPCR version.

1. Record the clonezilla-live-YYYY-MM-DD-19-img.iso Image to DVD. Or install it using VM ware with .iso file.

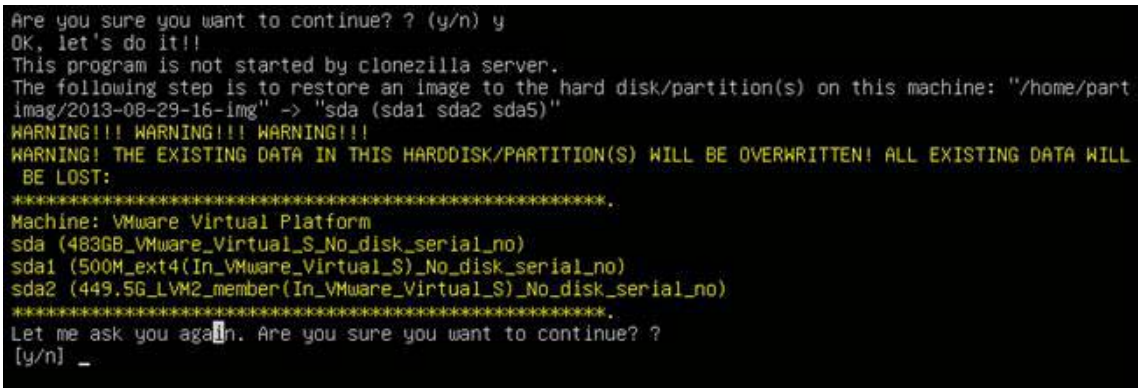
2. Insert the DVD and boot with it.

3. Upon prompting the following display, select the first menu and press **Enter** Key.

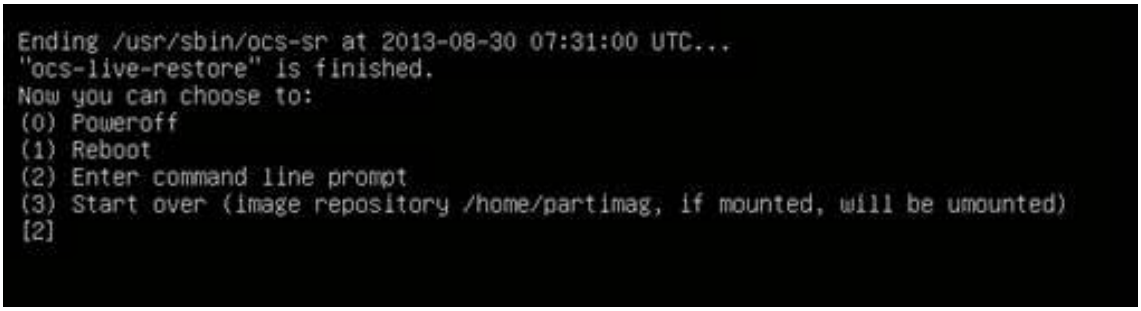
4. Upon prompting the following display after the booting procedures, select '**yes**' for the next step.



5. Upon prompting the following display for the confirmation, select '**yes**' for the next step.



6. After the automatic installation of Fedora 19 OS & IPCR S/W to each sections, remove the DVD and select (1) for reboot.

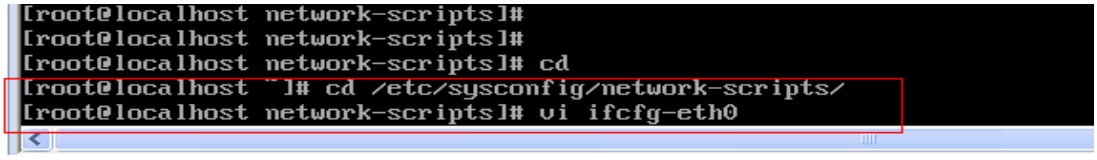


- **Default password :** root / p@ssw0rd 'a' -> @ , 'o' -> number 0

7. After rebooting, configure the IP address of IPCR Server to eht0 and connect the cable for the operation with LIK.

8. If you want to change IP from DHCP to static, you can change it as below.

- You can go to nework-scripts directory, and you can change the configuration in ifcfg-eth0.



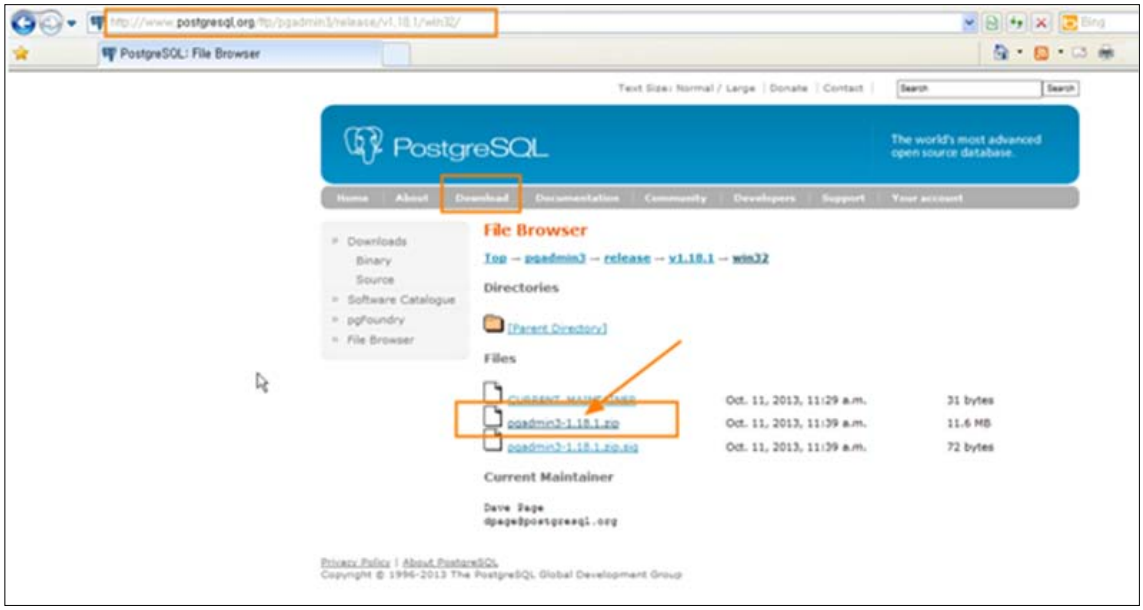
- **[root@IPCR] date 1220123013** (MMDDHHmmYY).
- **[root@IPCR] hwclock –w**

7.5 Easy DB Backup with PGAdmin

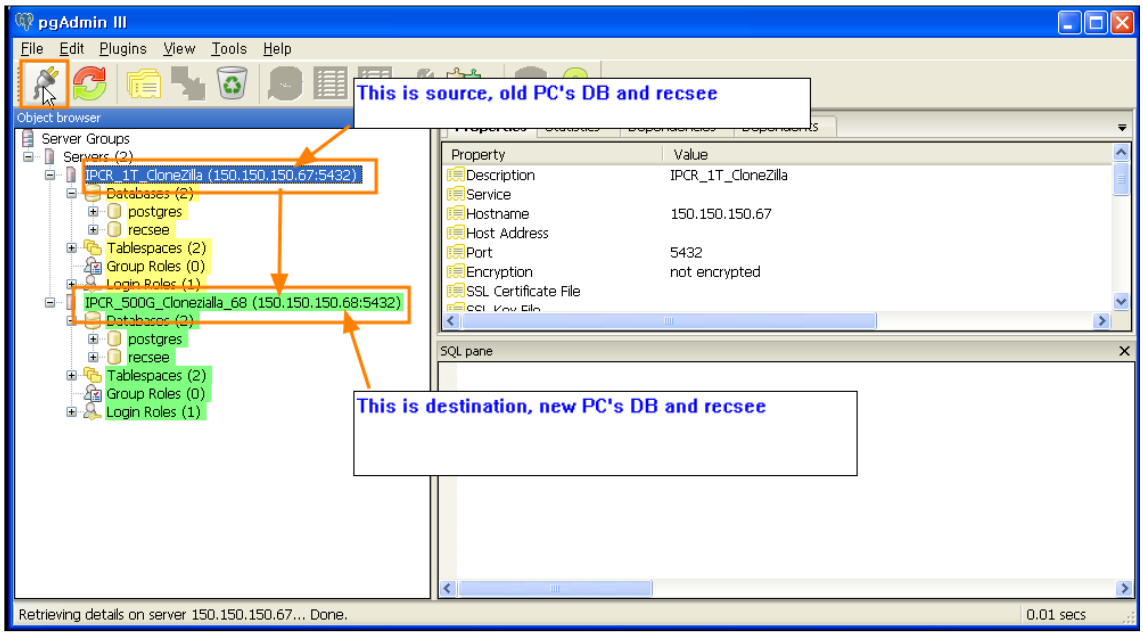
DB BackUp using PGAdmin.

1. Download pgadmin3-1.18.1.zip.

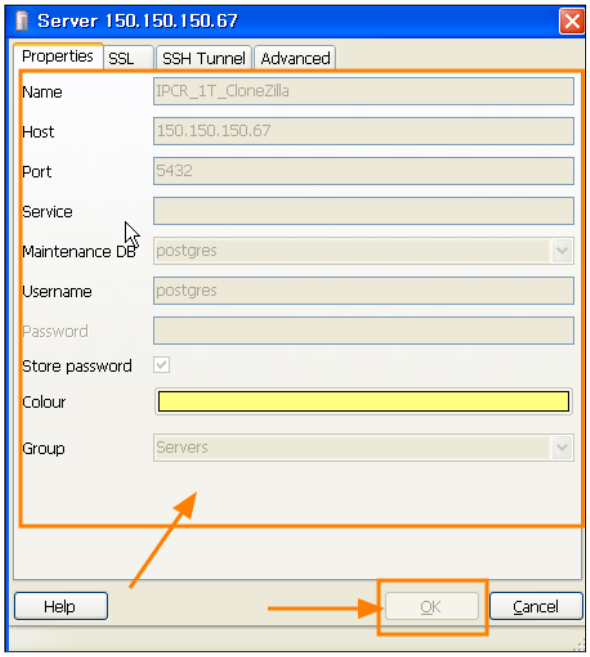
2. You can install it after extract it.



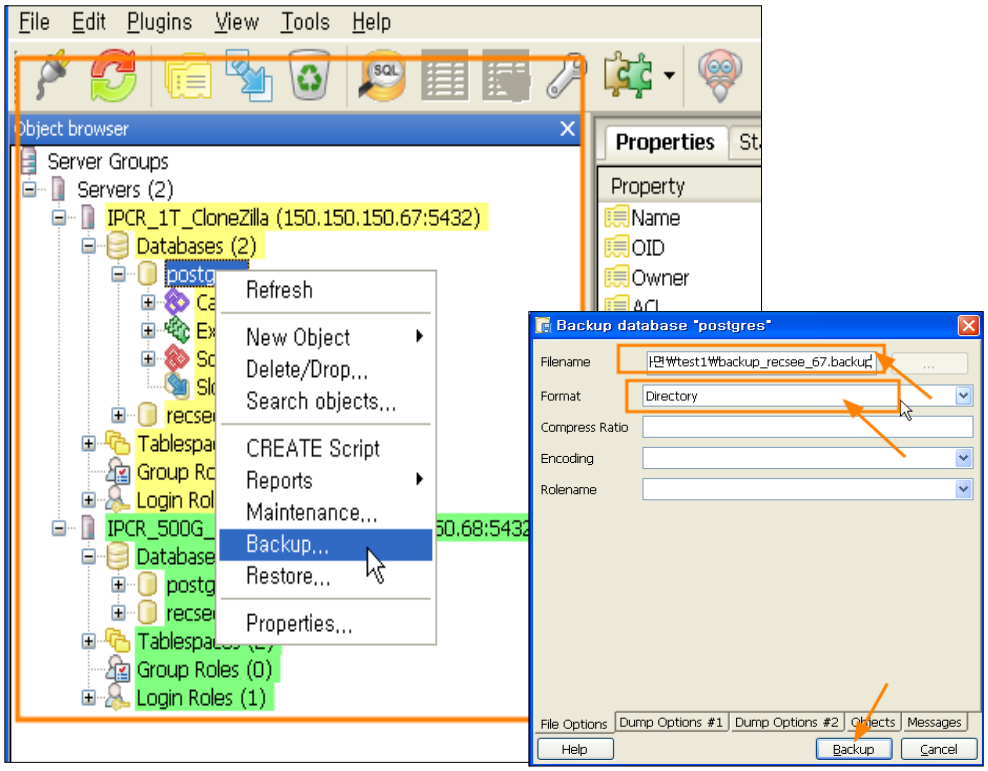
3. Let's connect old and new pc's IPCR DB.



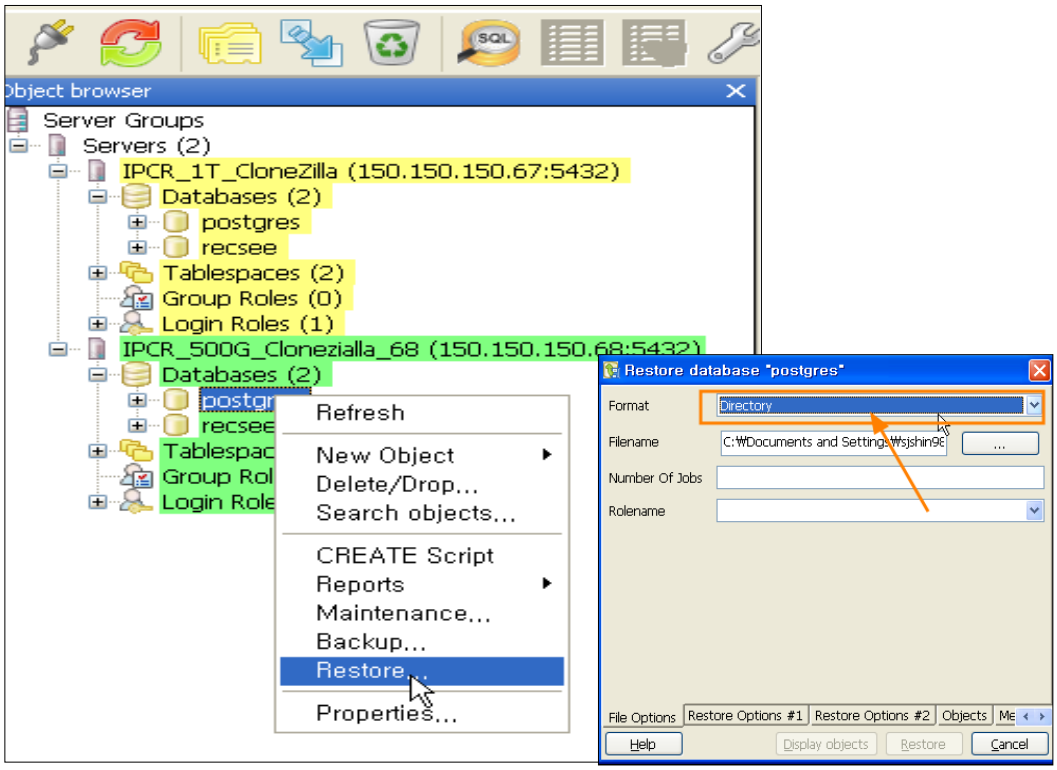
4. You can set it for connect with IPCR server.



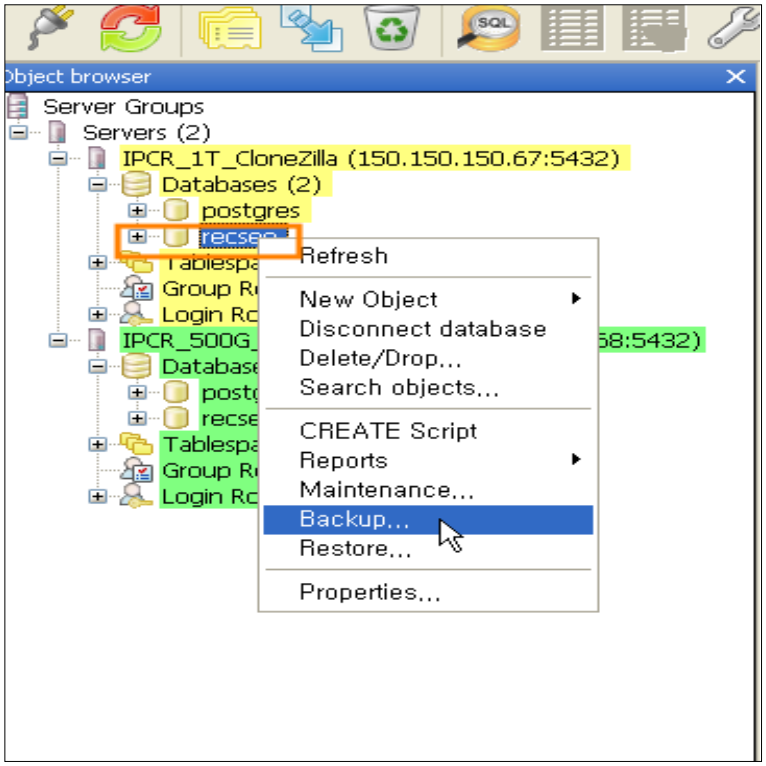
5. You can backup it from old IPCR's postgres server to your PC. ** Format should be Directory. Others is default. Filename is your PC's directory.



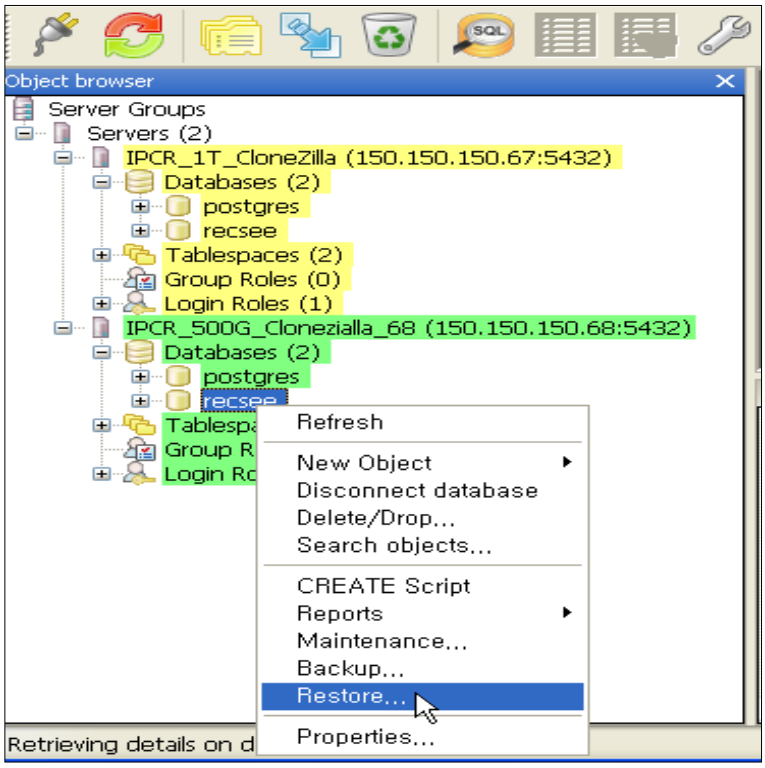
▼


Object browser
Server Groups
Servers (2)
IPCR_1T_CloneZilla (150.150.150.67:5432)
Databases (2)
postgres
recsee
Tablespaces (2)
Group Roles (0)
Login Roles (1)
IPCR_500G_Clonezialla_68 (150.150.150.68:5432)
Databases (2)
Refresh
New Object
Delete/Drop...
Search objects...
CREATE Script
Reports
Maintenance...
Backup...
Restore...
Properties...
Restore database "postgres"
Format
Directory
Filename
Number Of Jobs
Rolename
File Options
Restore Options #1
Restore Options #2
Objects
Help
Display objects
Restore
Cancel

▼

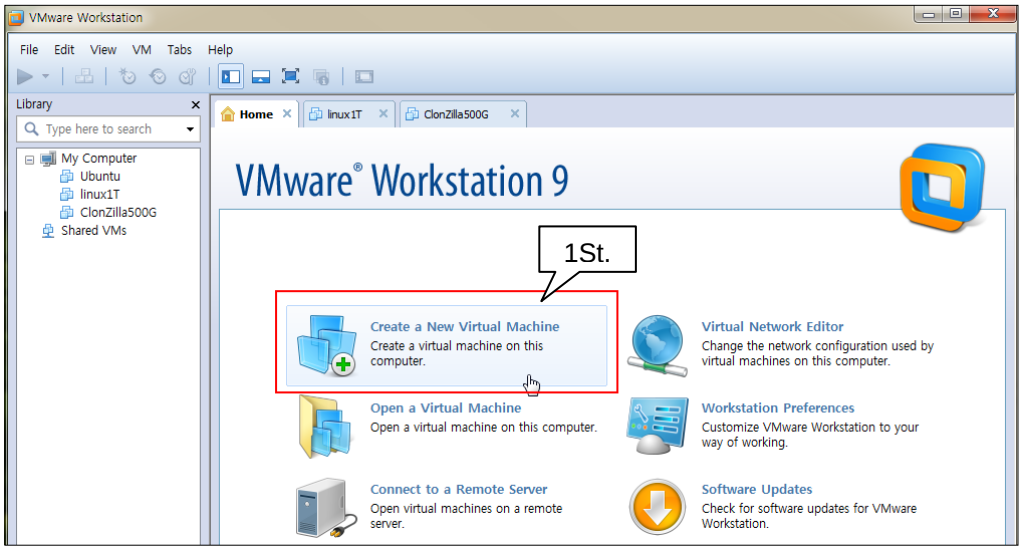

Object browser
Server Groups
Servers (2)
IPCR_1T_CloneZilla (150.150.150.67:5432)
Databases (2)
postgres
Refresh
New Object
Disconnect database
Delete/Drop...
Search objects...
CREATE Script
Reports
Maintenance...
Backup...
Restore...
Properties...

▼

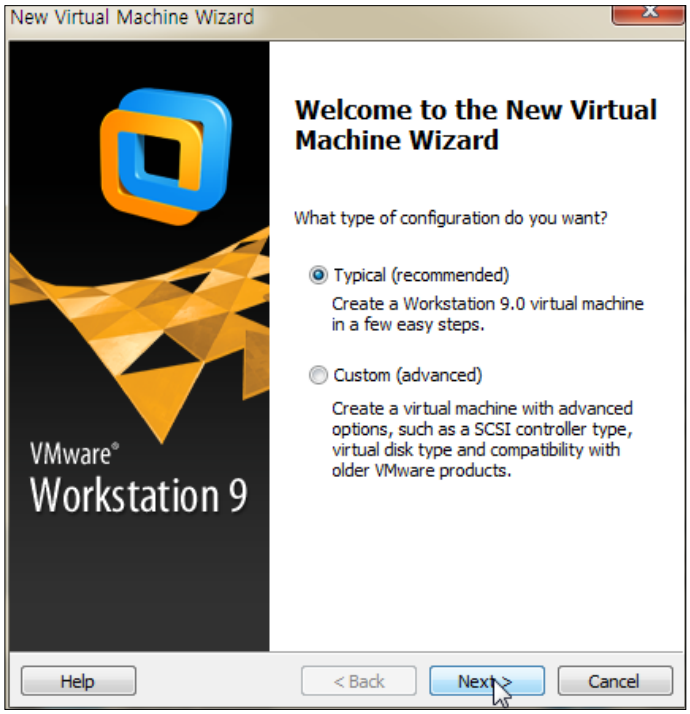

Object browser
Server Groups
Servers (2)
IPCR_1T_CloneZilla (150.150.150.67:5432)
Databases (2)
postgres
recsee
Tablespaces (2)
Group Roles (0)
Login Roles (1)
IPCR_500G_Clonezialla_68 (150.150.150.68:5432)
Databases (2)
postgres
recsee
Refresh
New Object
Disconnect database
Delete/Drop...
Search objects...
CREATE Script
Reports
Maintenance...
Backup...
Restore...
Properties...
Retrieving details on d

7.6 Setup in VM-ware

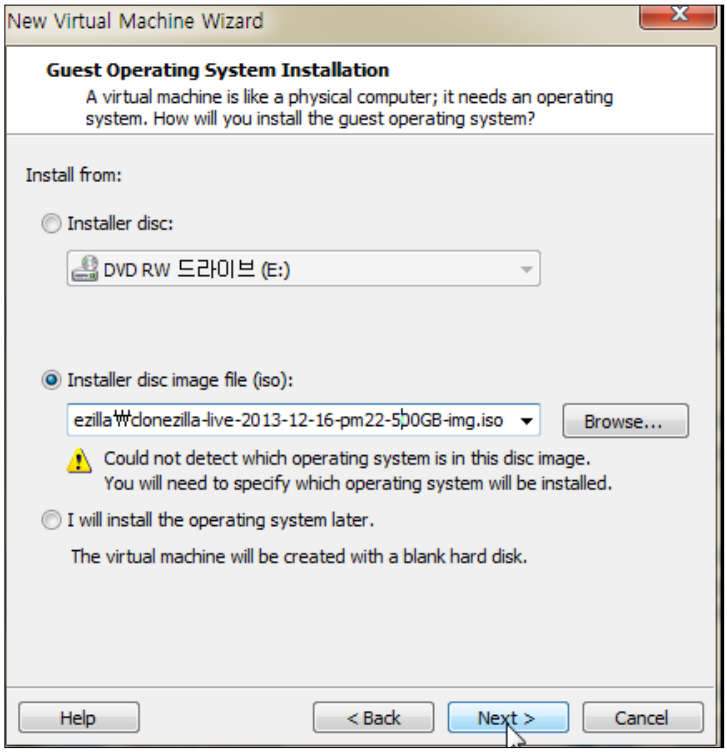
1. Create a New Virtual Machine.



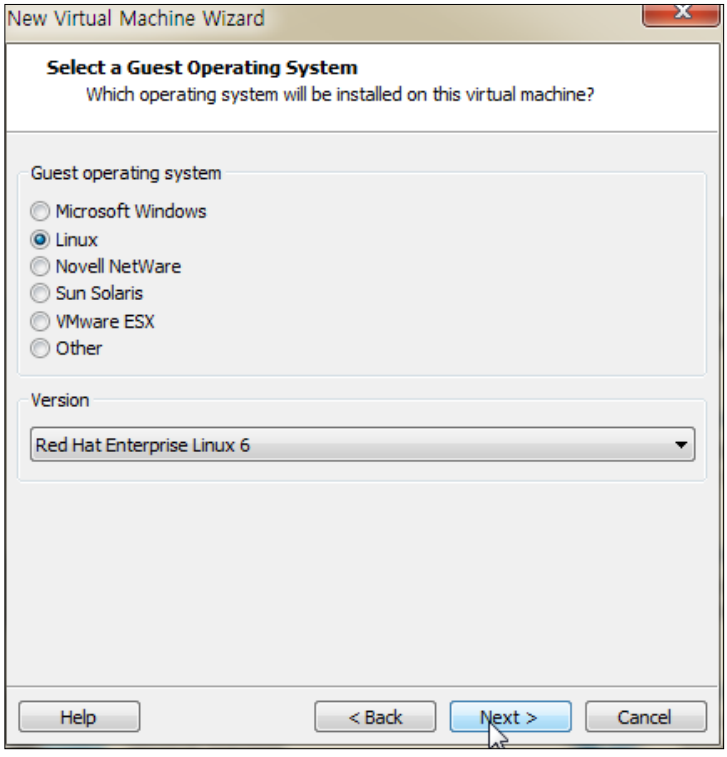
2. Select Typical (recommended).



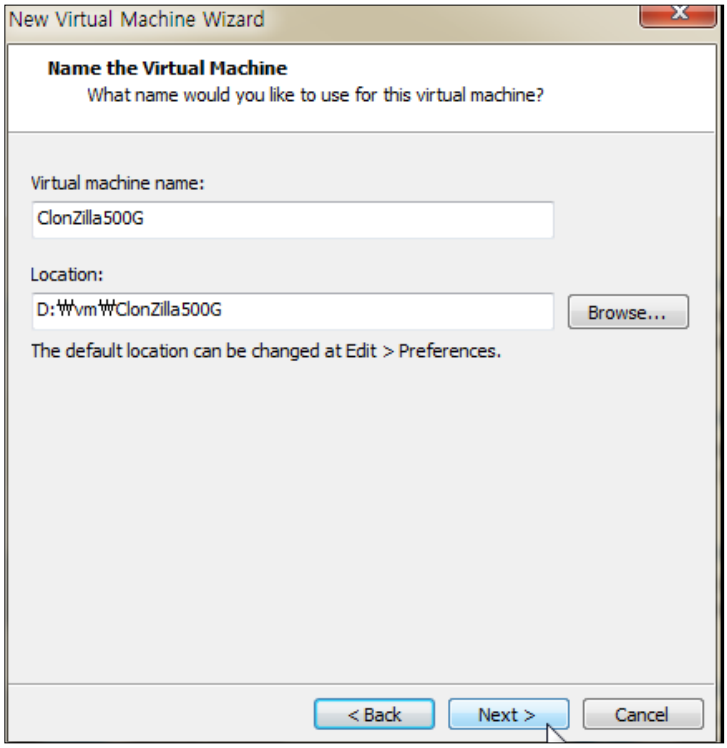
3. Installer disc image file(iso):



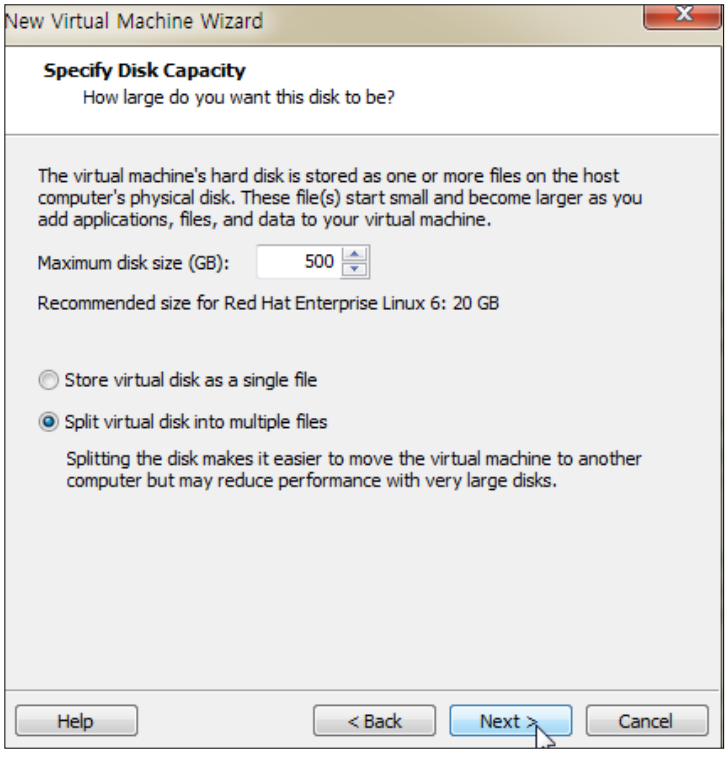
4. Select Guest Operating system.



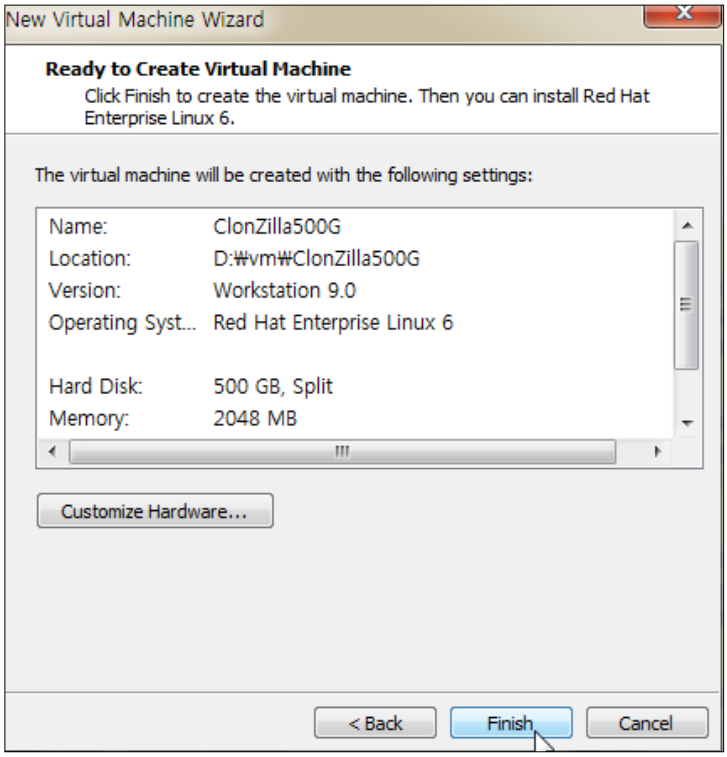
5. Name the Vitrual Machine.



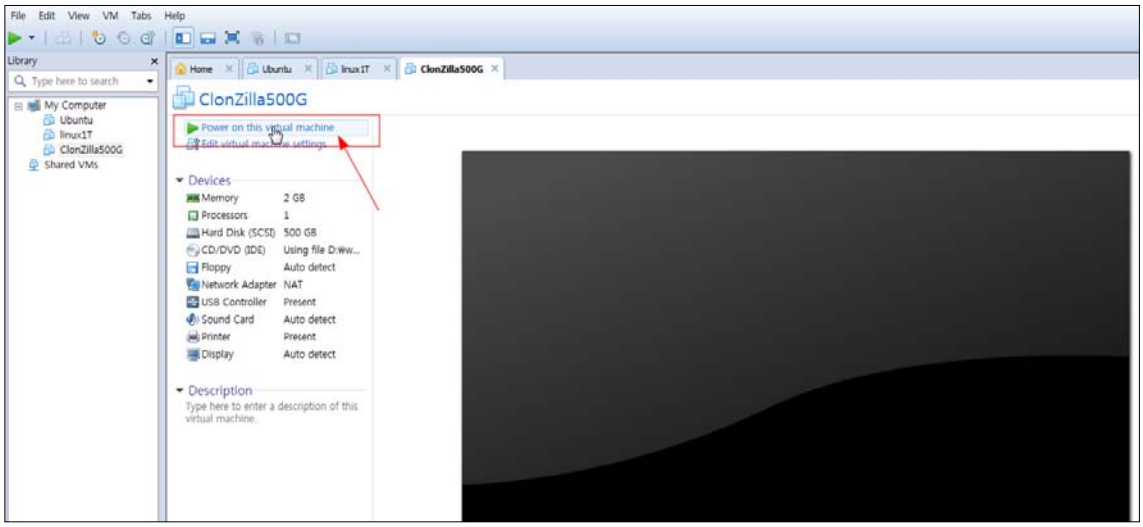
6. Specify Disk Capacity: You should set 500G for 500 Clonezilla. If it's 1T, you should set 1T. Don't wary about the size. VM-ware can use it virtually even though you got a small HDD.



7. Ready to Create Virtual Machine :



8. If you press the Power on, it's started as real installation of real Server.



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