Samsung LYNK Server Administrator Guide for Hotel IPTV

Samsung SDS Co., Ltd.

Revision History

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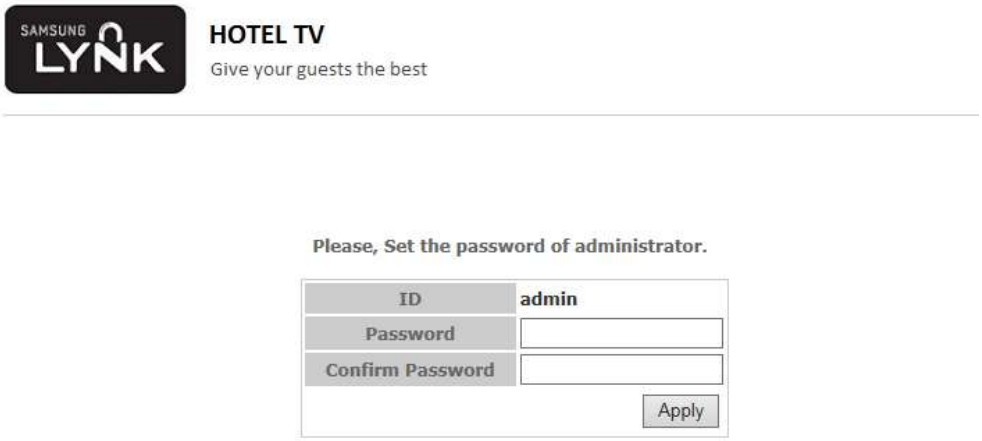
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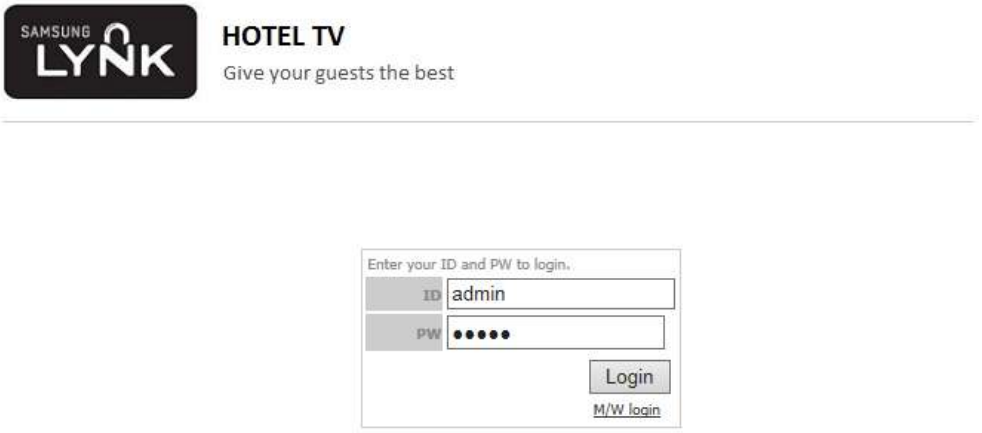
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1. Set password for admin & Login

LYNK Server supports web service for administrator. The URL for LYNK web service is http://your_server_ip:_8080/CasServer/. If you install the LYNK Server (version 5.3.3 or later) in your system for the first time, you can see the following screen for setting password of 'admin' account.



If the password was successfully set, the following screen is displayed. The following screen is for login to LYNK web service. Enter the default account for administration as 'admin' in the 'ID' field. And enter the password which was set above screen.



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2. Configuration

The Configuration menu is function to display status of LYNK Server(including ECMG and EMMG) and modify configuration value of LYNK Server. Configuration consists of sub menus of Server, ECMG and EMMG.

The Configuration menu has three sub menus.

- Server Configuration
- ECMG Configuration
- EMMG Configuration



2.1 Server

The Server Menu supports below functions.

- Server Status
- Server Configuration
- Server Management

Server Status

License Status	SK Update Period	Key Server Connection	Recent Error
Period Limited License (20160511 ~ 20160611)	24 hour(s)	OK	None

Server Configuration Modify

	Name	Value	Description
☐	KeyServerURL	http://127.0.0.1:8080/CasServer/RequestSK.do	The URL of M/W server which provides key to LYNK. The sample value is 'http://127.0.0.1:8080/CasServer/RequestSK.do'.
☐	KeyServerConnectionTimeout	1000	Connection timeout to Key Server. The unit is millisecond. The default value is 1000. To apply this item to system, restart tomcat.
☐	SkPeriod	24 hours	The period for updating SK value.
☐	NeedMKProvisioning	○ yes ◉ no	Determine whether or not to need for provisioning master key to share master key with Key Server. The default value is 'no'.
☐	UseWatermark	○ yes ◉ no	Determine whether or not to insert watermark into EMM. The default value is 'no'.
☐	DeviceType	TV	Determine the type of devices. (0 : TV, 1 : Mobile Device) The default value is '0'.

Server Management

License Management	Display License Status, Request License, Import License	Go to license menu
Key Management	Display Key Status, Import Key, Update Key	Go to key menu
Server Log	Export Server Log	Export Server Log
Support Guide	Display installation and administrator guide When you can't view PDF file, click here!	Installation Guide Administrator Guide

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2.1.1 Server Status

The Server Status shows the status of License, SK Update Period and Key Server Connection. And this shows recent errors for connecting to M/W server and checking license path validation.



Server Status

License Status	SK Update Period	Key Server Connection	Recent Error
Period Limited License (20151022 ~ 20151122)	24 hour(s)	OK	None

Server Status Items :

- License Status : Displays type and valid period of LYNK license
- SK Update Period : Displays SK Update period
- Key Server Connection : Displays status of Key Server connection
- Recent Error : Displays recent server errors

Server Status Item	Values	Description
License Status	Ex)Period Limited License (20130418 ~ 20131018)	Period limited license
	Ex)52CFEDD6E9883555AC33D156BDC57501 (20130101 ~ 20151230)	Formal license
	No License	Has no license
SK Update Period	Ex)24 hour(s)	Format : Number + Unit(minute/hour/day/month)
Key Server Connection	N/A	Not available This means Key Server URL is not defined. This is not an error because you don't need to connect Key Server.
	OK	Has no connection error
	In Error	Has Key server connection error
Recent Error	MW_SERVER_CONNECTION_ERROR	Has Key server connection error
	SERVER_LICENSEPATH_INVALID	License Path has invalid directory
	SERVER_PERIODLICENSE_EXPIERD	Period license has expired
	SERVER_TLS_KEYFILE_COPY_FAILED	The keystore and truststore file(key files for TLS/SSL) have not been copied into $TOMCAT_HOME directory for any reason
	SERVER_WIDGET_FILE_COPY_FAILED	The files for client widget have not been copied into $TOMCAT_HOME/webapps directory for any reason
	MAX_CLIENTS_REGISTERED	The available count for device registration is maximum value assigned in your license.

2.1.2 Server Configuration

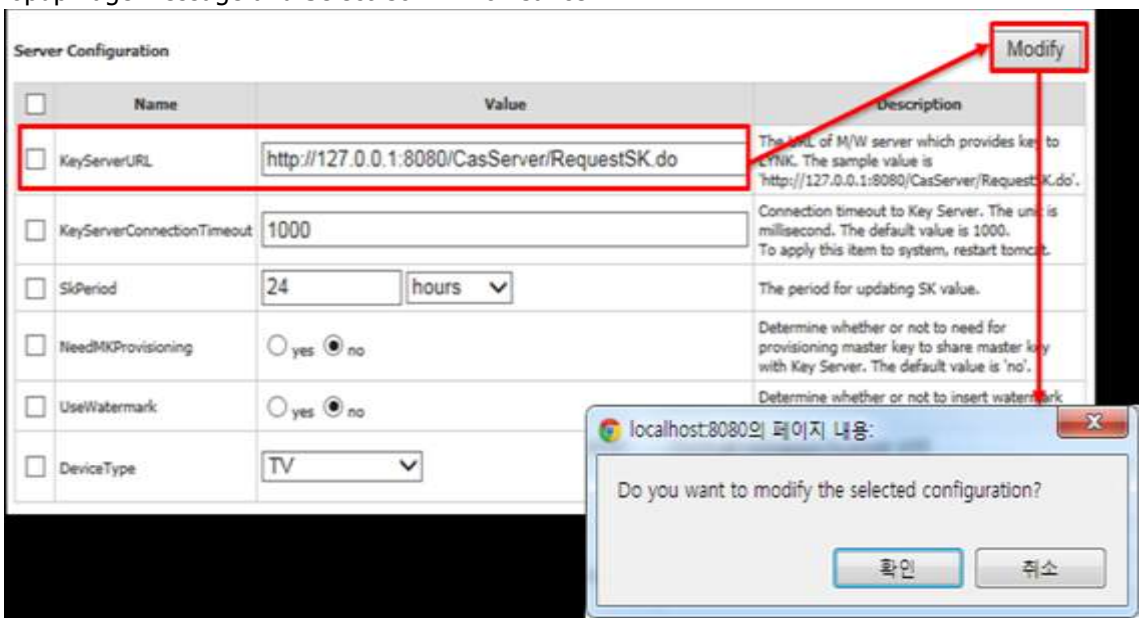
Server Configuration Items :

Configuration Name	Default Value	Explanation
KeyServerURL	http://127.0.0.1:8080/CasServer/RequestSK.do	The URL of Key server which provides key to LYNK. The sample value is 'http://127.0.0.1:8080/CasServer/RequestSK.do'. You should modify this value as response page url for requesting SK from LYNK Server.
KeyServerConnectionTimeout	1000	Connection timeout to Key Server. The unit is millisecond. The default value is 1000. To apply this item to system, restart tomcat.
SkPeriod	24 hours	The period for updating SK value.
NeedMKProvisioning	no	Determine whether or not to need for provisioning master key to share master key with Key Server. The default value is 'no'.

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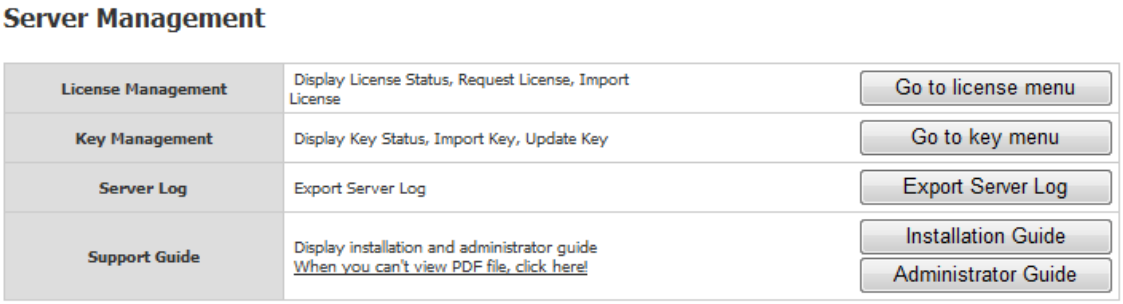
UseWatermark	no	Determine whether or not to insert watermark into EMM. The default value is 'no'.
DeviceType	TV	Determine the type of devices that LYNK Server manages. The default device type is "TV".

You can modify Configuration value.
How to modify Configuration is shown below
① Select to modify column
② Modify value
③ Click Modify button
④ Check Popup Page Message and Select Confirm or Cancel



2.1.3 Server Management

The Server Management supports shortcut to License Management and Key Management. And this menu supports for exporting log to a file and displaying guide file.



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2.2 ECMG

The ECMG Menu supports below functions.

- ECMG Status
- ECMG Configuration

ECMG Status

ECMG Server Status	Channel Count	Stream Count	Recent Error
Running (10.240.12.229:9999)	10	10	None

Channel ID	Stream ID	ECM ID	Client IP Address	CP Duration	Status
1	0	1	127.0.0.1(53066)	8000ms	Connected
2	0	2	127.0.0.1(53069)	8000ms	Connected
3	0	3	127.0.0.1(53065)	8000ms	Connected
4	0	4	127.0.0.1(53067)	8000ms	Connected
5	0	5	127.0.0.1(53062)	8000ms	Connected

Show all streams

ECMG Configuration Modify

	Name	Value	Description
☐	ECMGPort	9999	The listening port number of ECMG Server in LYNK.
☐	DelayStart	-500	The amount of time between the start of a Crypto Period and the start of the broadcasting of the ECM attached to this period. The unit is ms.
☐	DelayStop	-500	The amount of time between the start of a Crypto Period and the end of the broadcasting of the ECM attached to this period. The unit is ms.
☐	RepPeriod	300	The period in milliseconds for the repetition of data. The unit is ms.
☐	MinCpDuration	50	Parameter is communicated at channel setup by the ECMG to the SCS to indicate the minimum supported amount of time a control word shall be active before it can be changed. The unit is 100ms.
☐	MaxCompTime	30	Parameter is communicated by the ECMG to the SCS during channel setup. The unit is ms.

2.2.1 ECMG Status

The ECMG Status shows the status of ECMG Server, Channel Count, Stream Count and Recent Error.

ECMG Status

ECMG Server Status	Channel Count	Stream Count	Recent Error
Running (10.240.48.192:9999)	6	6	None

Channel ID	Stream ID	ECM ID	Client IP Address	CP Duration	Status
0	0	0	127.0.0.1(57092)	8000ms	Connected
1	0	1	127.0.0.1(57095)	8000ms	Connected
2	0	2	127.0.0.1(57097)	8000ms	Connected
3	0	3	127.0.0.1(57094)	8000ms	Connected
4	0	4	127.0.0.1(57096)	8000ms	Connected

Show all streams

ECMG Status Items

- ECMG Server Status : Displays the status of ECMG Server socket
- Channel Count : Displays the count of channel connected with ECMG Server of LYNK
- Stream Count : Displays the count of stream connected with ECMG Server of LYNK
- Recent Error : Displays recent ECMG errors

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ECMG Status Item	Values	Description
ECMG Server Status	Ex) Running (10.240.48.192:9999)	ECMG Server is running and accepts client request.
	Not Running	ECMG Server is not running because of some problem. For example ECMG Server port defined for ECMGPort in configuration was bound already by another application.
Channel Count	Ex)5	The number means count of channels connected with ECMG Server socket.
Stream Count	Ex)5	The number means count of streams connected with ECMG Server socket.
Recent Error	ECMG_PORT_ALREADY_IN_USE	ECMG Port is already in use.
	ECMG_CW_ENCRYPTION_KEY_NOT_DEFINED	The CW from SCS is encrypted, but threre is no CW encryption key is not set in LYNK in case that. If the CW from SCS is not encrypted, CW encryption key don't need to be set.
	ECMG_CW_ENCRYPTION_METHOD_NOT_DEFINED	The CW from SCS is encrypted, but threre is no CW encryption method is not set in LYNK in case that. If the CW from SCS is not encrypted, CW encryption method don't need to be set.
	ECMG_CW_DECRYPT_ERROR	When the CW Encryption key has illegal hexadecimal character or odd number of characters.

2.2.2 ECMG Configuration

ECMG Configuration Items :

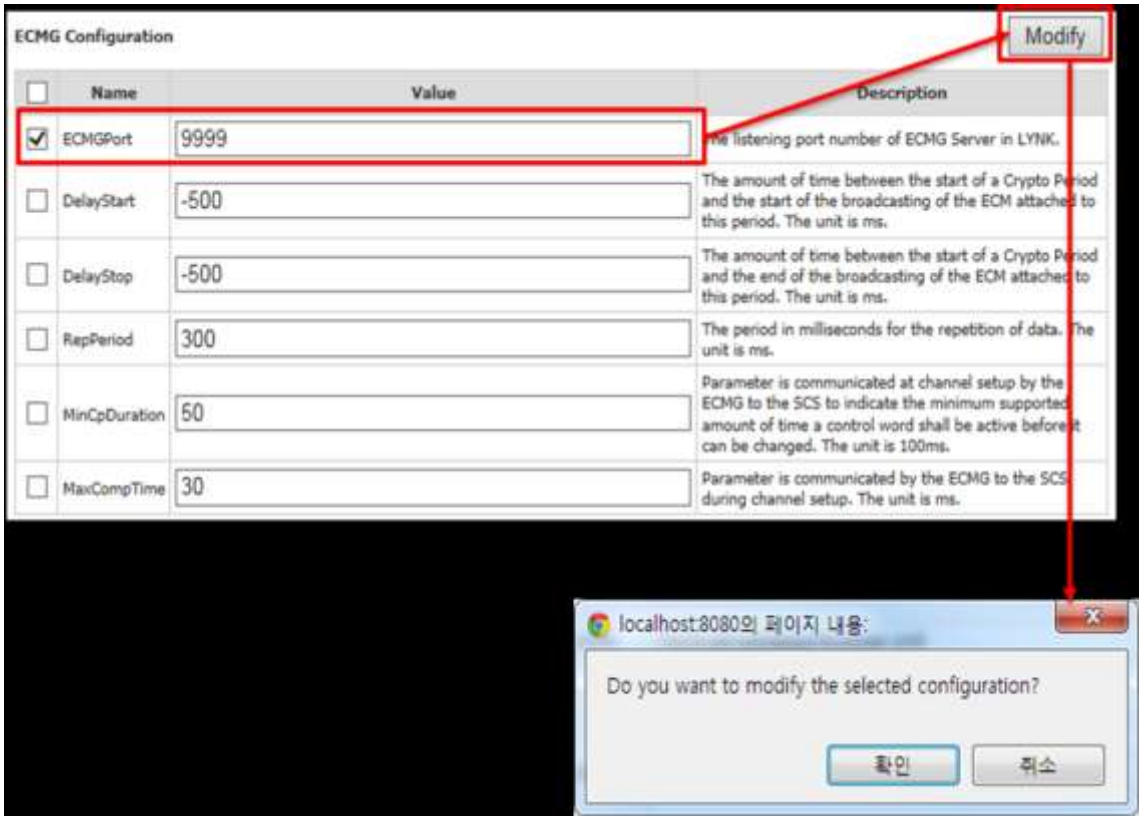
Configuration Name	Default Value	Explanation
ECMGPort	9999	The listening port number of ECMG Server in LYNK.
DelayStart	-500	The amount of time between the start of a Crypto Period and the start of the broadcasting of the ECM attached to this period. The unit is ms.
DelayStop	-500	The amount of time between the start of a Crypto Period and the end of the broadcasting of the ECM attached to this period. The unit is ms.
RepPeriod	300	The period in milliseconds for the repetition of data. The unit is ms.
MinCpDuration	50	Parameter is communicated at channel setup by the ECMG to the SCS to indicate the minimum supported amount of time a control word shall be active before it can be changed. The unit is 100ms.
MaxCompTime	30	Parameter is communicated by the ECMG to the SCS during channel setup. The unit is ms.
CWEncryptionKey		CW Encryption Key. During provisioning CW, SCS can encrypt CW and send that encrypted value. The ECMG Server of LYNK receives the encrypted CW and decrypts CW using CWEncryptionKey and CWEncryptionMethod. If you don't encrypt CW, you don't need to set this value.
CWEncryptionMethod		CW Encryption method. During provisioning CW, SCS can encrypt CW and send that encrypted value. The ECMG Server of LYNK receives the encrypted CW and decrypts CW using CWEncryptionKey and CWEncryptionMethod. If you don't encrypt CW, you don't need to set this value.

You can modify Configuration value.

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How to modify Configuration is shown below

① Select to modify column
② Modify value
③ Click Modify button
④ Check Popup Page Message and Select Confirm or Cancel

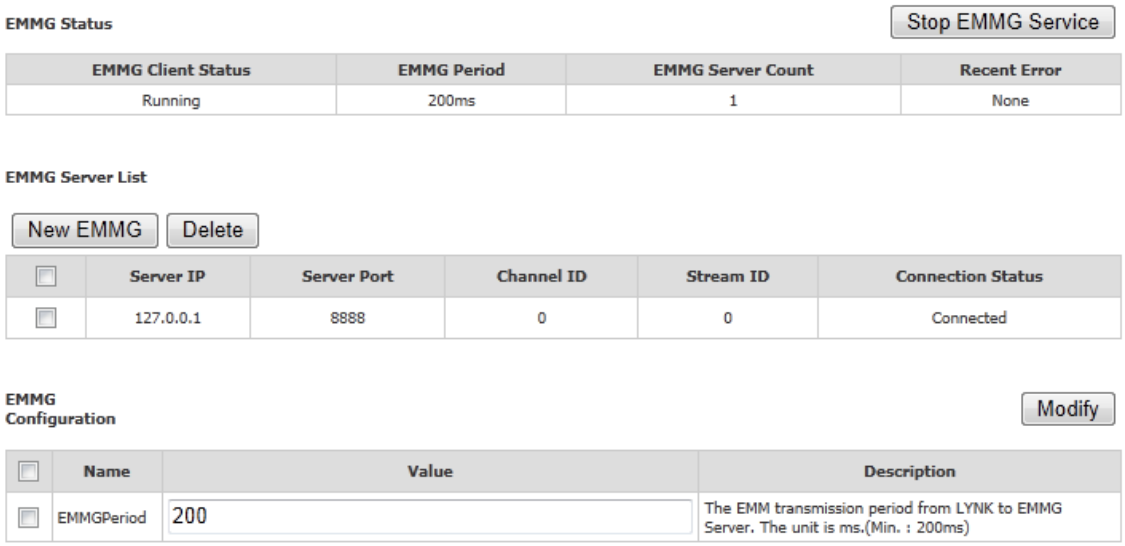


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2.3 EMMG

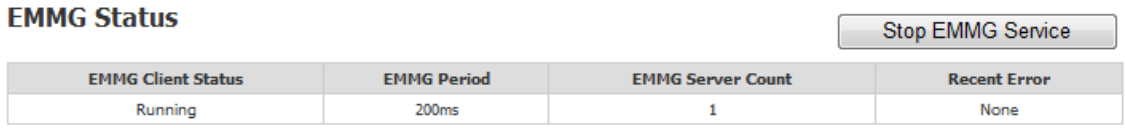
The EMMG Menu supports below functions.

- EMMG Status
- EMMG Server List
- EMMG Configuration



2.3.1 EMMG Status

The EMMG Status shows the status of EMMG Client Status, EMMG Period, EMMG Server Count and Recent Error.



EMMG Status Items

- EMMG Client Status : Displays the status of EMMG Client
- EMMG Period : Displays the EMM transmission period
- EMMG Server Count : Displays the total count of EMMG Server registered in LYNK
- Recent Error : Displays recent EMMG errors

EMMG Status Item	Values	Description
EMMG Client Status	Running	EMMG Client thread is running and sends EMMs to EMMG server registered in LYNK.
	Not Running	EMMG Client thread is not running because user stopped the EMMG Client Service by clicking 'Stop EMMG Service' button.
EMMG Period	Ex)200ms	This means EMM transmission period from LYNK to SCS. The unit of value is ms.
EMMG Server Count	Ex)2	The number means count of EMMG Server registered in LYNK.
Recent Error	EMMG_SERVER_CONNECTION_ERROR	This means there is one or more connection error to EMMG server.

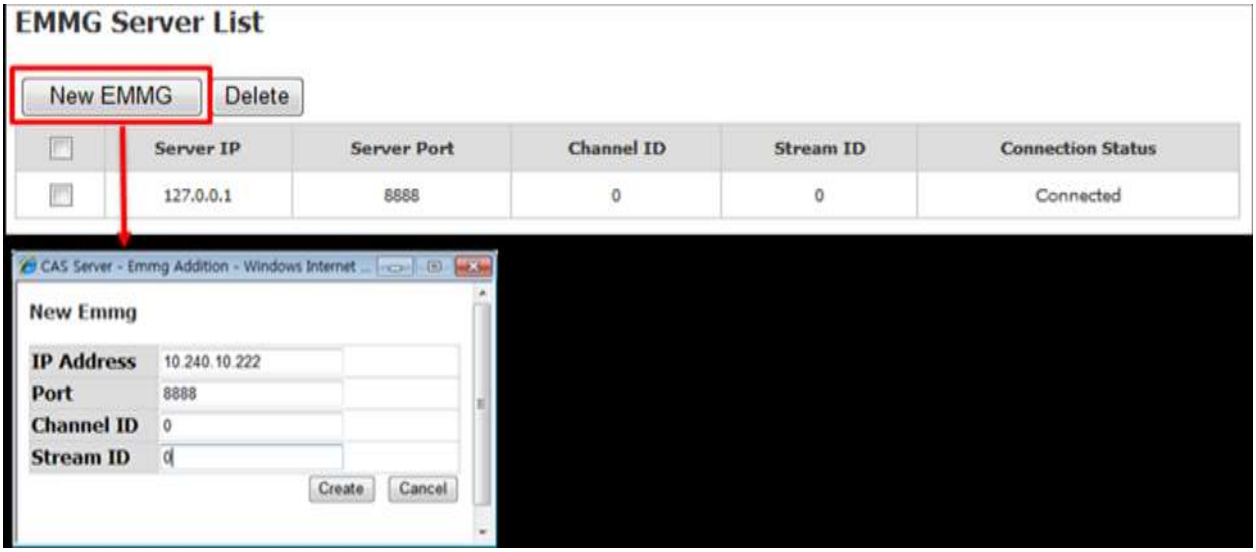
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2.3.2 EMMG Server List

The Emmg Server List shows the list of the emmg server.

You can add Emmg Server Information using 'New Emmg' button. You must match up IP Address, Port, Channel Id and Stream Id of emmg server in Scrambler.

■ How to Add Emmg Server Information is shown below
① Click the 'New Emmg' button.
② Insert IP Address, Port, Channel Id, Stream Id
③ Click Create button.



You can delete Emmg Server using 'Delete' button.

■ How to Delete Emmg Server is shown below
① Click the Check Box at Emmg Server List
② Click the Delete button
③ Checke Message, Click Confirm button



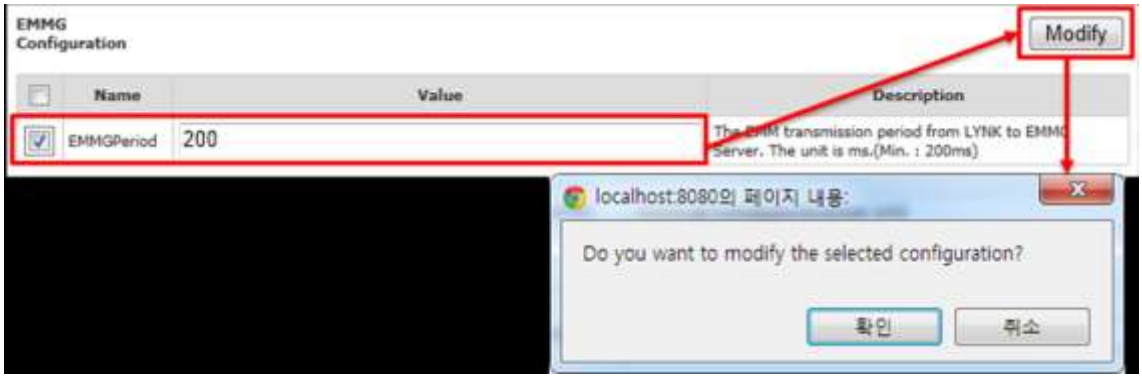
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2.3.3 EMMG Configuration

EMMG Configuration Items :

Configuration Name	Default Value	Explanation
EMMGPeriod	200	The Period of sending emmg to scrambler. The unit is ms.

You can modify Configuration value.
How to modify Configuration is shown below
① Select to modify column
② Modify value
③ Click Modify button
④ Check Popup Page Message and Select Confirm or Cancel



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3. System

The System menu consists of Device. The Device shows device information registered from IPTV.

The System menu has one sub menu.

■ Device

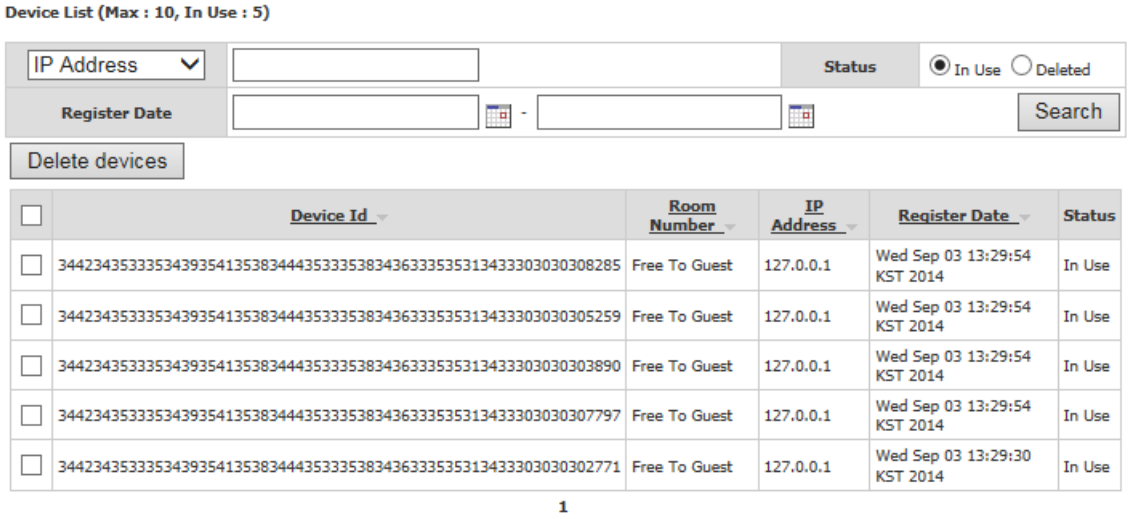


3.1 Device

The Device shows the list of the device registered from IPTV.
You can search registration history of device.

The Device Menu supports below functions.

- Device Search
- Delete Devices
- Restore Devices



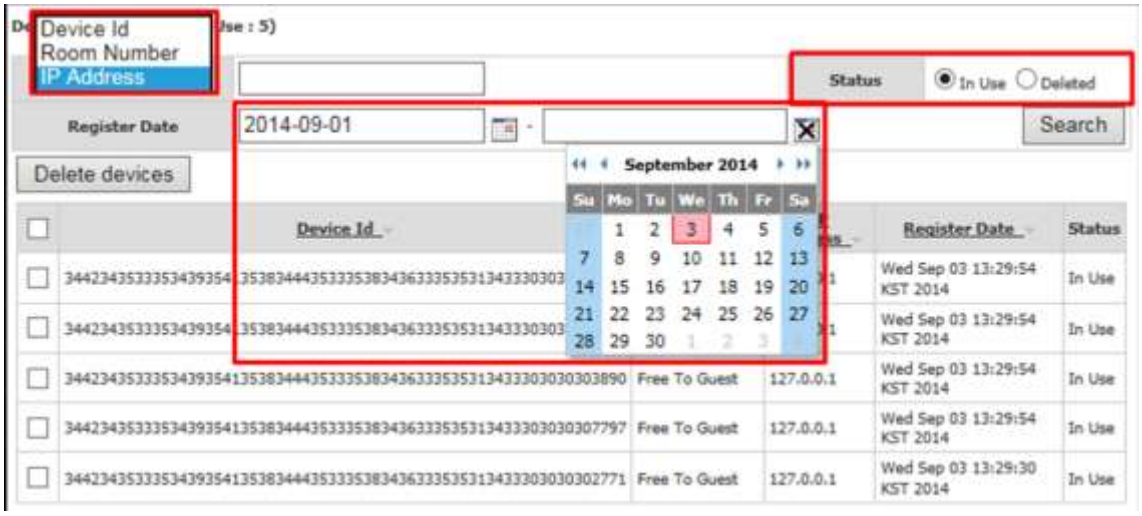
3.1.1 Device Search

■ Search Option

Option	Explanation	Description
Search Type	The Search Type is the property to search.	- Device Id: Device id - Room Number: Room number - IP Address : Device IP address
Status	The Status is whether or not in use.	- In Use: Only devices in use - Deleted: Only deleted devices
Register Period	The Register Period is the term of the purchased content.	

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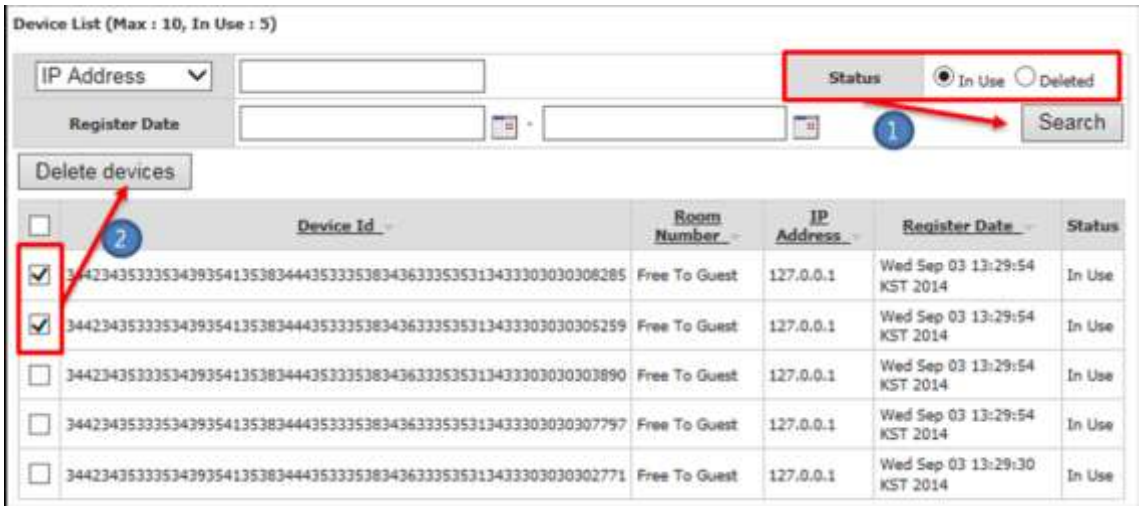
■ How to search Device is shown below
① Select Search Type (Device Id or Room Number or IP Address)
② Input search string
③ Select Status
④ Select Register Date



3.1.2 Delete Devices

You can delete devices not in use. Even though you delete some devices, actually those devices are not deleted in database. The deleted devices can be restored.

■ How to delete Devices is shown below
① Select 'Status' in search area as 'In Use'
② Click 'Search' button
③ Select checkbox in device list
④ Click 'Delete devices' button



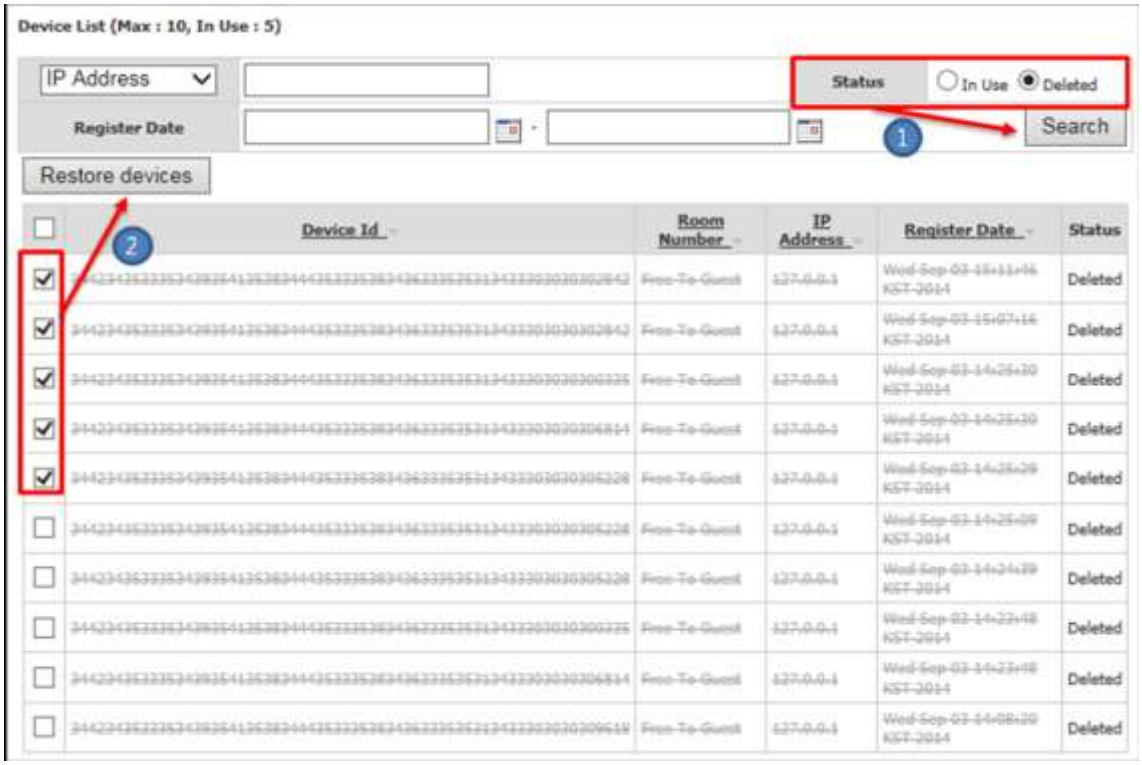
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3.1.3 Restore Devices

You can restore deleted devices.

■ How to restore devices is shown below

① Select 'Status' in search area as 'Deleted'
② Click 'Search' button
③ Select checkbox in device list
④ Click 'Restore devices' button



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4. Admin

The Admin menu consists of User, key and License. The User shows user information registered in LYNK. The Key shows key information and supports for updating key. The License shows License status and supports functions of requesting and importing license.

The Admin menu has two sub menus.

- Key
- License(Online)
- License(Offline)
- Log
- User
- Watermark

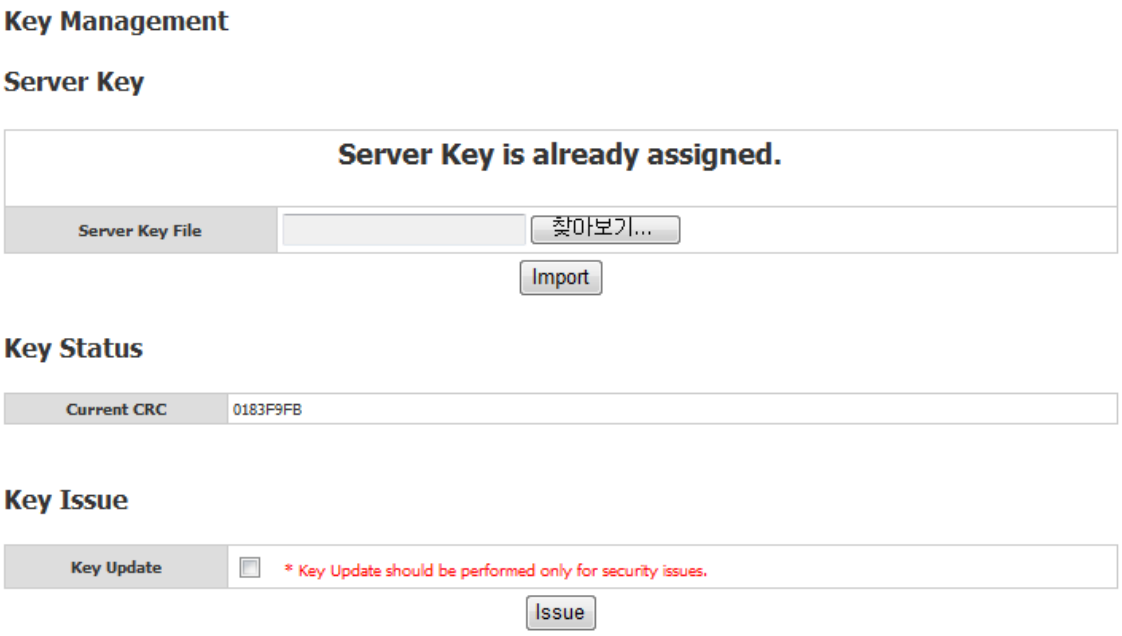


3.1. Key

Key Page is for updating key of LYNK Server. Key updating should be performed only for security issues. The updated key is used first when ECM is sent to scrambler after updating key.

The Key Menu supports below functions.

- Import Server Key
- Key Issue



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3.1.1. Import Server Key

Server key is used for making signature in EMM Data response of interactive request.
You can import server key when you click 'find' button to select server key file in file browser and click 'Import' button. Refer to below image.



3.1.2. Key Issue

You can update key when you only click the check box and "Issue" button. Refer to below image.



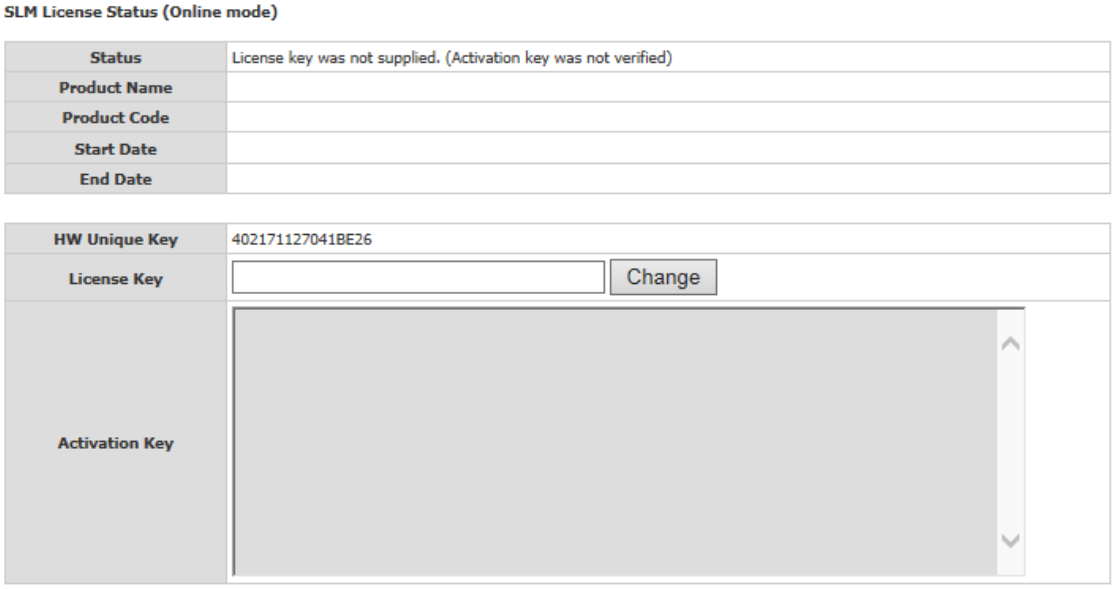
You can check whether key Updating is successful or not.

■ How to check whether key Updating is successful or not.
① Click checkbox of "Key Update"and click "Issue" button .
② After a while you fresh Key page and you can see the Current CRC value is changed.
③ Check whether the current CRC value in factory menu of TV is same as CRC of LYNK Server Webpage.
④ If the two value is same, Key updating is successful.

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3.2. License(Online)

License Page is for requesting and activating license of LYNK Server with online. Samsung LYNK Server can run normally when license is valid. Below image shows the LYNK license has not set yet. If GSBN(Global Samsung Business Network) site is connectable, you can request and activate license with online.



3.2.1. License Status

You can see the status of current license. License Status shows valid from date and valid until date. Refer to below image.

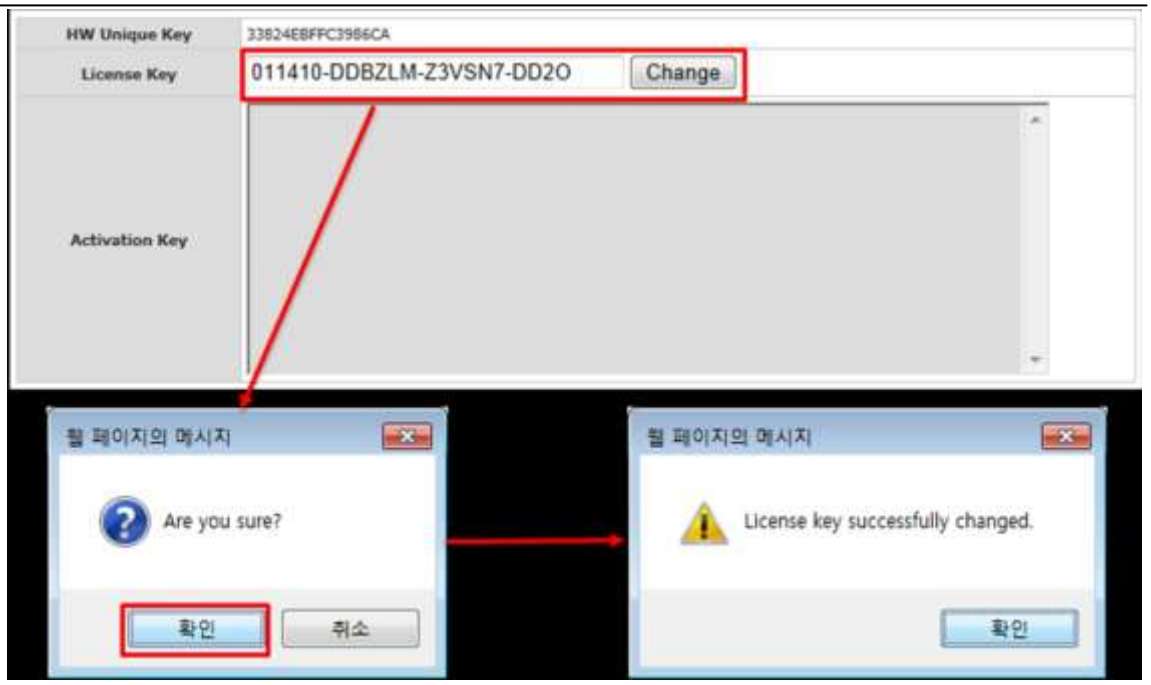


3.2.2. Request and register a license key

■ How to request and register the license key.

①Request license key of LYNK Server to Samsung License Manager(SLM).
②You can get the license key from SLM.
③Input the license key into input area as below image.
④Click "change" button. Then the license key will be applied to LYNK Server.

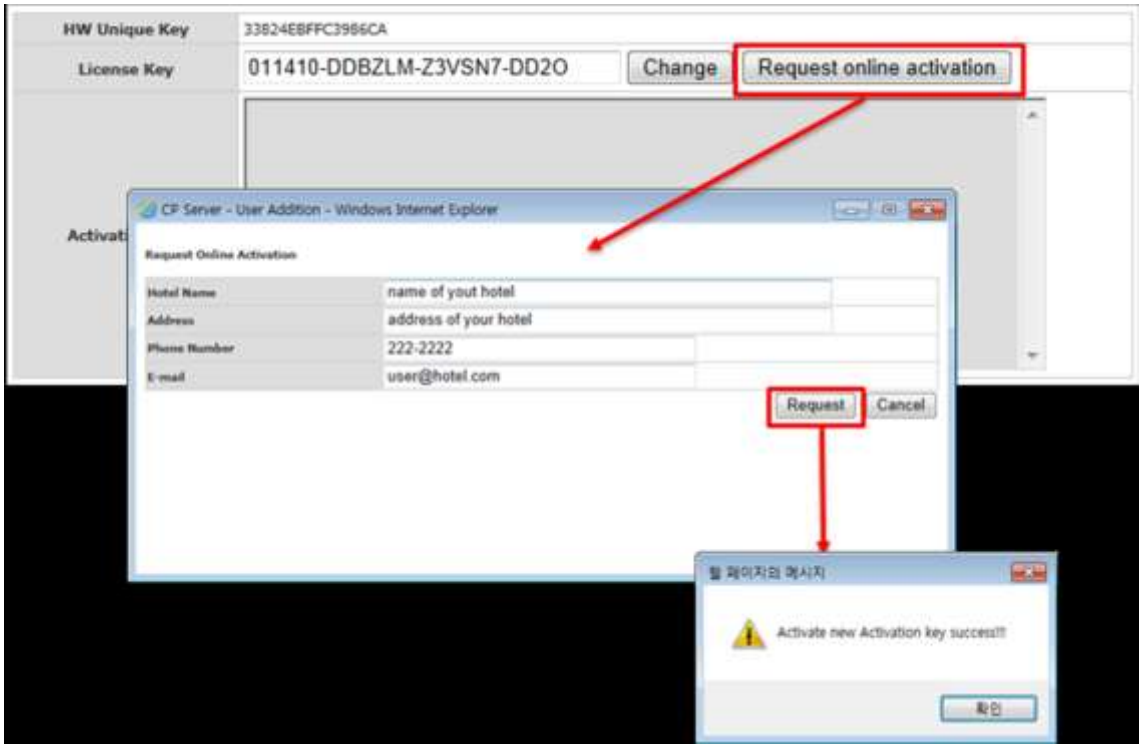
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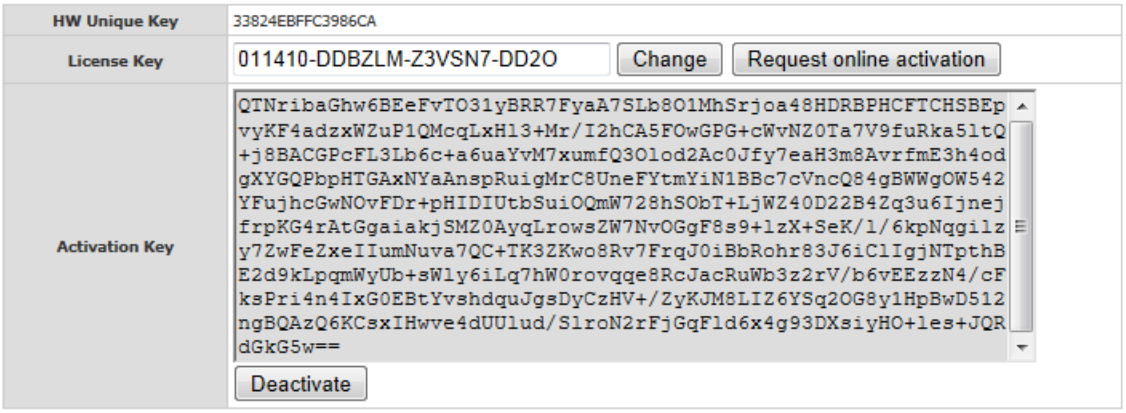
3.2.3. Activate your license

■ How to request online activation of the registered license.

①Click the "Request online activation" button.
②Input the informations of your company.
③Click the "Request" button of popup window. Then you can activate your lincese.
④If your license is activated, you can see the activation key of your license shown as the second image.



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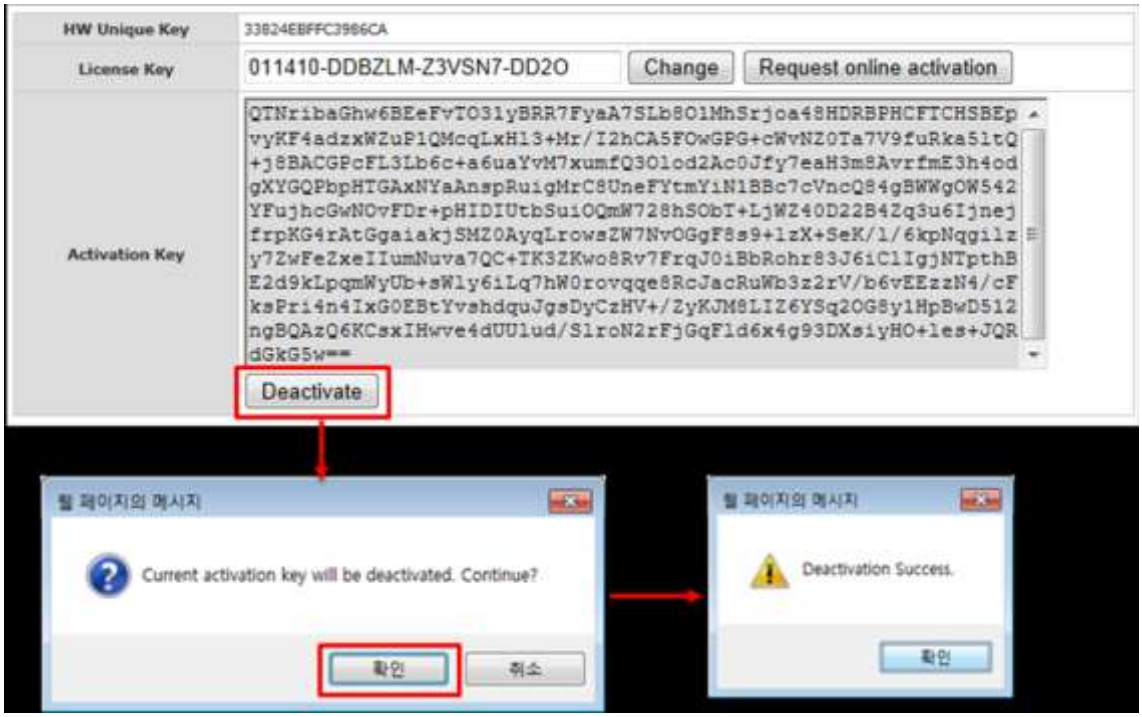
3.2.4. Deactivate your license

■ How to deactivate the license.

① Click "Deactivate" button .

② Click "OK" button in popup window.

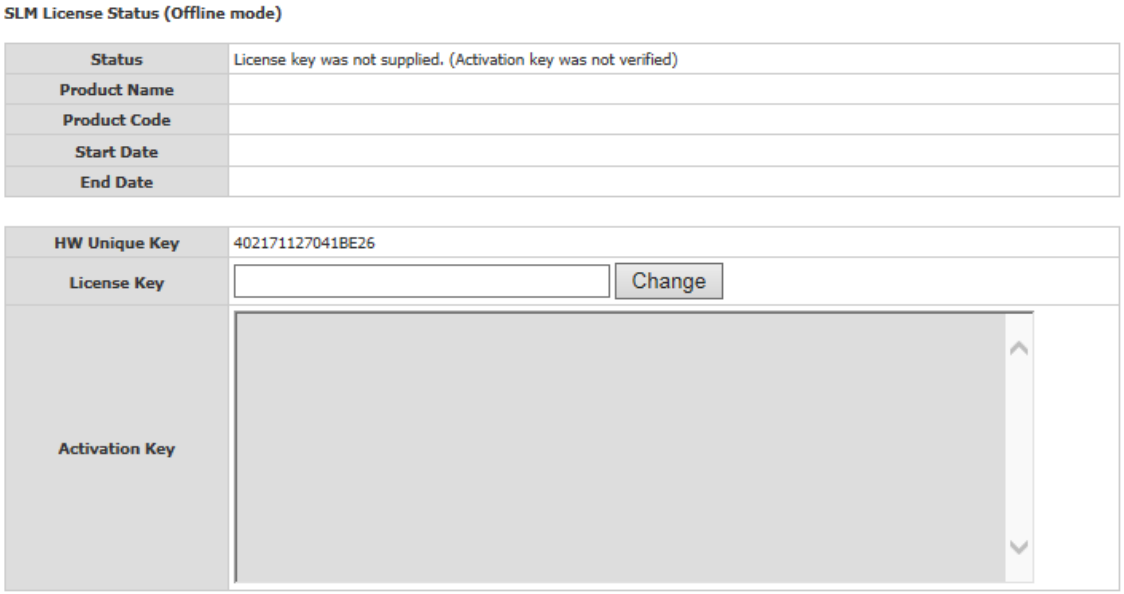
③ If the license is deactivated, you can see the status of no license.



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3.3. License(Offline)

License Page is for requesting and activating license of LYNK Server with offline. Samsung LYNK Server can run normally when license is valid. Below image shows the LYNK license has not set yet.



3.3.1. License Status(Offline)

You can see the status of current license. License Status shows valid from date and valid until date. Refer to below image.



3.3.2. Request and register a license key(Offline)

■ How to request and register the license key.

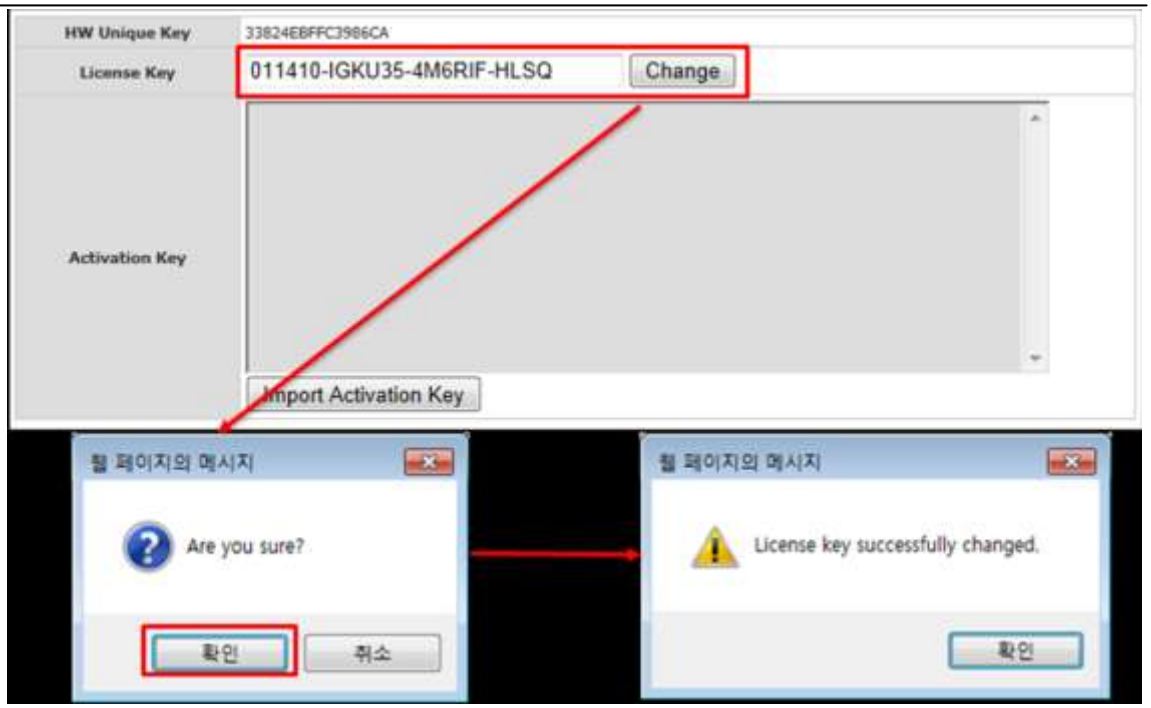
①Send HW Unique Key value to Samsung License Manager(SLM) to request license key of LYNK Server to Samsung License Manager(SLM).

②You can get the license key and activation key from SLM.

③Input the license key into input area as below image.

④Click "change" button. Then the license key will be applied to LYNK Server.

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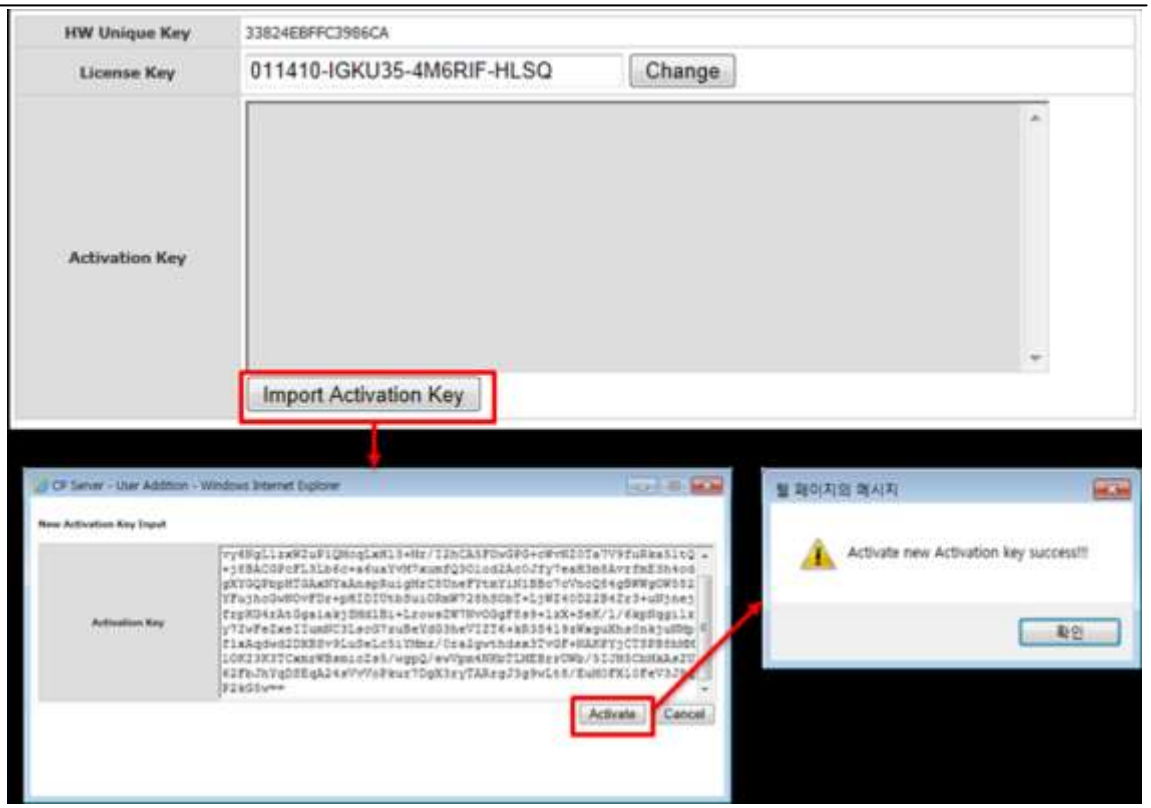


3.3.3. Activate your license(Offline)

■ How to request activation of the registered license.

⑤Click the "Import Activation Key" button.
⑥Input the activation key received from SLM into input area of popup window.
⑦Click the "Activate" button of popup window. Then you can activate your lincese.
⑧If your license is activated, you can see the activation key of your license shown as the second image.

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3.3.4. Deactivate your license(Offline)

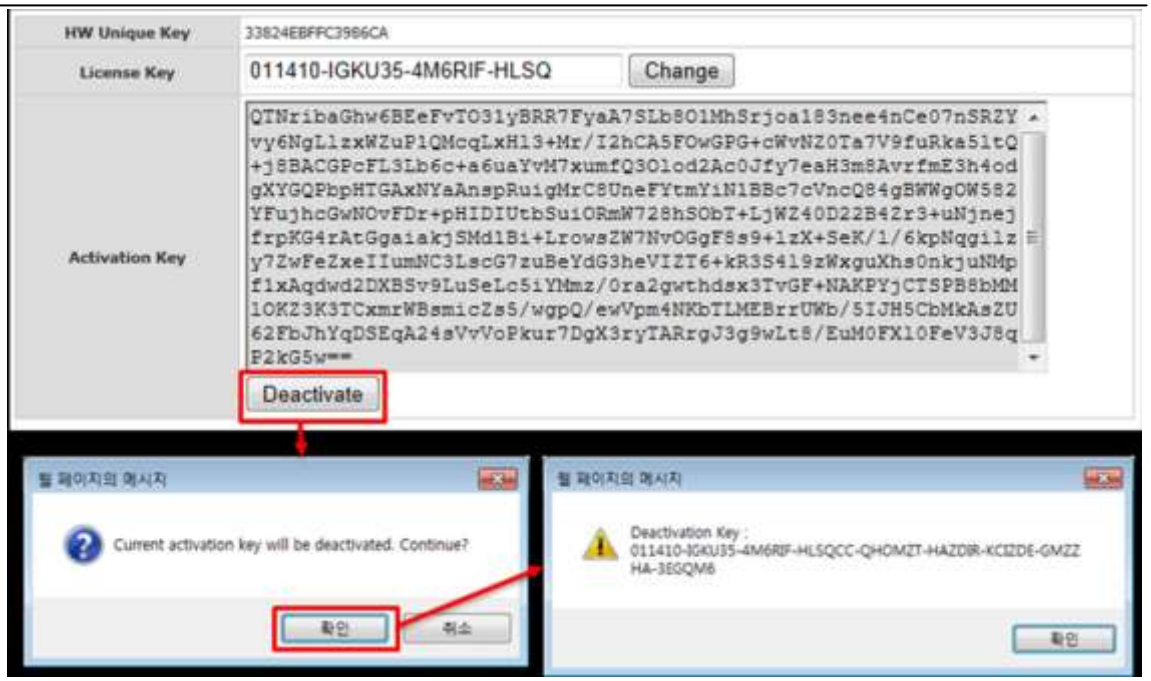
■ How to deactivate the license.

① Click "Deactivate" button .

② Click "OK" button in popup window.

③ You can get the Deactivation Key from popup window. Then you should send that key to SLM.

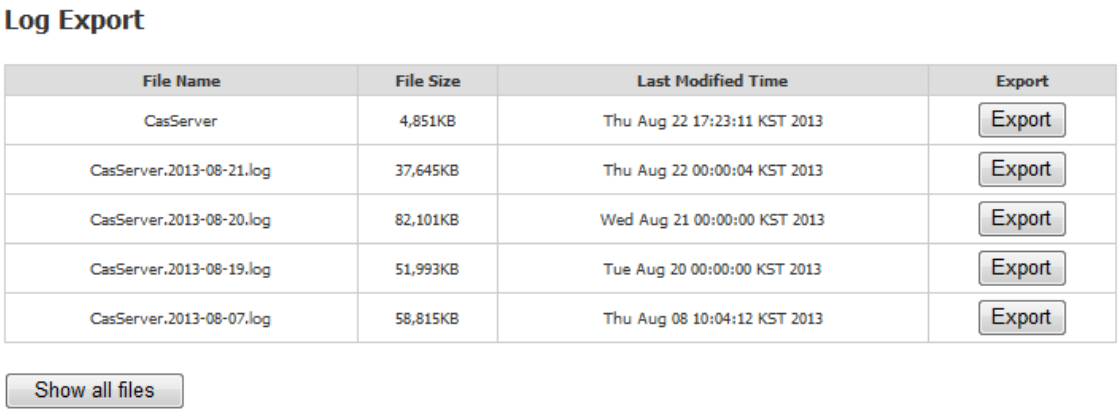
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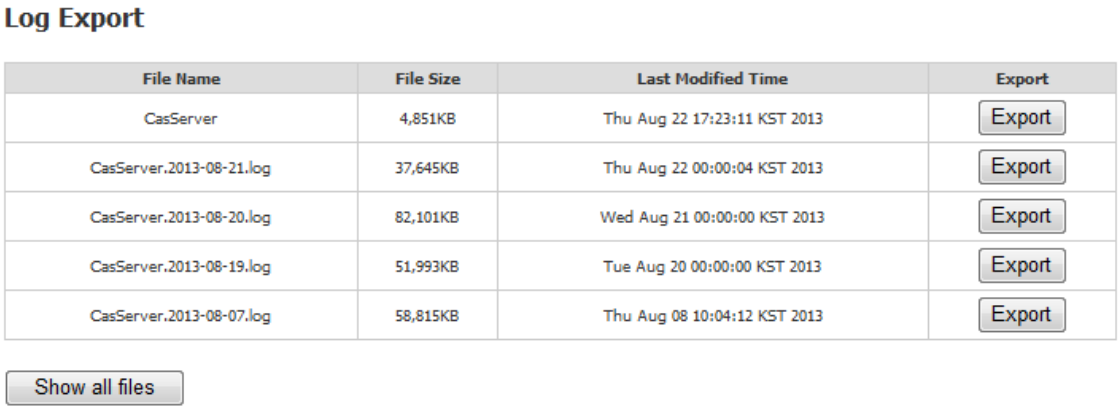
3.4. Log

Log Page is for exporting server log file.



3.4.1. Export Log

You can see the list of log files and export the log file of LYNK Server.



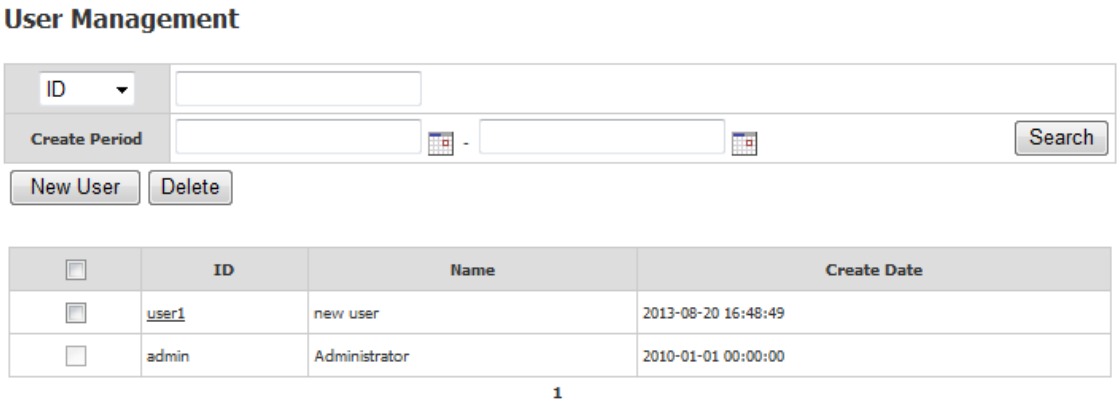
3.5. User

User Page show registered user's ID, Name and Create Date.
In this page, you can add a new user or delete a user or modify exist user's property.

The User Menu supports below functions.

- User List
- User Search
- Add User
- Modify User
- Delete User

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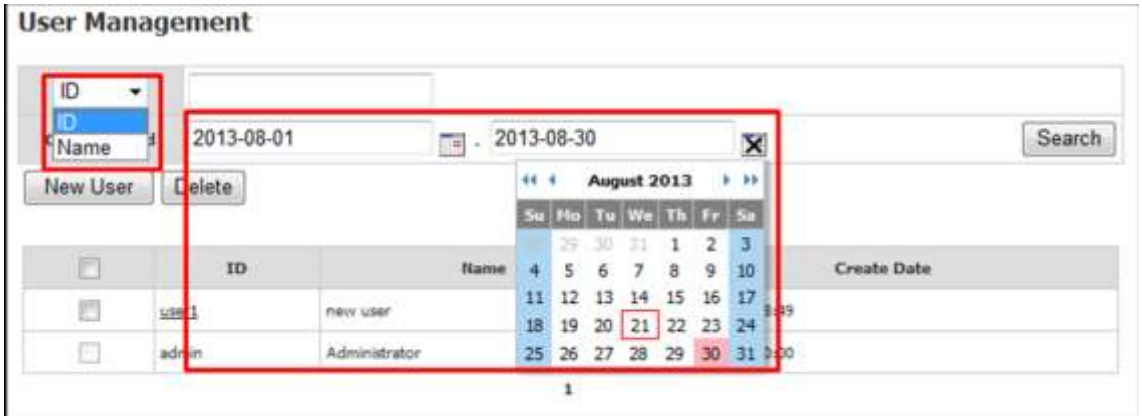


3.5.1. User Search

■ Search Option

Option	Explanation	Description
Search Type	The Search Type is the property to search.	- ID: User ID - Name : User Name
Create Period	The Create Period is the term of the created user.	

■ How to search User is shown below
① Select Search Type (ID, Name)
② Input search string
③ Select Create Period

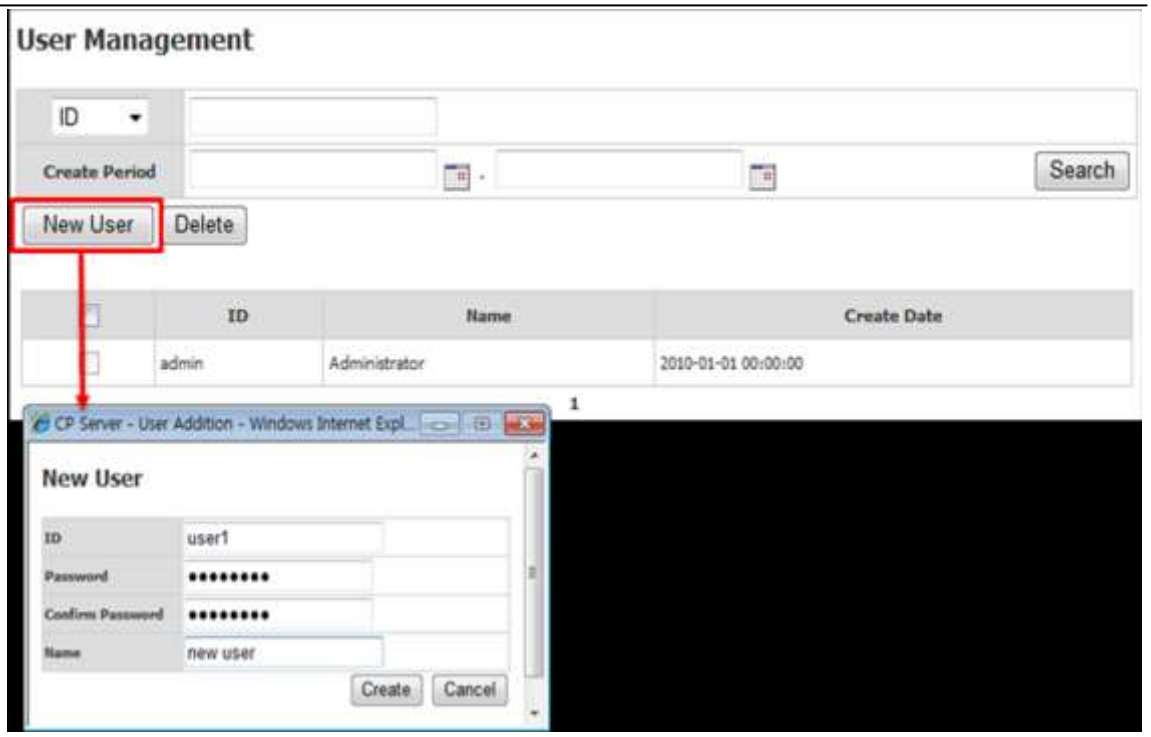


3.5.2. Add User

You can add User using 'New User' button.
Id length must longer than 4 bytes.
Password must longer than 8 bytes and Confirm Password must same with Password.
Name must not empty.
When you click Create button, you can see a new added user in user list page.

■ How to Add User is shown below
① Click the 'New User' button.
② Insert ID, Password, Confirm Password and Name.
③ Click Create button.

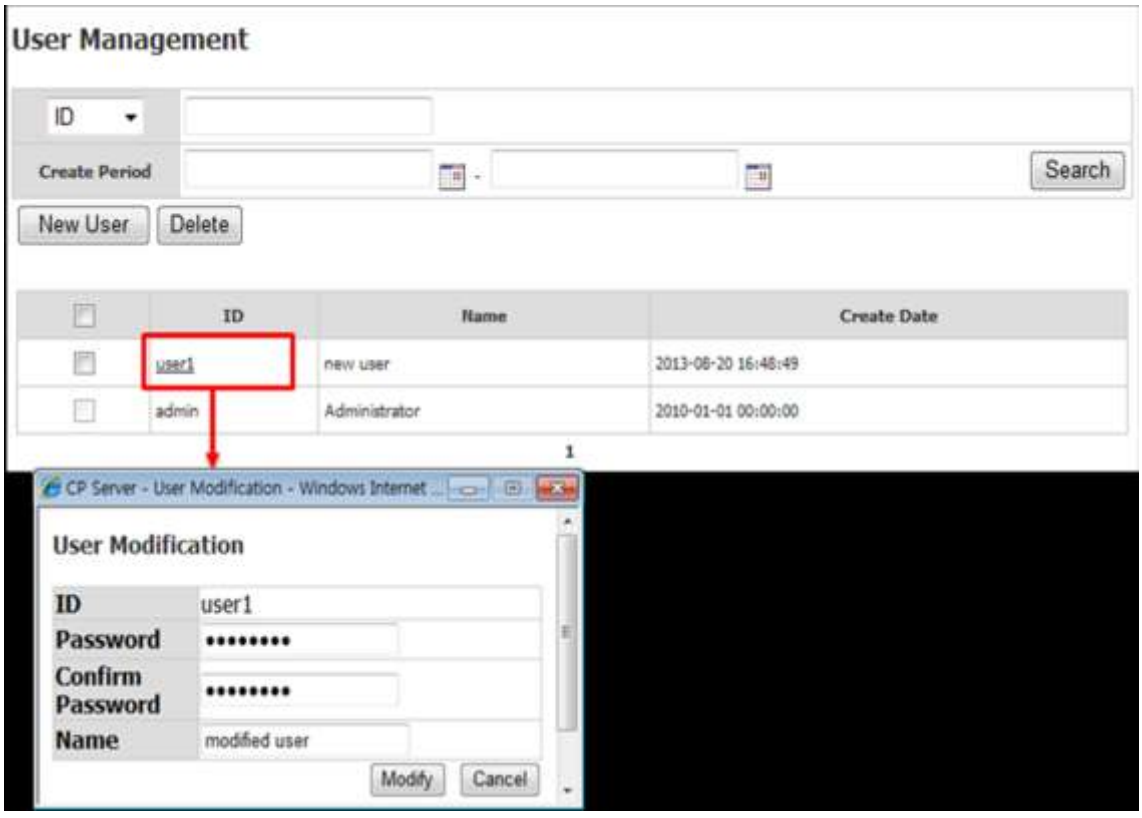
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3.5.3. Modify User

You can modify User value.

How to modify User is shown below
① Click the ID to modify.
② Modify value
③ Click Modify button

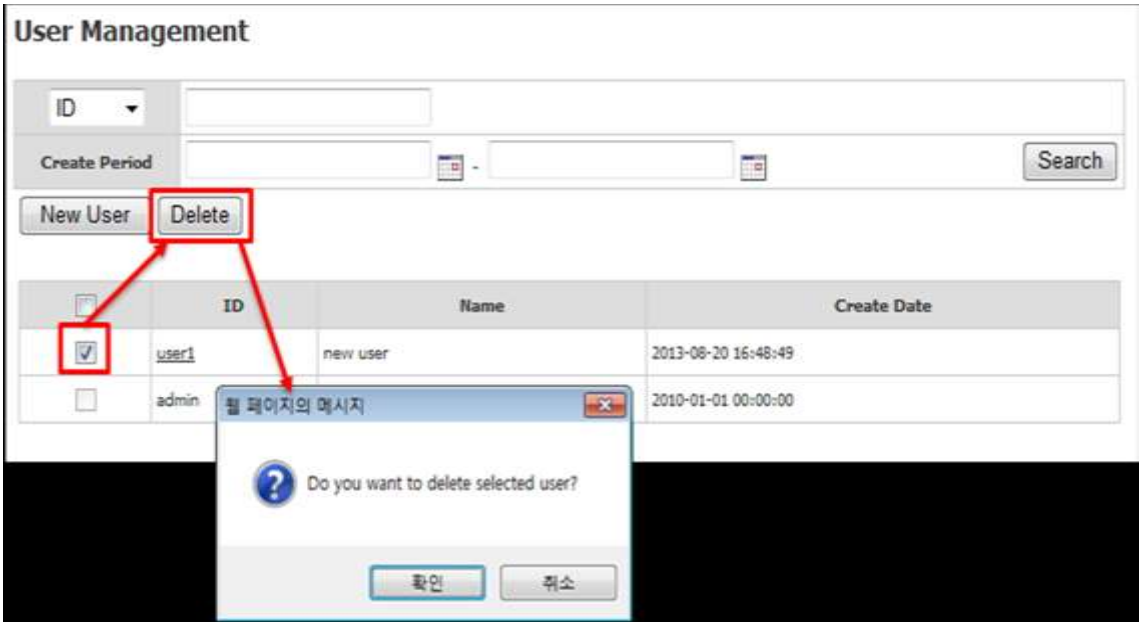


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3.5.4. Delete User

You can delete User using 'Delete' button. You can delete all Users except 'admin'.

■ How to Delete User is shown below
① Click the Check Box at User List.
② Click the Delete button
④ Checked Message, Click Confirm button.

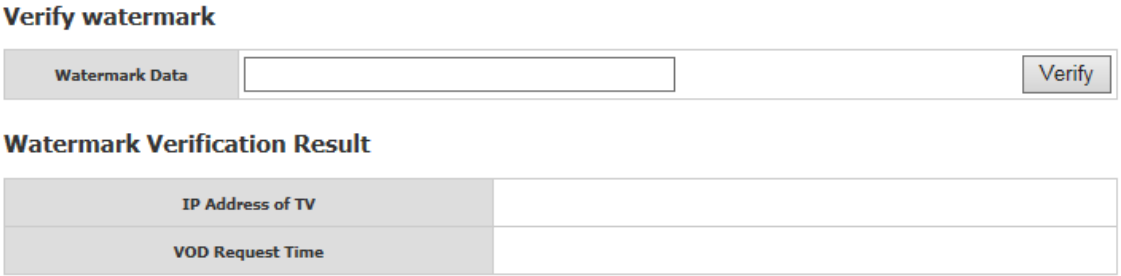


3.6. Watermark

Watermark page provides the verification of the request time and TV information which requested video for specific watermark data.

The Watermark Menu supports below functions.

- Verify Watermark



3.6.1. Verify Watermark

■ How to verify the watermark data
① Enter the watermark value in "Watermark Data" input field.
② Click "Verify" button

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The video request time and the information of TV which requested video are displayed on page.
If there is no data about the watermark, the message "No data found" is displayed.

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