

Security Management System ATM-POS Integration Solution Setup

Integration Type - Integration between ATM-POS Device and Embedded VMS / NVR Device (Real-time Messaging)

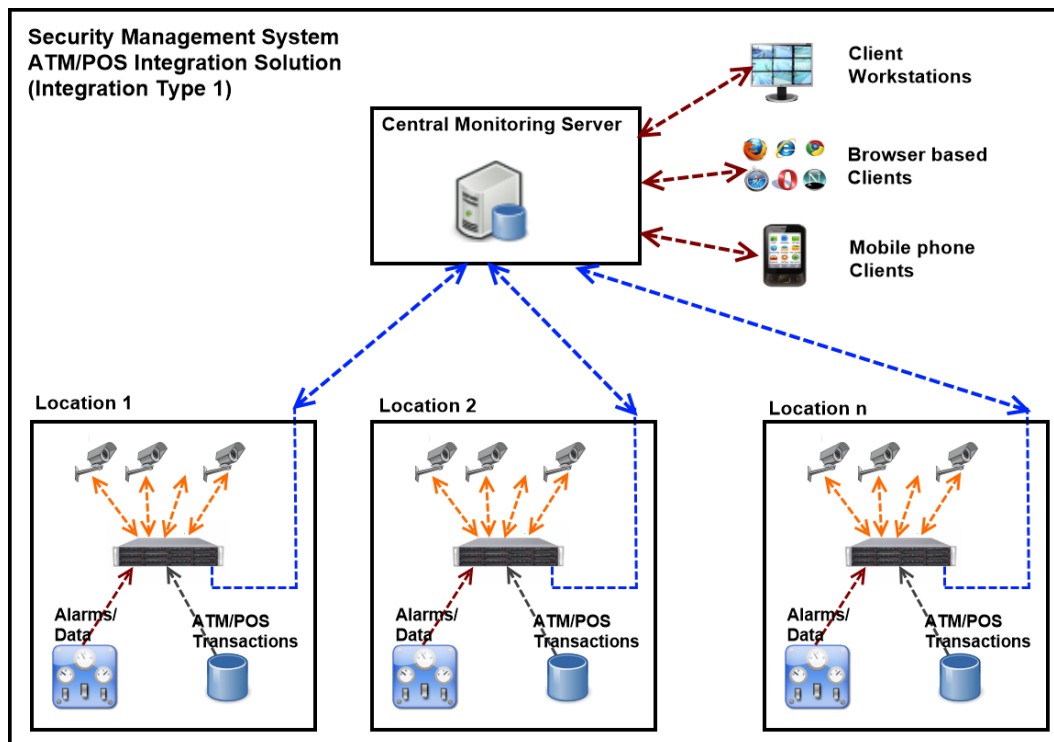
[I] Introduction

Security Management System supports integration with ATM / POS systems.

There are 3 types of integration modes available –

- (a) Integration between ATM / POS device and Embedded VMS / NVR device (real-time messaging)
- (b) Integration between transaction database manager system and Central Monitoring Server / CMS software (real-time messaging)
- (c) Integration between transaction database manager system and Central Monitoring Server / CMS software (non real-time messaging)

This document describes the integrated solution setup for 'Integration between ATM / POS device and Embedded VMS / NVR device (real-time messaging)' integration mode.



The core solution set up involves following major activities –

1. Installing and configuring 'Central Monitoring Server (CMS)' software
2. Installing and configuring 'Embedded VMS / NVR (NVR)' devices
3. Installing and configuring 'Client Workstation' software on one or more client workstation computers

[II] 'Central Monitoring Server (CMS)' software

(a) Software installation

1. Assign a dedicated computer to host the CMS server software. Please refer to the 'Hardware recommendations' document for details about the host computer hardware configuration requirements.
2. The network design should allow all NVRs to communicate with the CMS computer using CMS computer IP address. In other words, using standard 'ping' test from NVR to the CMS computer IP address should get successful response result.
3. Install 'Security Management System server software' on this computer.
Note – separate software is not required. 'Security Management System server software' is installed and configured for CMS mode.
4. Follow the licensing wizard and activate the license. (Please refer to the 'Security Management System server software – user manual' for license activation details)

(b) Set CMS site name

1. After the license is activated, 'Security Management System server software' will be launched.
2. Click on the 'Change site ID and site name' button available next to the current 'Site name' text, in the top-left corner



3. This will pop up the 'Update Site ID and Site Name' dialog box.



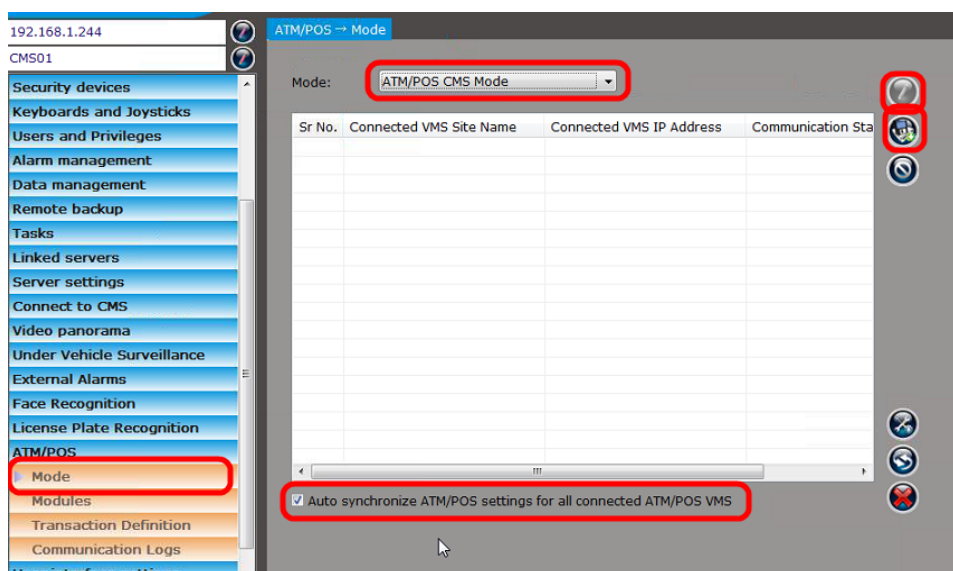
4. Type the new 'Site Name'. It can be any text. It is recommended to provide relevant name. We are using CMS01 as an example in this document.
5. Click on the 'Save' button to save the changes and to close the 'Update Site ID and Site Name' dialog box.
6. Accept the warning message displayed
7. Note the CMS IP address, displayed above the 'Site name' text. If this IP address does not reflect the expected IP address as per the network design, please click on the 'Edit' button next to the IP address and select correct IP address.



This CMS IP address will be used in NVR configuration, which is described in next section of this document.

(c) Configuring ATM/POS mode

1. Navigate to the 'ATM/POS-> Mode' page, from the left hand side navigation menu.



2. Click on 'Edit' button to enable the graphical user interface for editing.
3. Set 'Mode' to 'ATM/POS CMS Mode'

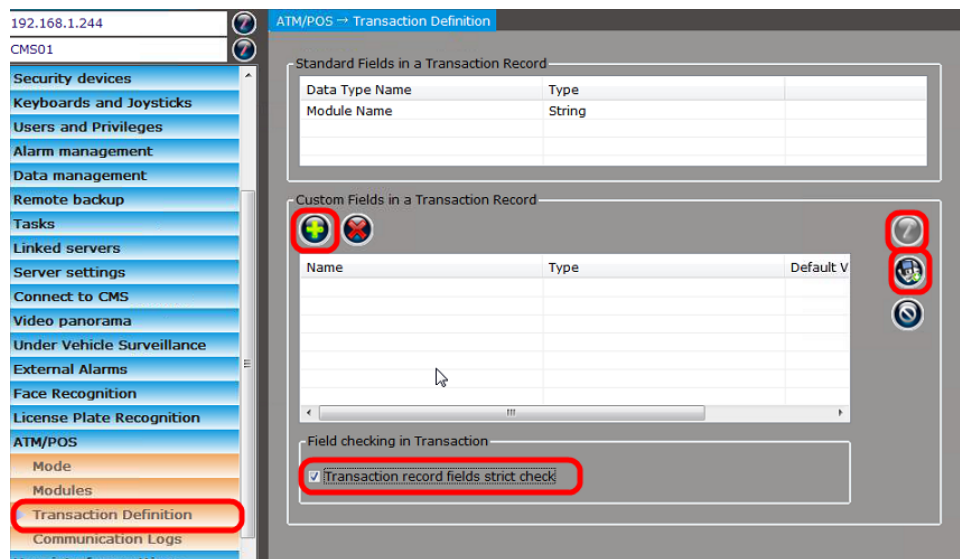
4. Ensure that 'Auto synchronize ATM/POS settings for all connected ATM/POS VMS' is checked. With this configuration, the CMS will monitor changes made in the connected NVRs and will automatically synchronize the settings.
5. Click on save button, to save the updated settings.

(d) Configuring ATM/POS transaction definition

1. The transaction records are sent by the 'External application (ATM / POS device / software / system)' to the linked NVR, through TCP socket. (Please refer to the 'Integration Between ATM-POS Device and Embedded VMS - NVR Device (Real-time Messaging)' document for details on integration between the 'External application (ATM / POS device / software / system)' and the NVR).

Hence the 'Transaction Definition' needs to be available with every NVR. The CMS eliminates this local 'Transaction Definition' configuration in every NVR, by providing single 'Transaction Definition' configuration inside the CMS. This 'Transaction Definition' configuration inside CMS is automatically sent to all NVRs connected to the CMS.

2. Please navigate to 'ATM/POS-> Transaction Definitions' page from the left-hand side navigation menu.



3. This page shows two lists – 'Standard Fields in a Transaction Record' and 'Custom Fields in a Transaction Record'
4. 'Standard Fields in a Transaction Record' are the fields which must be provided in transaction request. These are must-have fields and can-not be edited by the users.
5. 'Custom Fields in a Transaction Record' are the custom fields and can be edited by the user. These fields depend on the project requirements and the integration details. The 'Custom Fields in a Transaction Record' should be defined, as per the Security Management System - ATM-POS Integration Solution Setup (Integration Type 1)

project requirement. These are the fields which will be included in every transaction record sent by the 'External application (ATM / POS device / software / system)' to the linked NVR, through TCP socket. (Please refer to the 'Integration Between ATM-POS Device and Embedded VMS - NVR Device (Real-time Messaging)' document for details on integration between the 'External application (ATM / POS device / software / system)' and the NVR).

We are adding 2 custom fields, as an example for this document –

Field1 name – RequestID

Field1 type – string

Field1 default - RequestIDDefault

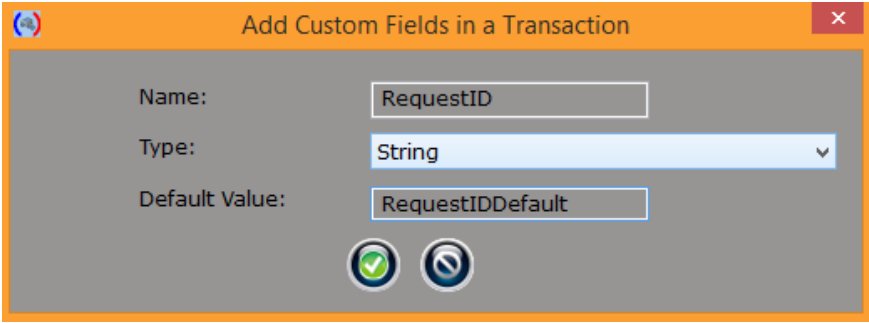
Field2 name – CardNumber

Field2 type – string

Field2 default - CardNumberDefault

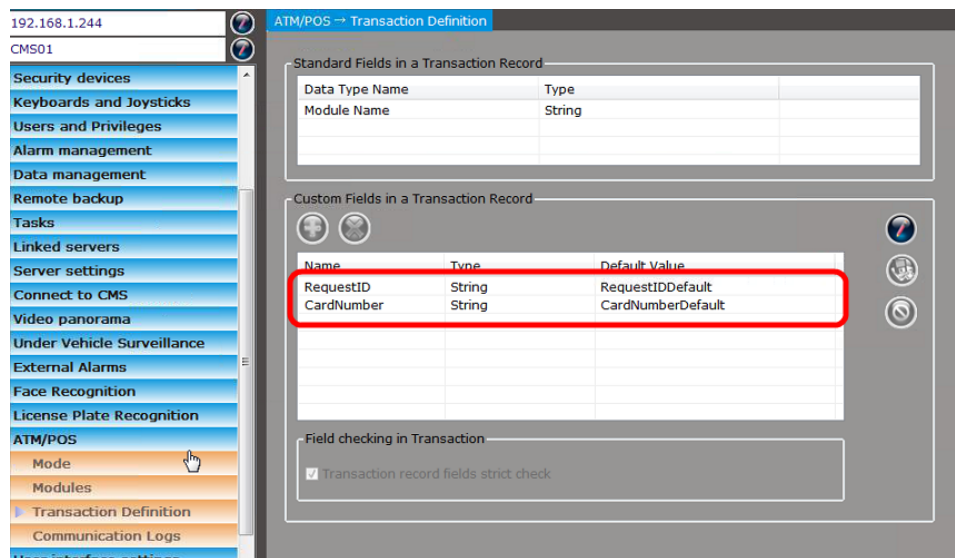
During deployment, the custom fields would be different, depending on the integration details.

6. Click on 'Edit' button available under the 'Custom Fields in a Transaction Record' section to enable the graphical user interface for editing.
7. For adding a custom field to transaction record definition, click on the 'Add' button, which will pop-up the 'Add Custom Field in a Transaction' dialog box.



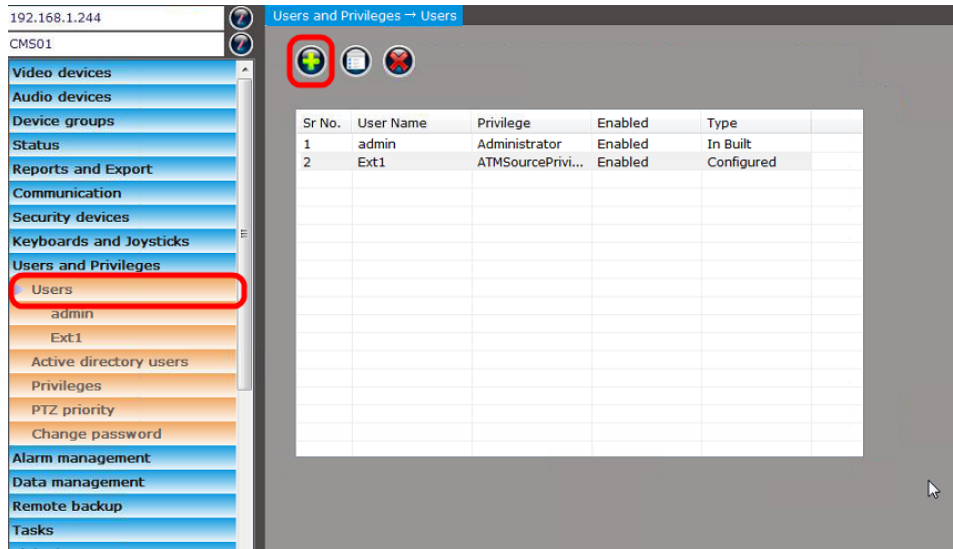
8. Type 'Name' of the field. It is recommended not to use any special characters in the name string. Please use standard alphabets (a to z and A to Z) and digits (0 to 9).
Select the expected 'Type' of the field.
Type the suitable default value.
Click on the 'OK' button to finish adding the custom field to the transaction definition.
9. Similarly add more custom fields to the transaction definition, as per the integration requirements.

10. The 'Transaction Definition' page has 'Transaction fields strict check' check-box available at the bottom of the page. Though it is not mandatory, it is recommended to enable this check-box. When this check box is enabled, the NVRs validate all transaction record messages received from the 'External application (ATM / POS device / software / system)'. The received transaction record is strictly validated for exact match with the transaction definition.
11. Strict check helps in ensuring integrity of the communication between the 'External application (ATM / POS device / software / system)' and the NVRs.
12. Click on save button, to save the updated settings.
13. All the configured custom transaction fields will be displayed in the 'Custom Fields in a Transaction Record' list.



(e) Configuring Operator privilege user(s)

1. Please navigate to the 'Users and Privileges->Users' page from left hand side navigation menu.



2. Click on the 'Add New User..' button, this will pop-up the 'Add New User' dialog box.



3. Type 'User Name'. It can be any text. For this example we are using 'Operator1' as user name
Type 'Password'. It can be any text. For this example we are using 9876 as password
Type the password again in 'Confirm password'
Select the 'Operator' privilege.
Ensure that 'Enable user' check box is checked
Click on the 'Add' button to finish adding new user.
4. If multiple CMS client workstations are required as per the the target solution design, please add more 'Operator' privilege users, following steps 2 and 3 again, once for every new user.

[III] 'Embedded VMS / NVR (NVR)' devices

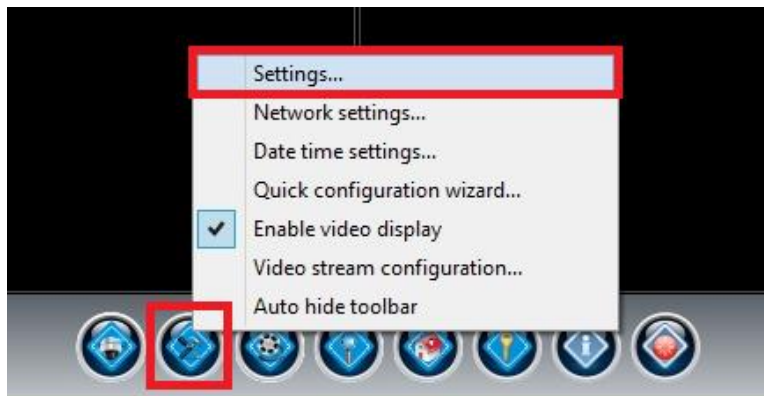
Note – the configuration steps described in this section are required to be followed for all NVR devices.

(a) Device installation

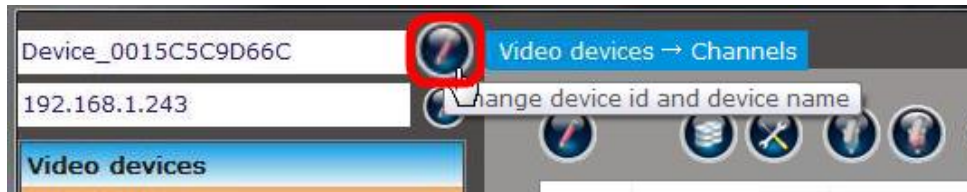
1. Please refer to the NVR user manual and complete the connections for monitor, network cable, power cable, mouse and keyboard
2. Power ON the NVR
3. Process 'quick configuration wizard' for initial configuration of the NVR, as described in the NVR user manual
4. Configure cameras to be monitored by the NVR, as described in the NVR user manual

(b) Set NVR name

1. From the bottom task-bar, click on the 'Settings' button to pop up the 'Settings' menu.



2. Click on the 'Settings' sub-menu which will pop up the 'Settings' dialog box.
3. Click on the 'Change device id and device name' button available at the left-top corner of the Settings dialog box.



4. This will pop up the 'Update' dialog box.



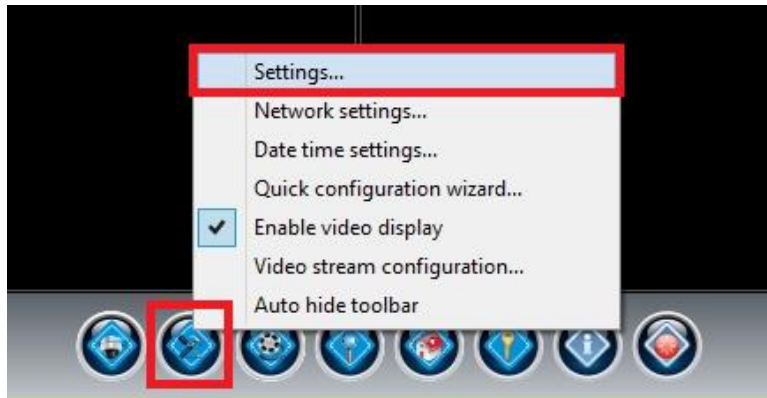
5. Type the new 'Device Name'. It can be any text. It is recommended to provide relevant name. We are using ATM01 as an example in this document.
6. Click on the 'Save' button to save the changes and to close the 'Update' dialog box.
7. Accept the warning message displayed
8. Note the NVR IP address, displayed above the 'Device name' text. If this IP address does not reflect the expected IP address as per the network design, please click on the 'Edit' button next to the IP address and select correct IP address.



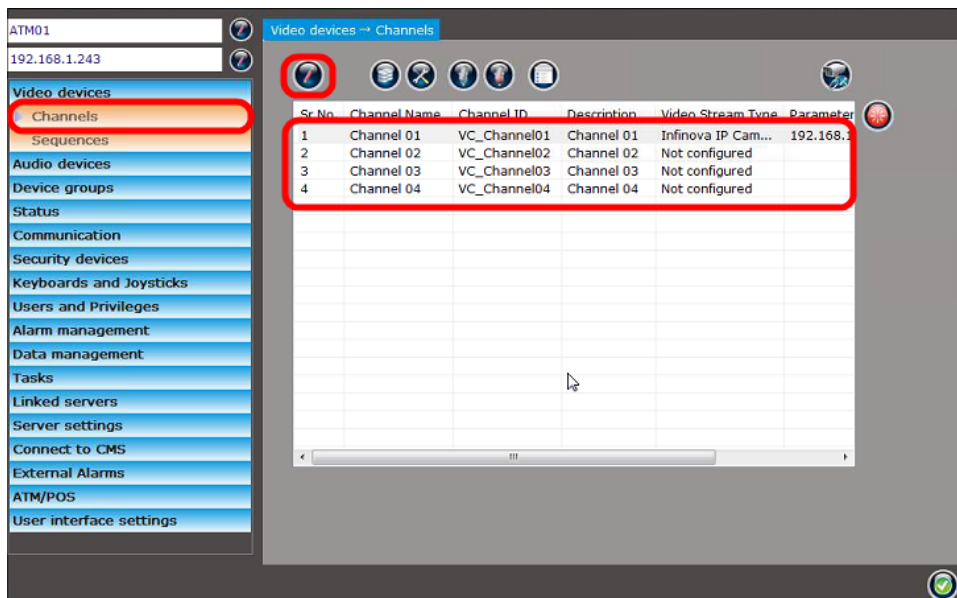
This NVR IP address will be used by the 3rd party applications to connect and to send the real-time ATM / POS transaction messages to NVR

(c) Configure cameras

1. In NVR, configure the cameras for monitoring, as per the project requirement.
2. From the bottom task-bar, click on the 'Settings' button to pop up the 'Settings' menu.



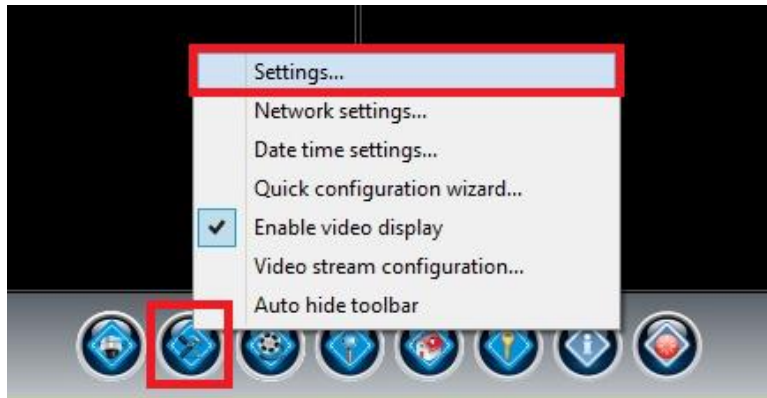
3. Click on the 'Settings' sub-menu which will pop up the 'Settings' dialog box.
4. Please navigate to the 'Video devices->Channels' page from left hand side navigation menu.



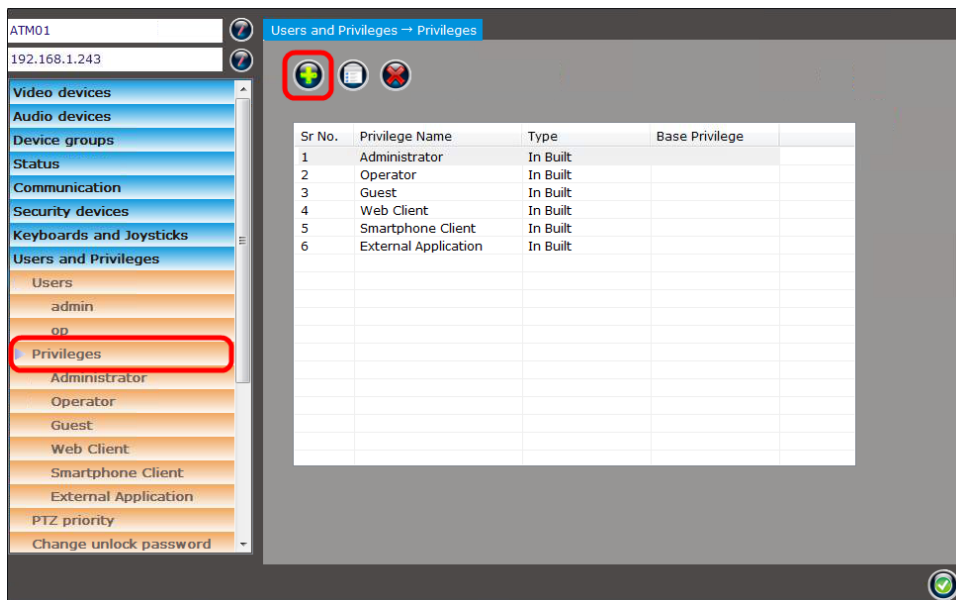
5. Select a channel from the list and click on the 'Edit video channel...' button. This will pop up the 'Edit video channel' dialog box. Select the video channel settings and click on the 'Edit video channel' button to save the settings and to close the 'Edit video channel' dialog box.
6. Follow the same steps to configure more video channels

(d) Adding New User for ATM/POS communication

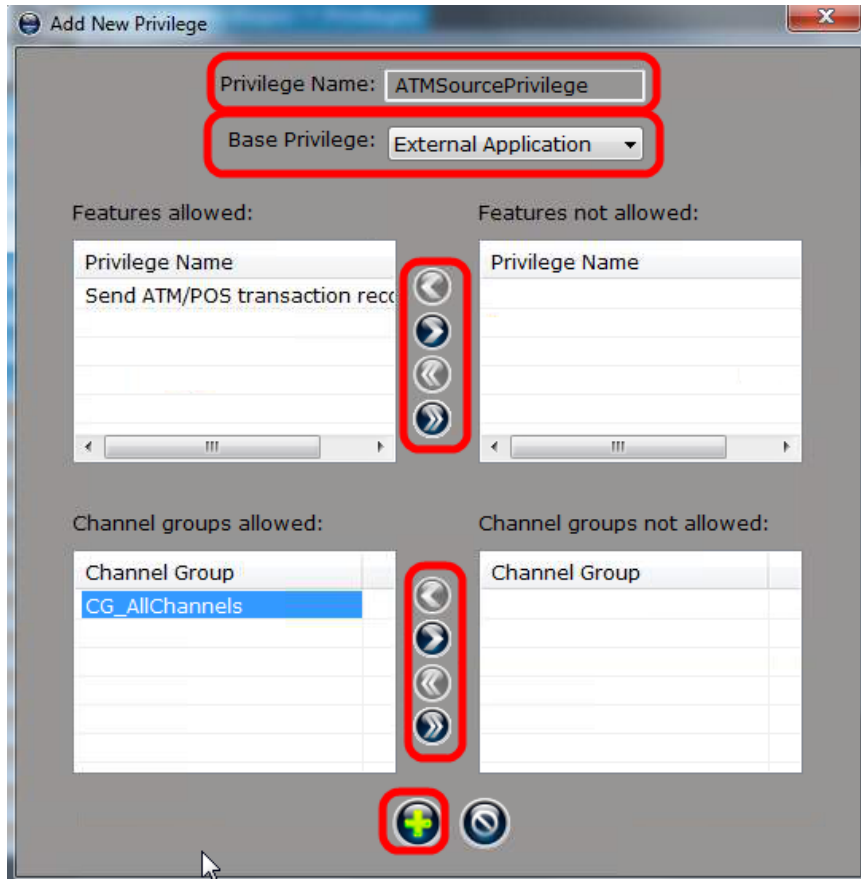
1. From the bottom task-bar, click on the 'Settings' button to pop up the 'Settings' menu.



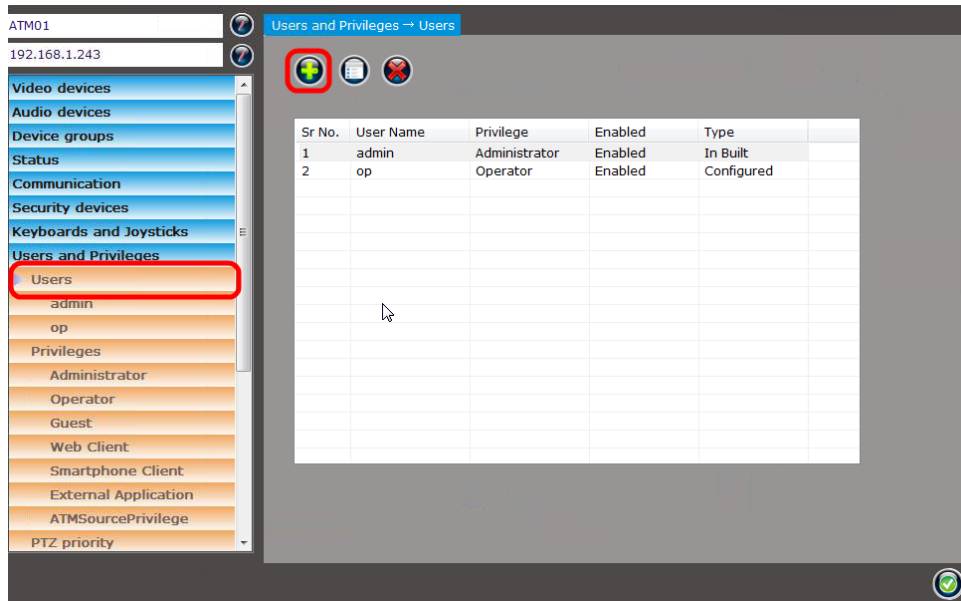
2. Click on the 'Settings' sub-menu which will pop up the 'Settings' dialog box.
3. Please navigate to the 'Users and Privileges->Privileges' page from left hand side navigation menu.



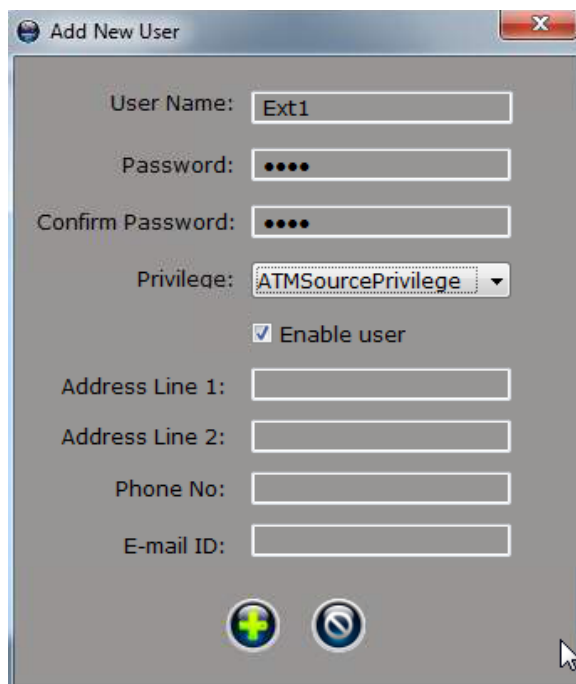
4. Click on the 'Add Privilege...' button, this will pop-up 'Add New Privilege' dialog box.



5. Type 'Privilege Name'. This can be any text. We are using 'ATMSourcePrivilege' text in this example
Select 'External Application' as 'Base Privilege'
Add 'Send ATM/POS transaction records to server' to the list of 'Features allowed'.
Add 'CG_AllChannels' to the list of 'Channel groups allowed'
Click on the 'Add' button to finish adding the new privilege.
6. Please navigate to the 'Users and Privileges->Users' page from left hand side navigation menu.



7. Click on the 'Add New User..' button, this will pop-up the 'Add New User' dialog box.

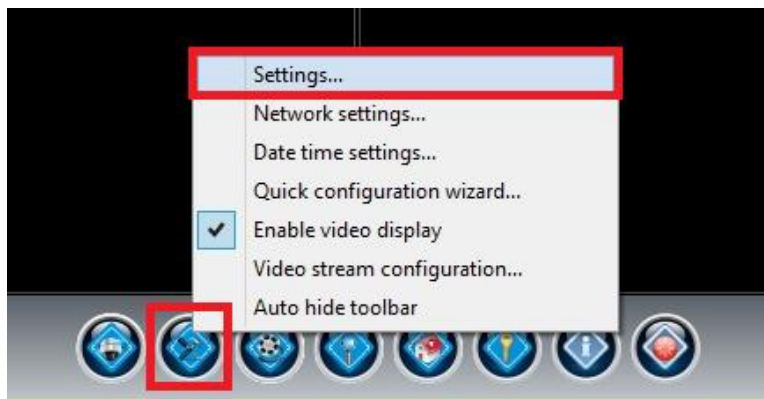


8. Type 'User Name'. It can be any text. For this example we are using 'Ext1' as user name
 Type 'Password'. It can be any text. For this example we are using 1234 as password
 Type the password again in 'Confirm password'
 Select the privilege for the new user. This should be same privilege we have added in the previous step as described in this document. In this example, we are selecting 'ATMSourcePrivilege' privilege.
 Ensure that 'Enable user' check box is checked

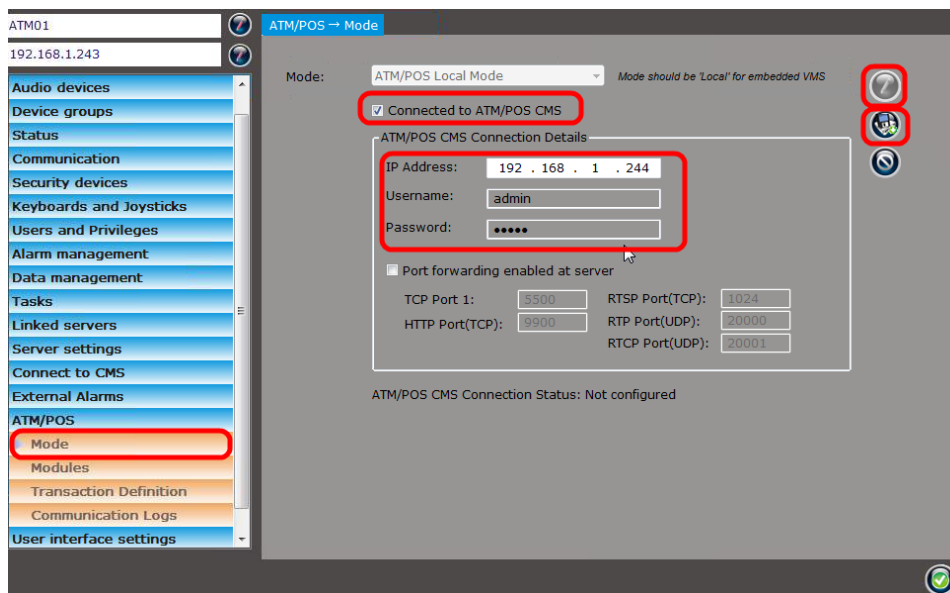
Click on the 'Add' button to finish adding new user.

(e) Configuring ATM/POS CMS connection

1. From the bottom task-bar, click on the 'Settings' button to pop up the 'Settings' menu.



2. Click on the 'Settings' sub-menu which will pop up the 'Settings' dialog box.
3. Navigate to the 'ATM/POS-> Mode' page from the left-hand side navigation menu.



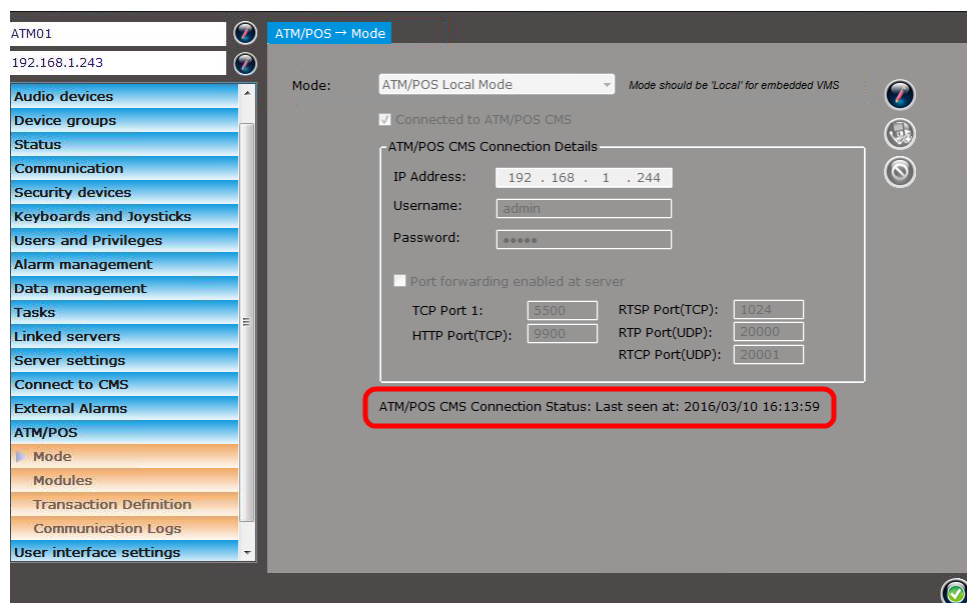
4. Click on 'Edit' button to enable the graphical user interface for editing.
5. For the NVRs, 'Mode' should always be 'ATM/POS Local Mode' and hence the 'Mode' drop-down box will always be disabled.
6. Check the 'Connected to ATM/POS CMS' checkbox and fill in the CMS connection details.

- (a) IP Address: Type IP address of the CMS software.
Note – this is the same IP address which was noted during CMS configuration, as described in step [II].(b).7 from this document.
- (b) Username: Name of the user defined in the CMS software, which will be used for authorizing the connection with the CMS software. This user should have ‘Administrator’ privileges configured in the CMS software. General practice is to use ‘admin’ user login. The ‘admin’ user is built-in Administrator privilege user available in the CMS. This username along with the password is used to login to the CMS software, from the CMS software login dialog box; when the CMS software is executed manually.
- (c) Password: Password associated with the specified ‘Username’, as configured in the CMS software.
- (d) Port forwarding enabled at server: If the CMS is using port forwarding, check this checkbox and fill in forwarded port numbers. Otherwise keep checkbox ‘Unchecked’.

Port forwarding configuration is NOT part of CMS software configuration, but is related to network configuration. Please get the details about whether port forwarding is configured for CMS from the network engineer.

If you are un-sure about ‘port forwarding’ configuration of the CMS; you can safely assume that CMS is not using port forwarding and can keep this checkbox un-checked. The network engineer should be able to provide

- 7. Click on the ‘Save’ button, to save the updated settings.
- 8. This page will now display the ‘ATM/POS CMS Connection Status’.



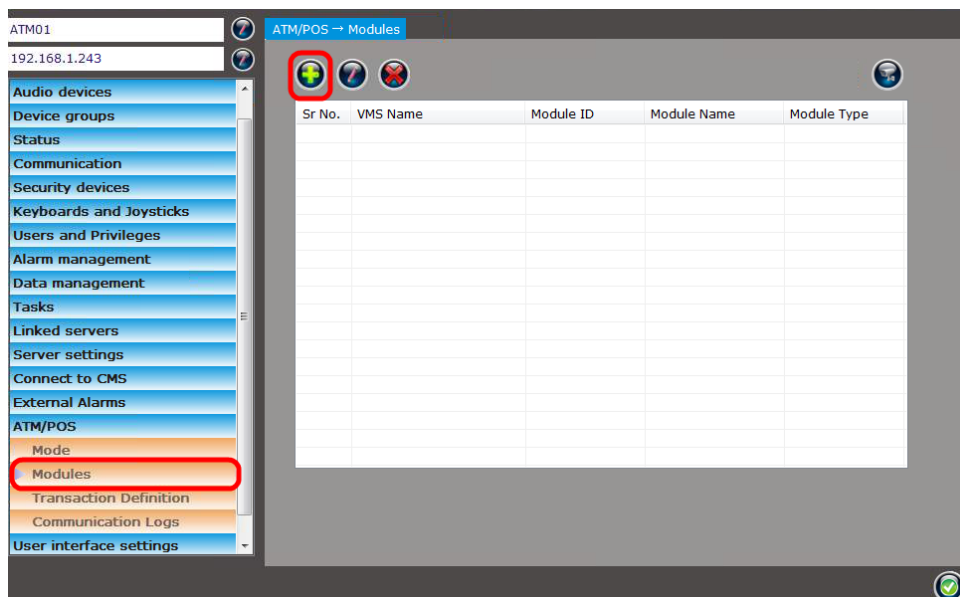
If connection with the CMS is OK, then this page shows last communication timestamp as displayed in image above.

In case the connection has any problem, status will be 'Disconnected' and it will also list reason for the disconnection and will keep trying connection every 60 seconds.

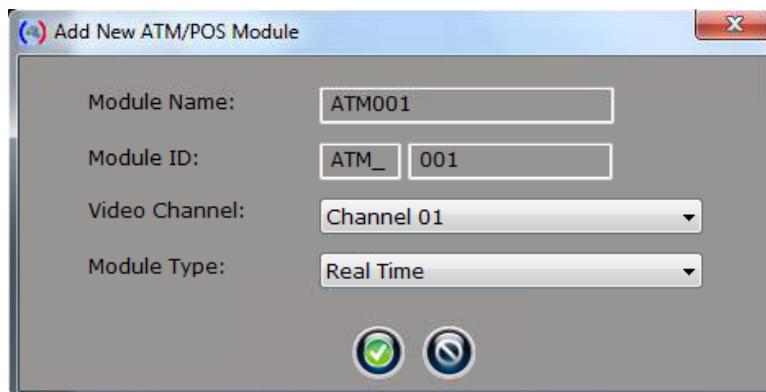
9. Depending on the network connectivity and availability of CMS, the connection status may be connected / disconnected. If the status is 'disconnected', the NVR will try connecting to the CMS and the status will change to 'connected / last seen' as soon as the CMS becomes available.

(f) Configuring ATM/POS module

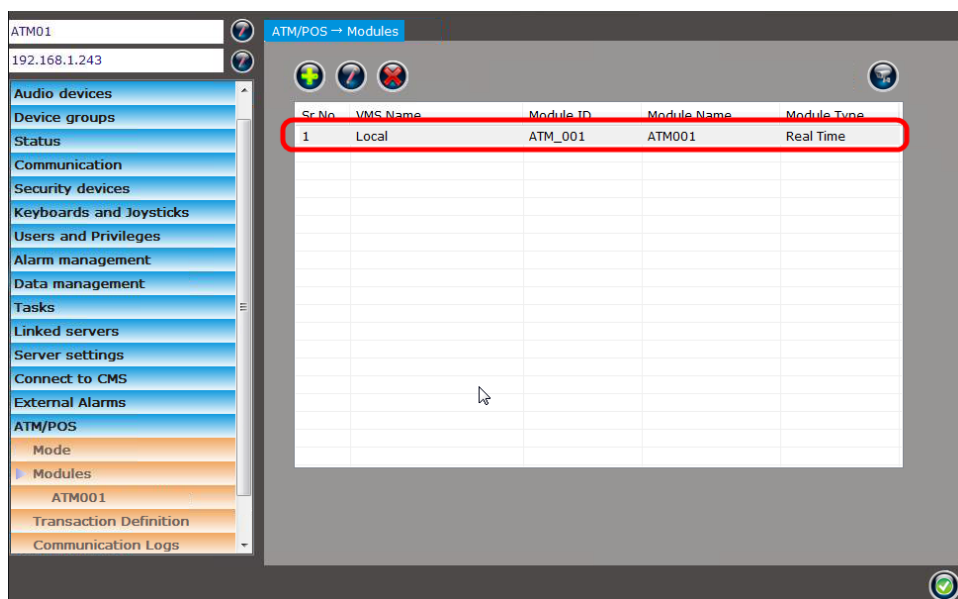
1. Navigate to the 'ATM/POS-> Modules' page from the left-hand side navigation menu.



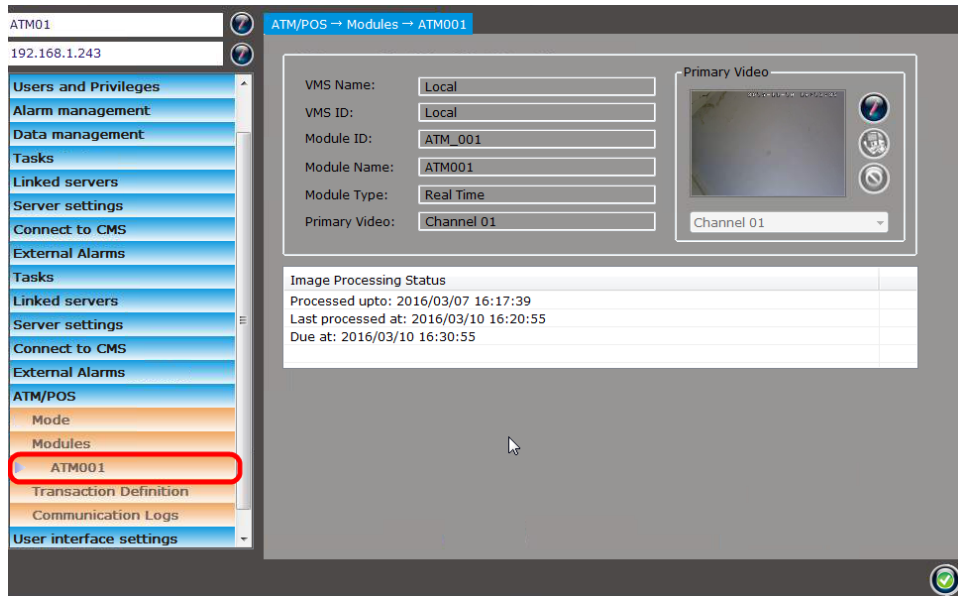
2. Click on the 'Add ATM/POS Module..' button. This will pop-up Add New ATM/POS Module dialog box.



3. Type 'Module name' to match the ATM / POS device it is expected to be associated with
Update 'Module ID' or keep default
Select 'Video channel' associated with this ATM/POS module. This is the camera which needs to be linked in ATM/POS transactions.
Select 'Module Type' as 'Real Time'
Click on the 'OK' button to save the configuration and to finish adding the ATM/POS module to security management system server software
4. The newly added ATM/POS module will be then displayed in list of the ATM/POS Modules.



5. A separate link will be available for each of the added ATM/POS modules. Clicking on the link will show the information about the ATM/POS module, the video of the associated video channel. If required, the associated video channel can be changed.

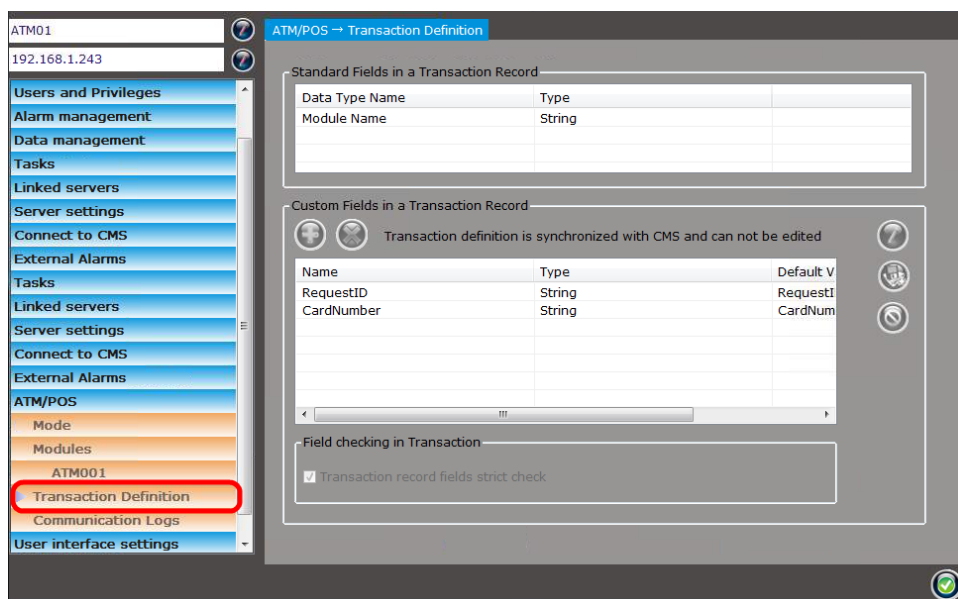


6. It is possible to add more than one ATM/POS modules in NVR. The number of ATM/POS modules depends on the number of 3rd party application instances expected to connect and send transaction messages to this NVR.

In typical deployments, only one 3rd party application (ATM/POS system) will send transaction messages to a linked NVR; hence only one ATM/POS module needs to be configured in the NVR

(g) Confirming transaction definitions

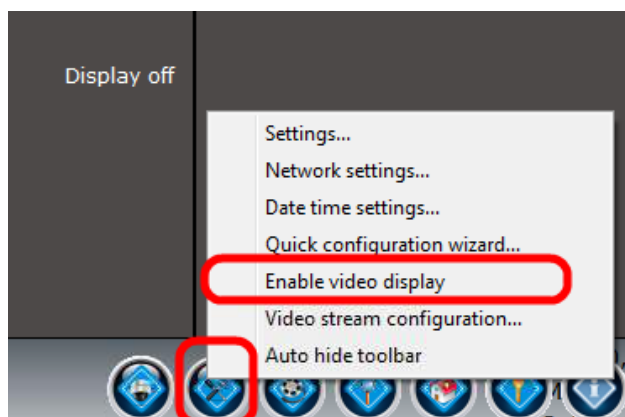
1. Please navigate to 'ATM/POS-> Transaction Definitions' page from the left-hand side navigation menu.



2. Since the NVR is configured to connect to 'ATM/POS CMS', this page will have all GUI elements disabled. All 'Transaction definition' settings are queried from the CMS and are automatically set.

(h) Video display optimization

1. The ATM/POS NVR devices are designed for 'device display optimization', which indicates that monitor is not expected to be connected to the devices in normal working state. Only when configuration or administration activities are scheduled, monitor will be connected to the device. Hence in normal working state, video streams are not displayed by the device and 'Display off' message is displayed instead of video streams.
2. During configuration and administration activities, the video display can be enabled from the 'Settings -> Enable video display' menu.
3. When video display is turned ON, a notification 'Video display not optimized' is generated, to ensure that the administrator does not forget to turn the video display OFF.



4. Please disable the video display from 'Settings -> Enable video display' menu, to uncheck the menu. This will resolve the 'Video display not optimized' notification. The videos will start displaying 'Display off' message after this.

[IV] Test NVR for ATM/POS transactions

Note – the configuration steps described in this section are required to be followed for all NVR devices.

The integration tests are usually required only once during the system set up. However, when the 3rd party ATM / POS application is updated; it is advised to perform the integration tests described in this section.

(a) Test using 'Test Application'

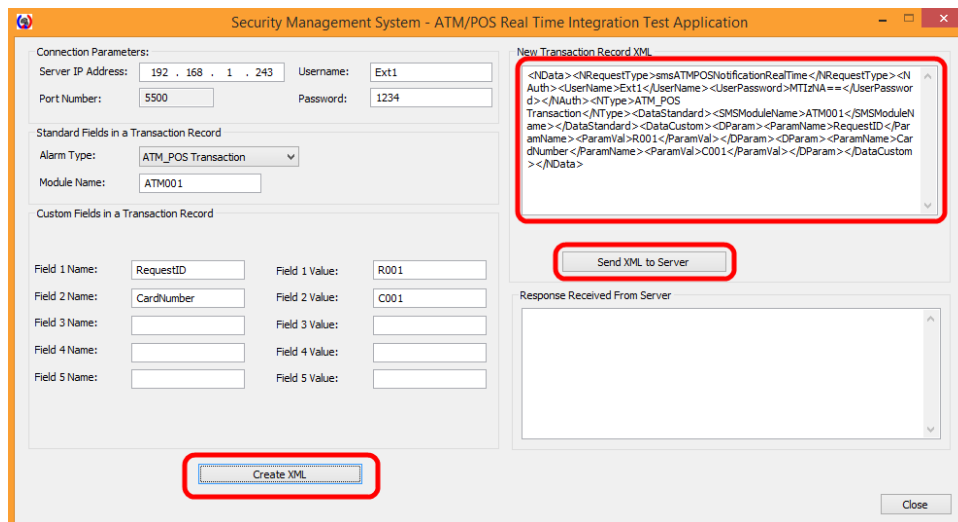
1. The test application 'smsATMPOSRealTimeIntegrationTest.exe' is available with this document
2. Copy smsATMPOSRealTimeIntegrationTest.exe test application to any computer which is on the same network as the NVR.
3. Execute smsATMPOSRealTimeIntegrationTest.exe

The screenshot shows a software window titled "Security Management System - ATM/POS Real Time Integration Test Application". The window is divided into several sections:

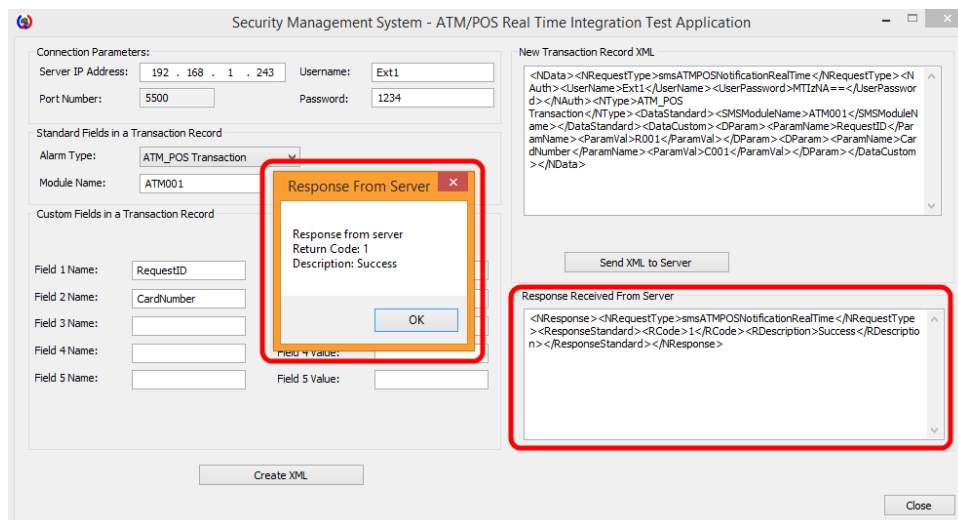
- Connection Parameters:** Includes fields for Server IP Address (192 . 168 . 1 . 243), Username (Ext1), Port Number (5500), and Password (1234).
- Standard Fields in a Transaction Record:** Includes a dropdown for Alarm Type (set to "ATM_POS Transaction") and a text field for Module Name (ATM001).
- Custom Fields in a Transaction Record:** A grid of five pairs of fields. Field 1 Name is "RequestID" with value "R001". Field 2 Name is "CardNumber" with value "C001". Fields 3, 4, and 5 are empty.
- New Transaction Record XML:** A large empty text area for displaying XML data, with a "Send XML to Server" button below it.
- Response Received From Server:** Another large empty text area for displaying server responses.
- Buttons:** "Create XML" at the bottom left and "Close" at the bottom right.

4. Type 'Server IP Address'. This is the IP address of the NVR. In the NVR GUI main screen, the NVR IP address is displayed at the right-bottom corner.
5. Type username and password. These are related to the new user added to the NVR, as described in section [III].(c) available this document.
6. Under 'Standard Fields in a Transaction Record', select 'Alarm Type' as 'ATM_POS Transaction'.

- Under 'Standard Fields in a Transaction Record', type 'Module Name'. This should match with the ATM/POS module added to the NVR, as described in section [III].(e) available in this document
- Under 'Custom Fields in a Transaction Record', type field name and value pairs. The field names should match the 'Transaction definition' configured in the NVR, as described in section [II].(d) available in this document
- Click on the 'Create XML' button available below the list of 'Custom Fields in a Transaction Record'.



- The XML will be created and displayed in the 'New Transaction Record XML' box
- Click on the 'Send XML to Server' button. The test application will connect to the Security Management System server application and will send the new ATM/POS transaction record.

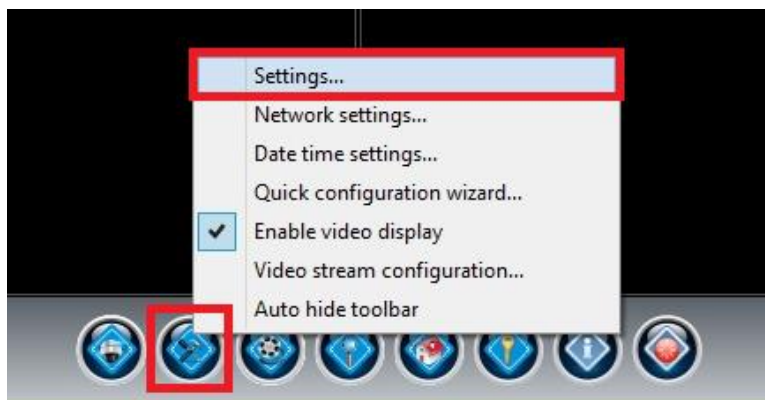


12. Response will be received from the server and will be displayed in the 'Response Received From Server'. The response will be parsed and pop up message with response details will be displayed.
13. If connection related error response is displayed, please check the network connectivity between the computer where 'Test Application' is executed and the NVR. Also confirm that 'Test Application' is allowed to communicate through the Windows Firewall; and antivirus software if any running on the computer does not block the 'Test Application' from communicating on the network.
14. Close the 'Test Application'

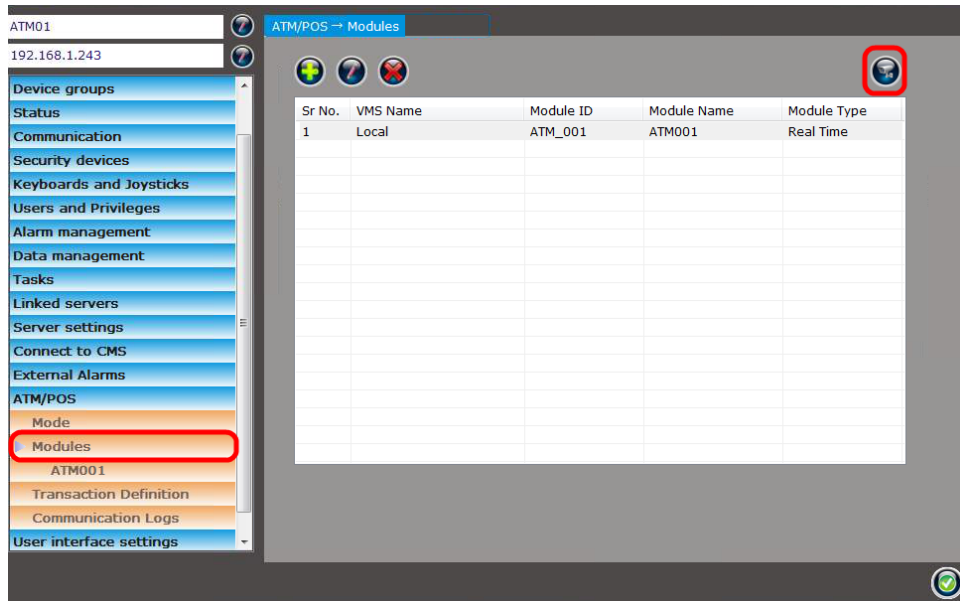
Note – The 'smsATMPOSRealTimeIntegrationTest.exe' test application can also be used for debugging and detailed test purpose.
The 'New Transaction Record XML' can be edited manually or can be fully typed manually

(b) ATM/POS transactions search in NVR

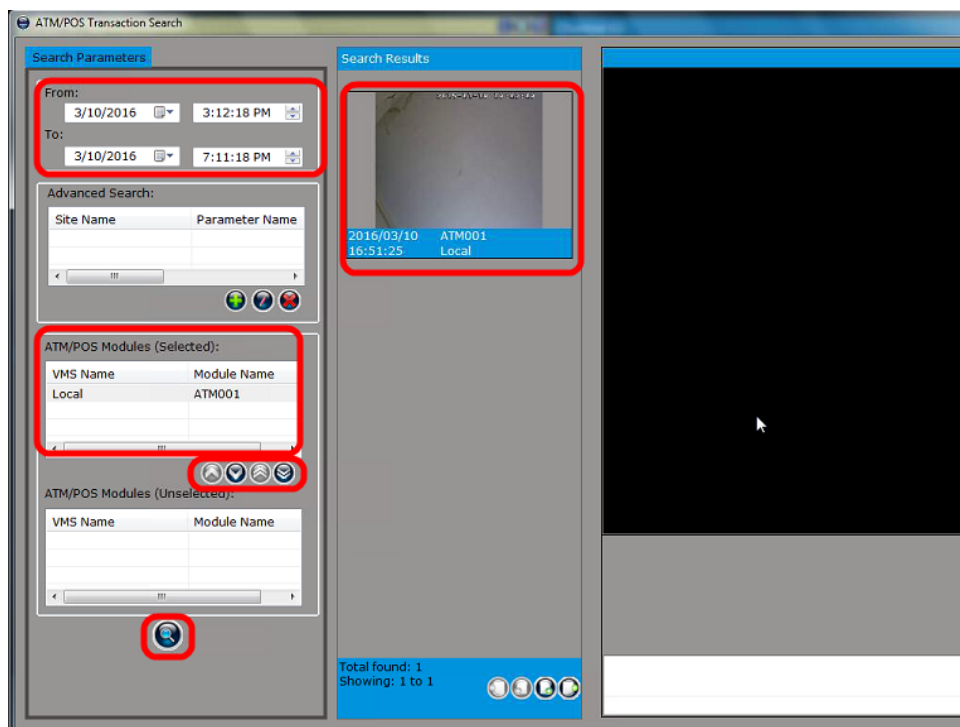
1. In the NVR; from the bottom task-bar, click on the 'Settings' button to pop up the 'Settings' menu.



2. Click on the 'Settings' sub-menu which will pop up the 'Settings' dialog box.
3. Please navigate to the 'ATM/POS->Modules' page
4. Click on the 'ATM/POS Transactions Search' button.



5. This will pop up the 'ATM/POS Transactions Search' dialog box



6. Specify the search time 'From' and 'To'
Select the 'ATM/POS modules' to be searched
Click on the 'Search' button
7. The search results will be displayed in form of image list.
Note – the images for recent transactions may not be available. It takes up to 10 minutes to create the images, after the transaction record is received.

8. Clicking on the result image starts video playback for the selected result. The video playback control (play, pause, fast forward, rewind) are available.
9. Specify the matching search parameters and confirm that all transaction messages sent from the 'Test Application' are available in the search results.

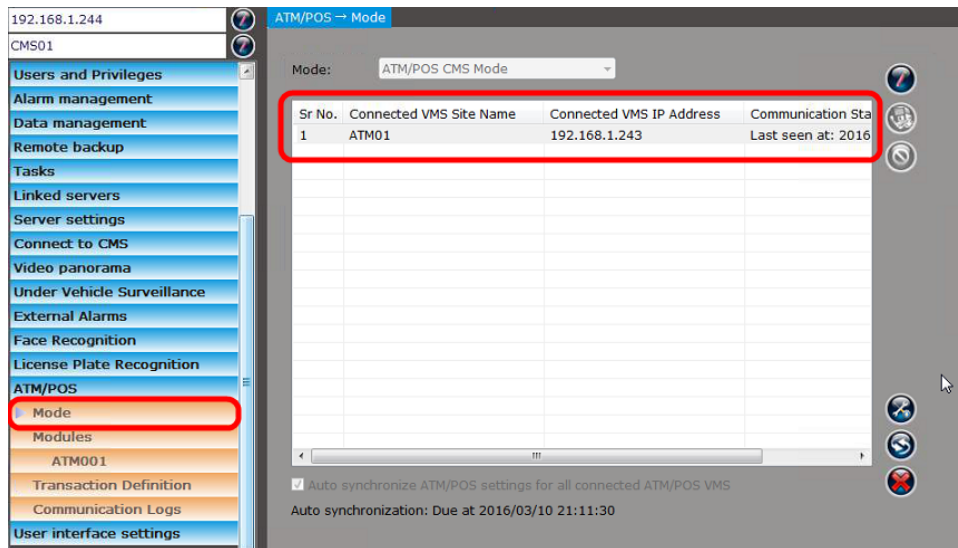
(c) Test using '3rd party application' (ATM/POS device)

1. This section should be processed only after successful integration tests using the 'Test Application', as described in section [IV].(a) and [IV].(b). If the integration tests using 'Fest Application' fail; it indicates problem in the configuration of the system. Please locate and resolve the issues, to get successful results from the integration tests using the 'Test Application'. And then proceed to integration tests using 3rd party application.
2. Configure the 3rd party application (ATM / POS device) for sending transaction messages to the NVR
Note – the configuration steps for 3rd party application will be available from the 3rd party application vendor.
3. Send transaction messages from 3rd party application to the NVR. Confirm 'success' response.
4. Perform 'Transaction search' in the NVR, as described in section [IV].(b), to confirm that all transaction messages sent by 3rd party application are captured in the NVR and are available in the search results

[V] Confirming set up completion in CMS

(a) Connected NVRs

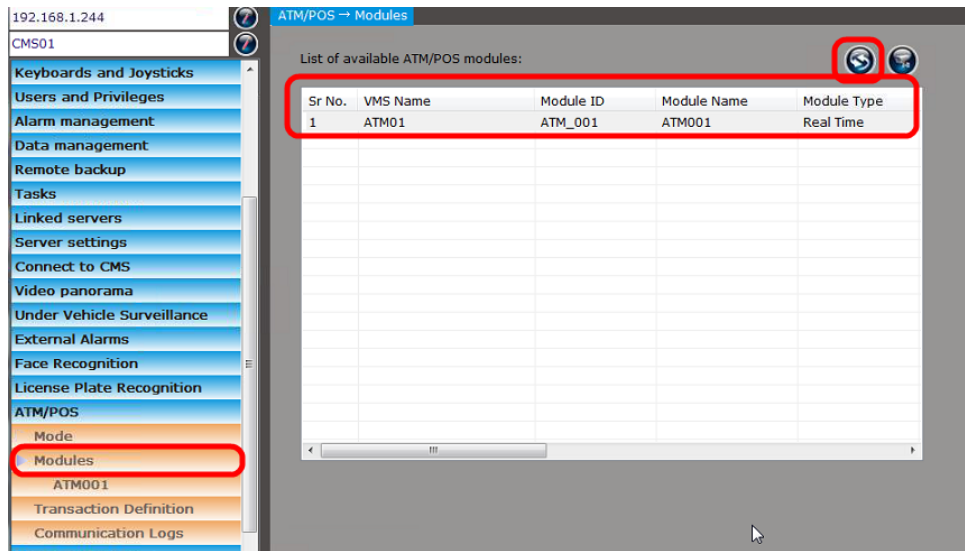
1. In CMS, navigate to the 'ATM/POS-> Mode' page, from the left hand side navigation menu.



2. This page will now display list of all NVRs connected to this CMS.
3. Please confirm that all configured NVRs are displayed in this list and the 'Communication status' for each of the NVRs is displayed as 'Last seen XXX'.
4. If any of the NVRs is not listed, please re-confirm the NVR configuration as described in section [III] available in this document.
5. If the 'Communication status' for any of the NVRs is displayed as 'Disconnected', please resolved the connectivity issue between the CMS and that NVR.

(b) ATM/POS Modules

1. In CMS, navigate to the 'ATM/POS-> Modules' page, from the left hand side navigation menu.



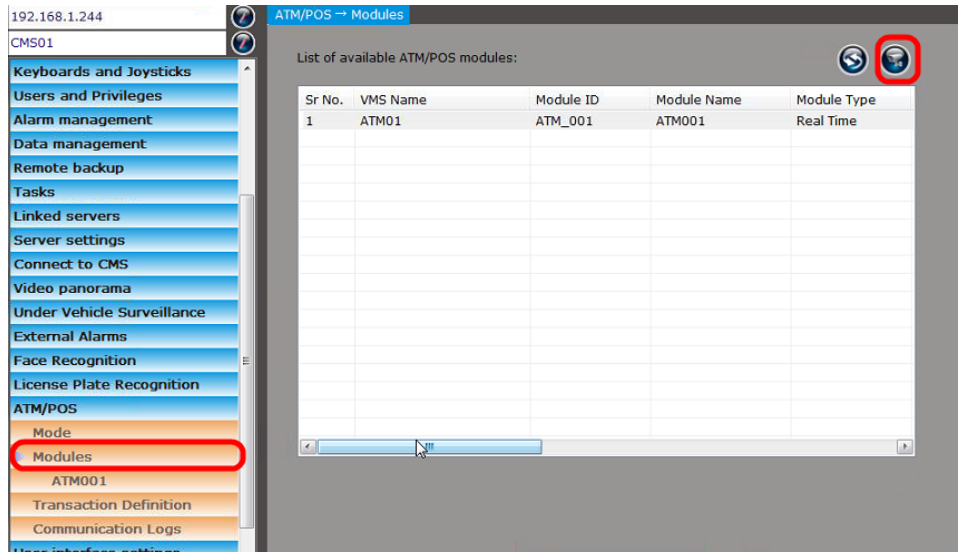
2. This page will now display list of all ATM/POS modules defined in all NVRs connected to this CMS. 'refresh' button can be clicked to refresh the list of modules.
3. Please confirm that ATM/POS modules defined in all configured NVRs are displayed in this list
4. If any of the ATM/POS modules from any of the NVRs is not listed, please re-confirm the NVR configuration as described in section [III] available in this document.

(c) Notifications

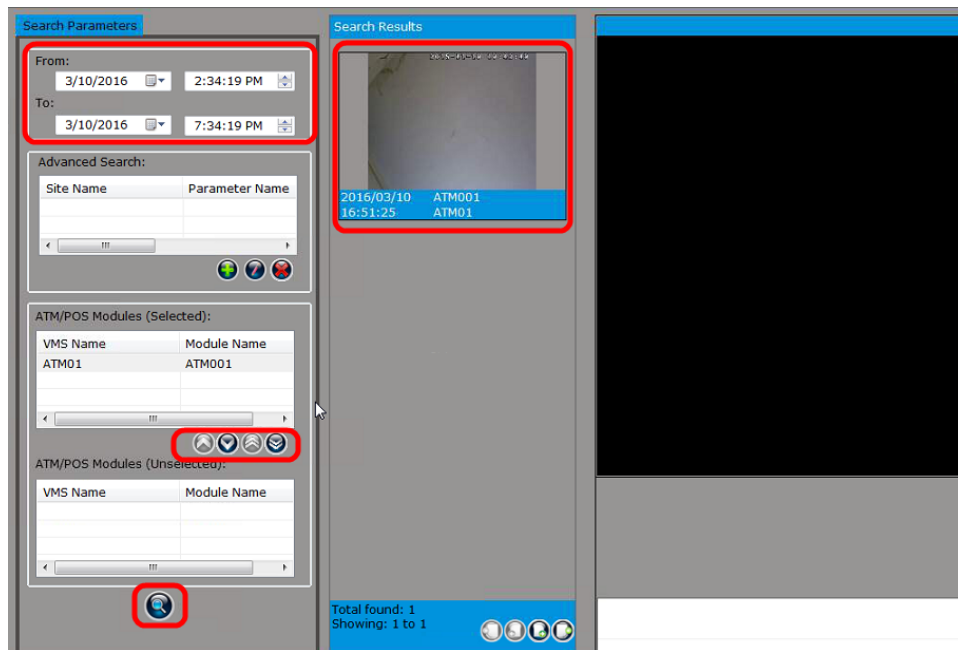
1. Please confirm that 'System Notifications' window is not displayed in the CMS
2. 'System Notification' window pops up, if the system identifies any problem associated with CMS or with any of the connected NVRs; which can not be resolved by the system automatically. The 'System Notification' window displays all notifications currently raised by the system and description about each of the notifications.
3. It is a general guideline that there should be no notifications displayed in the CMS and the 'System Notification' window is not visible.

(d) ATM/POS transactions search in CMS

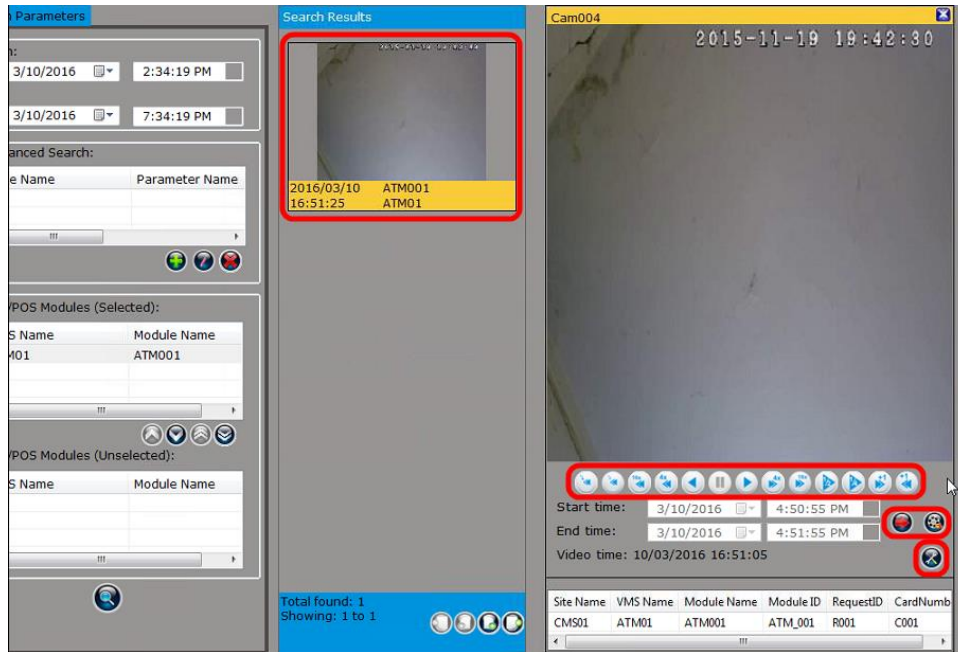
1. Please navigate to the 'ATM/POS->Modules' page
2. Click on the 'ATM/POS Transactions Search' button.



3. This will pop up the 'ATM/POS Transactions Search' dialog box



4. Specify the search time 'From' and 'To'
Select the 'ATM/POS modules' to be searched. These can be ATM/POS modules configured in one or more NVRs
Click on the 'Search' button
5. The search results will be displayed in form of image list.
Note – the recent transactions and images for the recent transactions may not be available. It takes up to 10 minutes to update the transactions and to create the images.
6. Clicking on the result image starts video playback for the selected result. The video playback control (play, pause, fast forward, rewind) are available.



7. The transaction details are displayed at the bottom, below the video navigation buttons
8. It is possible to export the video, or start a video playback from the buttons next to the 'Start time' and 'End time' texts
9. Clicking on the 'Settings' button pops up 'Settings' dialog box, which provides following configurations –
 - (a) Playback video directly from the source (NVR in this case) or download the video first and then start the playback. The 'Download video and playback' option is recommended when the network throughput between the CMS and the NVR is low.
 - (b) Pre-transaction and Post-transaction time.

[VI] Installing and configuring CMS Client software

Note – the configuration steps described in this section are required to be followed for all client workstation computers, planned to be included in the solution.

(a) Software installation

1. For enhanced security and clear separation of administration activities from operation activities; Security Management System has 2 separate modules – Server software and Client software.

The server software is used for administration and configuration; and is not expected to be used in normal 24X7 working

Where-as the client software is used for operation activities, which involve viewing live videos, viewing recorded videos, video export, report generation etc. There are no configurations / system set up changes involved in the operator activities.

CMS and CMS client modules too function in the same way

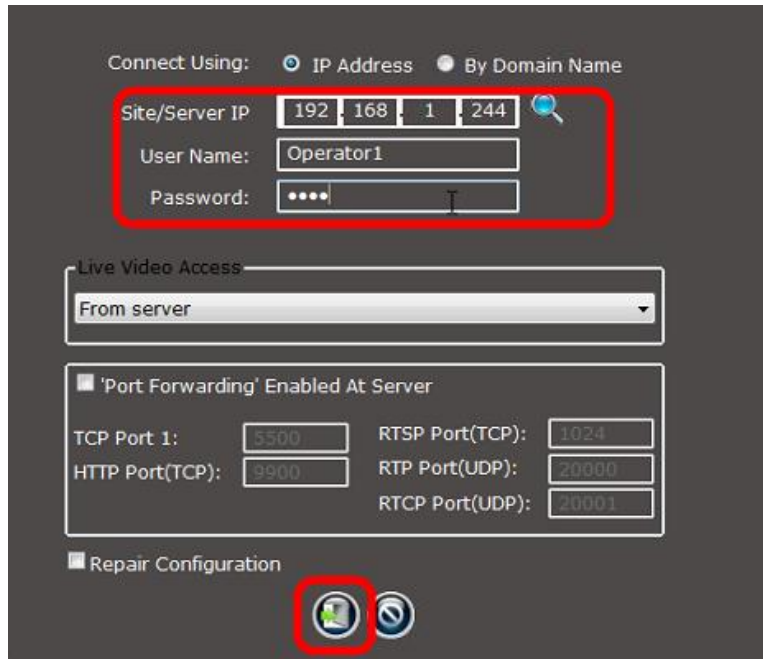
2. The CMS is used for configuration and administration. Access to CMS is restricted only for authorized users.
3. There can be one or more CMS client workstations which run CMS client software. These client software instances connect to CMS and provide GUI for the operators to perform the normal operator functions.
4. Depending on the project requirements, assign one or more dedicated computers to host the CMS client software. Please refer to the 'Hardware recommendations' document for details about the host computer hardware configuration requirements.
5. The CMS client workstations should be in the same network as the CMS server computer.
6. Install 'Security Management System client software' on these CMS client workstation computer.
Note – separate software is not required. 'Security Management System client software' is installed and it functions as CMS client without requiring any manual inputs. The client software checks the server it is connecting to and automatically applies the CMS client mode, if valid.

(b) Connecting to CMS server

Security Management System - ATM-POS Integration Solution Setup (Integration Type 1)

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1. Execute the 'Security Management System client software'.
2. It will display the login dialog box



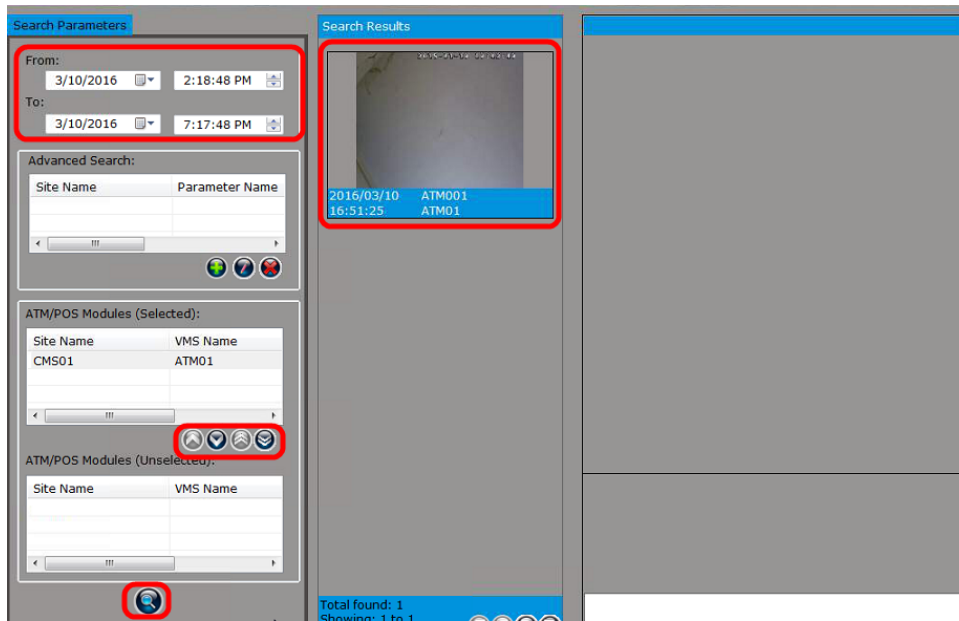
3. Please type the IP address of the CMS server.
Type the username and password. This login information is related to the 'Operator' user added in the CMS, in step [II].(e)
4. Click on the login button to connect to the CMS and to launch the CMS client

(c) ATM/POS transactions search in CMS Client

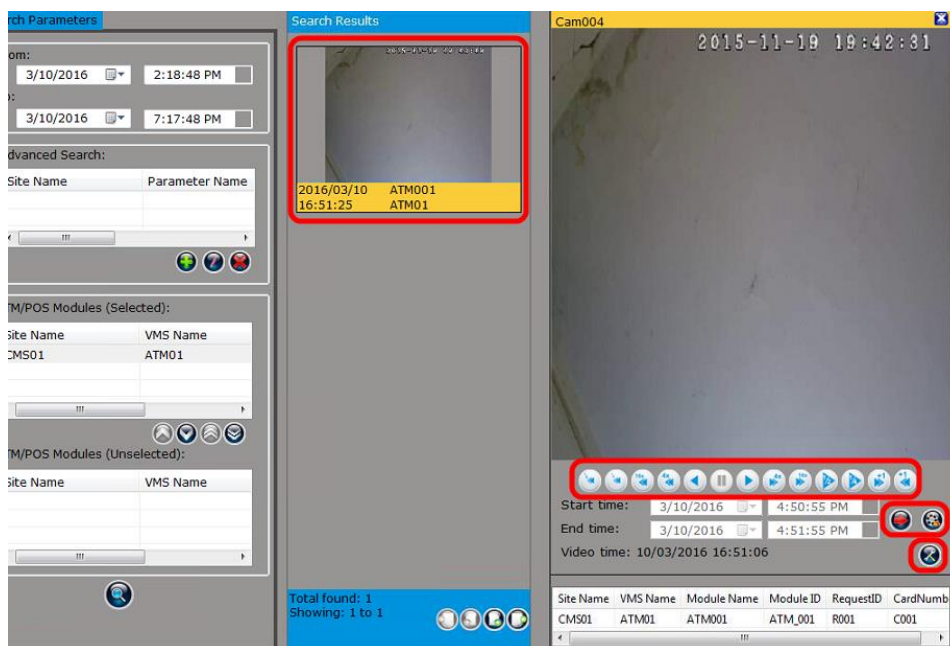
1. From the top menu-bar; click on the 'Screens -> ATM/POS transaction search' menu.



2. This will pop up the 'ATM/POS Transactions Search' dialog box



3. Specify the search time 'From' and 'To'
Select the 'ATM/POS modules' to be searched. These can be ATM/POS modules configured in one or more NVRs
Click on the 'Search' button
4. The search results will be displayed in form of image list.
Note – the recent transactions and images for the recent transactions may not be available. It takes up to 10 minutes to update the transactions and to create the images.
5. Clicking on the result image starts video playback for the selected result. The video playback control (play, pause, fast forward, rewind) are available.

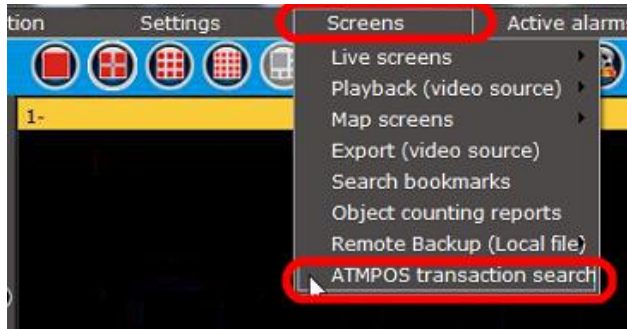


6. The transaction details are displayed at the bottom, below the video navigation buttons
7. It is possible to export the video, or start a video playback from the buttons next to the 'Start time' and 'End time' texts
8. Clicking on the 'Settings' button pops up 'Settings' dialog box, which provides following configurations –
 - (a) Playback video directly from the source (NVR in this case) or download the video first and then start the playback. The 'Download video and playback' option is recommended when the network throughput between the CMS and the NVR is low.
 - (b) Pre-transaction and Post-transaction time.

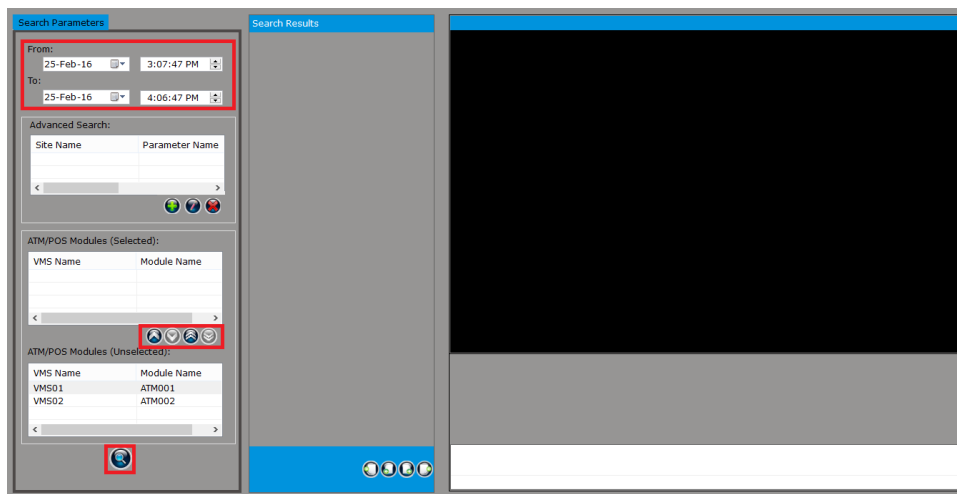
[VII] ATM/POS transaction search from CMS Client

(a) Standard search

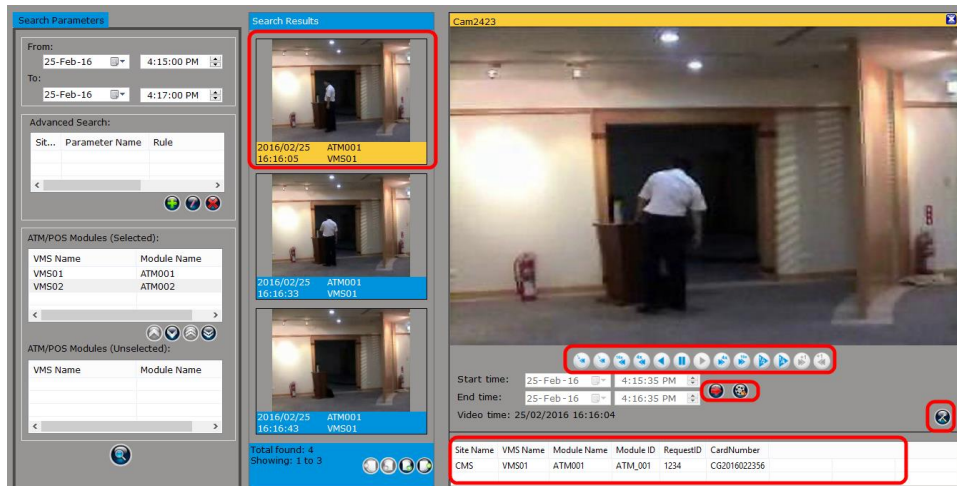
1. From the top menu-bar; click on the 'Screens -> ATM/POS transaction search' menu.



2. This will pop up the 'ATM/POS Transactions Search' dialog box



3. Specify the search time 'From' and 'To'
Select the 'ATM/POS modules' to be searched. These can be ATM/POS modules configured in one or more NVRs
Click on the 'Search' button



4. 'Search Results' section shows results in thumbnail view. Clicking on the searched result thumbnail starts playback of video associated with this transaction. Note – the recent transactions and images for the recent transactions may not be available. It takes up to 10 minutes to update the transactions and to create the images.
5. 'Search Results' section shows number of search results found and current index of the search result being displayed. The page navigation buttons at the bottom of this section can be used to navigate through the search result pages.
6. Currently selected search result is displayed in different color highlight and the current search result transaction details are displayed in the right-bottom corner, below the video. Transaction details include all fields associated with the selected transaction.
7. Right clicking on the selected thumbnail will display the 'Transaction Details' menu. Clicking on this menu displays full size image associated with the transaction.
8. Video control navigation buttons can be used to navigate through the video playback



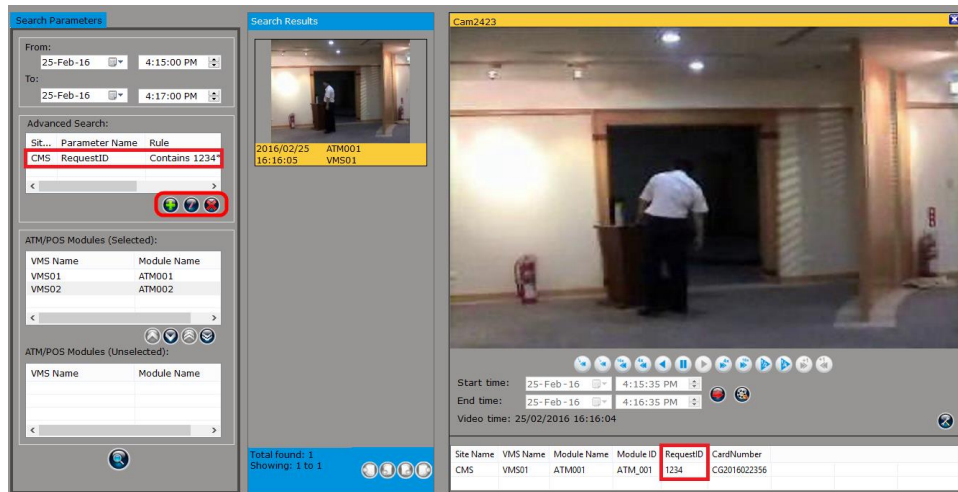
9. The 'Export' button can be clicked to export the transaction video.
9. Clicking on the 'Settings' button pops up the settings dialog box, which provides following configurations –
 - (b) Playback video directly from the source (NVR in this case) or download the video first and then start the playback. The 'Download video and playback'

option is recommended when the network throughput between the CMS and the NVR is low.

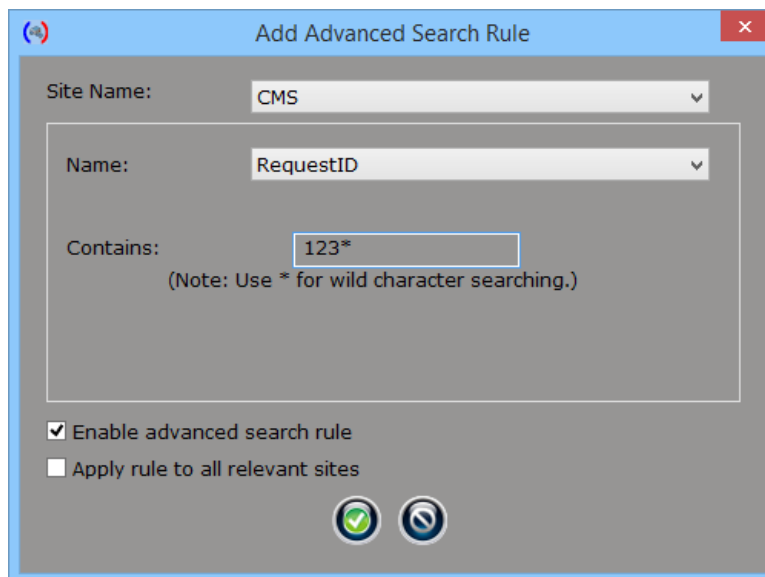
(b) Pre-transaction and Post-transaction time

(b) Advanced search

1. The 'ATM/POS Transactions Search' dialog box allows the users to optionally specify 'advance search rules'.



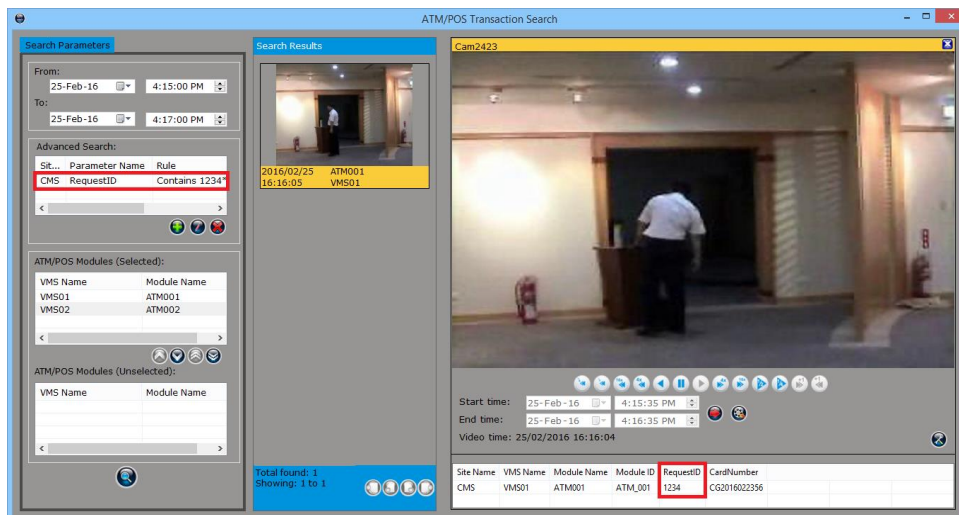
2. Click on the 'Add advanced search rule' button to pop up the rule configuration dialog box.



3. Select 'Site Name' from the drop-down box for which the new rule is being defined.
The 'Name' drop-down displays list of all parameters (transaction fields) available for this selected site. Select any field.

Depending on the data type of the selected field, search rule can be defined. In this example 'RequestID' field is selected which is 'string' type field, and hence 'Contains' rule is displayed. This supports wild card * search too. Specifying '123*' as search rule will search for all transactions from selected site which have 'RequestID' field whose value starts with the text '123'

4. The rule can be enabled/disabled.
5. Selecting 'Apply rule to all relevant site', will copy the same rule for all sites in which 'RequestID' field is available in 'ATM/POS transaction definition'
6. Click on the 'Ok' button to add the rule.
7. More rules can be added, again following the steps 2 to 6, once for every new rule.
8. Click on the 'Search' button to initiate the search operation.



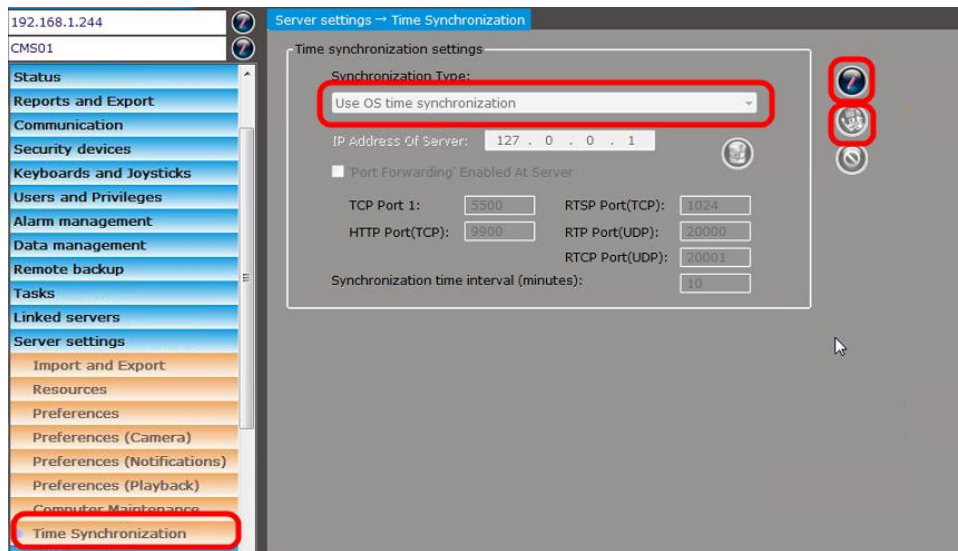
[VIII] Time synchronization

(a) Overall working

1. In order to function properly, it is important that all components from the system - CMS, CMS client and NVRs have their time synchronized.
2. Though this can be achieved in multiple ways, it is recommended to use CMS as main component and all other components synchronizing their time with CMS.
3. As there are external components like 3rd party ATM / POS systems involved; it is important that time is synchronized across these components too.
4. For this, it is recommended to install standard NTP server in the network. All 3rd party ATM / POS systems and the CMS synchronizes time with this NTP server. Since all other system components synchronize time with CMS, they too will ultimately be time-synchronized with the NTP server. And all components in the system will be time-synchronized with single NTP server

(b) Configuration in CMS

1. In CMS, navigate to the 'Server settings-> Time synchronization' page, from the left hand side navigation menu.

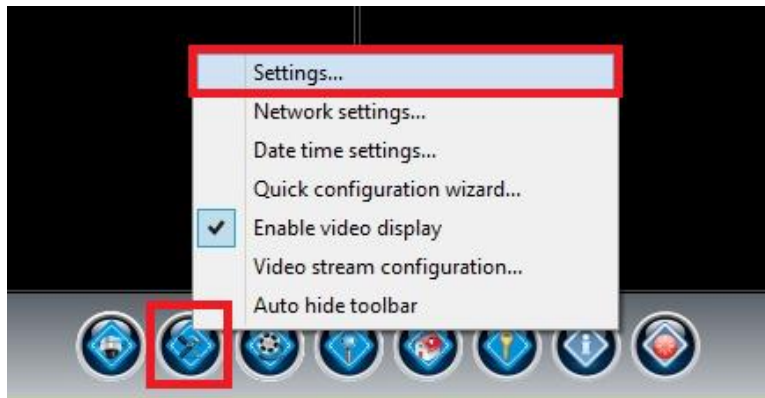


2. Click on 'Edit' button to enable the graphical user interface for editing.
3. Set 'Synchronization Type' to 'Use OS time synchronization'
4. Click on save button, to save the updated settings

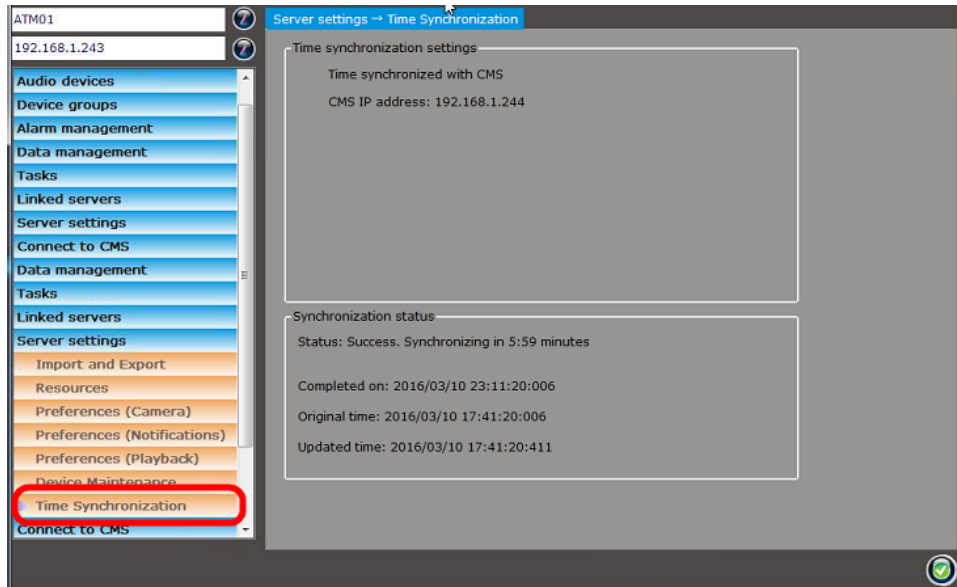
5. This makes the CMS use the operating system time synchronization settings. The Windows operating system supports 'NTP time synchronization' from standard 'Date and Time' configuration console. If required, please configure the Windows OS to synchronize the time with NTP server, from the standard Windows 'Date and Time' configuration console.

(c) Configuration in NVRs

1. Since the NVRs are linked to the CMS, they are automatically configured to synchronize the time with the CMS. Hence no special settings are required in the NVRs for time synchronization
2. In NVR, from the bottom task-bar, click on the 'Settings' button to pop up the 'Settings' menu.



3. Click on the 'Settings' sub-menu which will pop up the 'Settings' dialog box.
4. Navigate to the 'Server settings-> Time synchronization' page, from the left hand side navigation menu.



5. The 'Time synchronization settings' section displays the CMS IP address for the CMS with which the NVR is synchronizing its time
6. The 'Synchronization status' displays the information related to the NVR's time synchronization activity

[IX] Firmware upgrade

(a) 'System Administrator' tool

1. 'System Administrator' tool is also installed during the 'Security Management System Server software' installation process, and hence is available on the computer where CMS is installed.
2. 'System Administrator' tool can be used to upgrade firmware version at multiple NVRs. This eliminates the manual upgrade process for each of the NVRs.
3. Version upgrade from 'System Administrator' tool helps in –
 - [i] Eliminating need to physically access each NVR for version upgrade
 - [ii] Minimizing manual efforts in version upgrade on all NVRs.
 - [iii] Eliminating possibility of human errors
 - [iv] Reducing time for complete site upgrade
 - [v] Minimizing NVR down time since each NVR goes offline only for a few minutes while upgrade is under process.
4. The version upgrade from 'System Administrator' tool is completely automated process and does not require physical access to the NVRs.

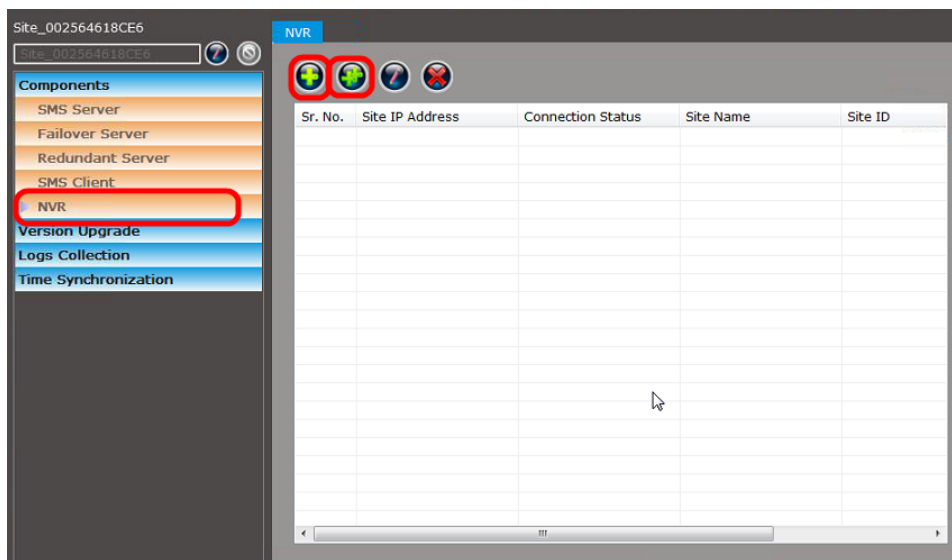
(b) Steps

1. Make sure that all target server NVRs are running in normal operation state.
2. Manually install new version of the 'Security Management System Server software' on the CMS computer.
3. After installing new version, if the CMS (Security Management System server software) application is running, please close it. Also close the watchdog application.
4. Copy the 'Security Management System Server software' installer EXE file to CMS computer. Remember the path of the installer EXE file.
5. On the CMS computer, launch the System Administrator tool from the programs menu shortcut 'Security Management System -> Server -> Tools -> System Administrator'.
6. The tool will ask for password.

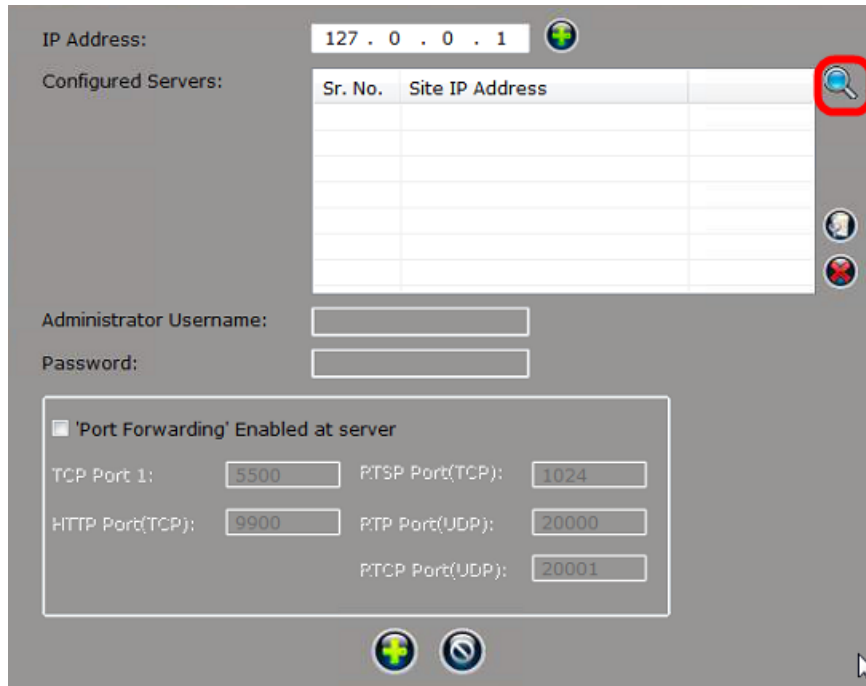


A login dialog box with a grey background. It contains two text input fields: the first is labeled 'Username:' and contains the text 'admin'; the second is labeled 'Password:' and is empty. Below the fields are two circular icons: a green one with a plus sign and a blue one with a refresh symbol.

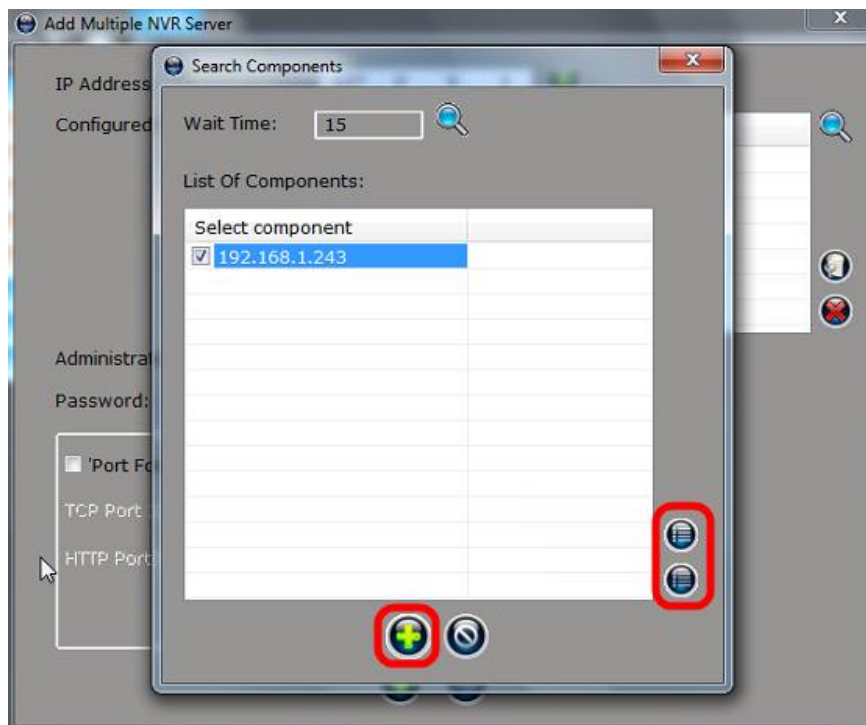
7. Please specify the 'admin' user password configured in the CMS and is used for logging in to CMS, when CMS is executed manually and when login dialog box is displayed.
8. Navigate to the 'Components -> NVR' page



9. Click on the 'Add multiple NVR servers...' button. This will pop up the 'Add Multiple NVR Servers' dialog box.

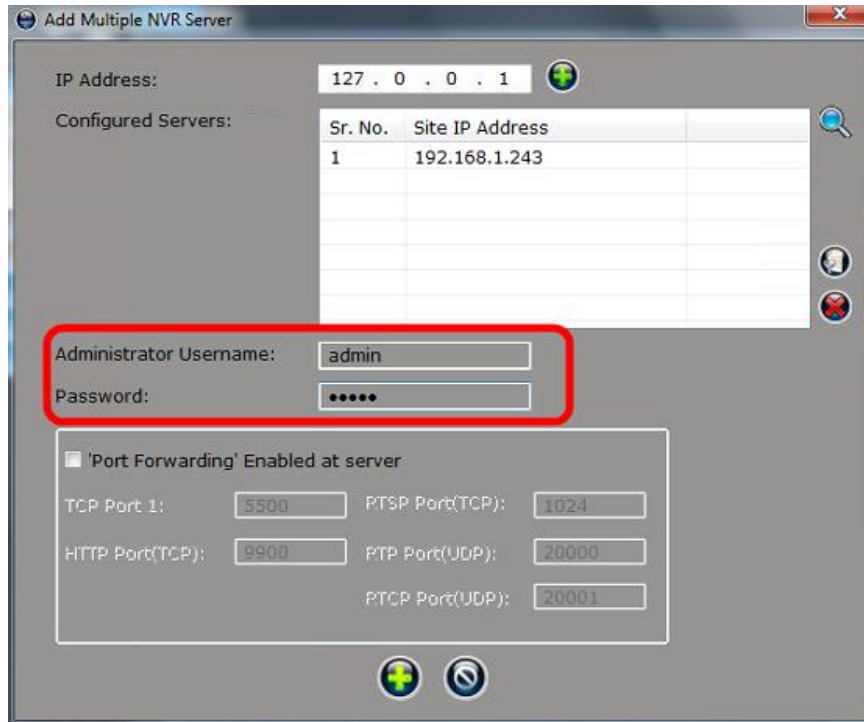


10. Click on the 'Search' button. This will pop up the 'Search Components' dialog box.

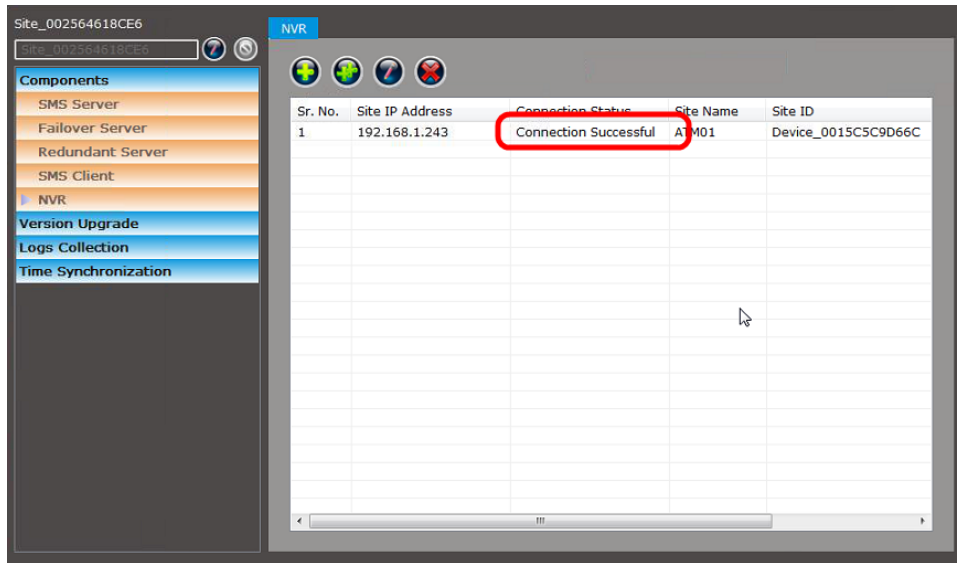


11. Please wait till the search operation completes.

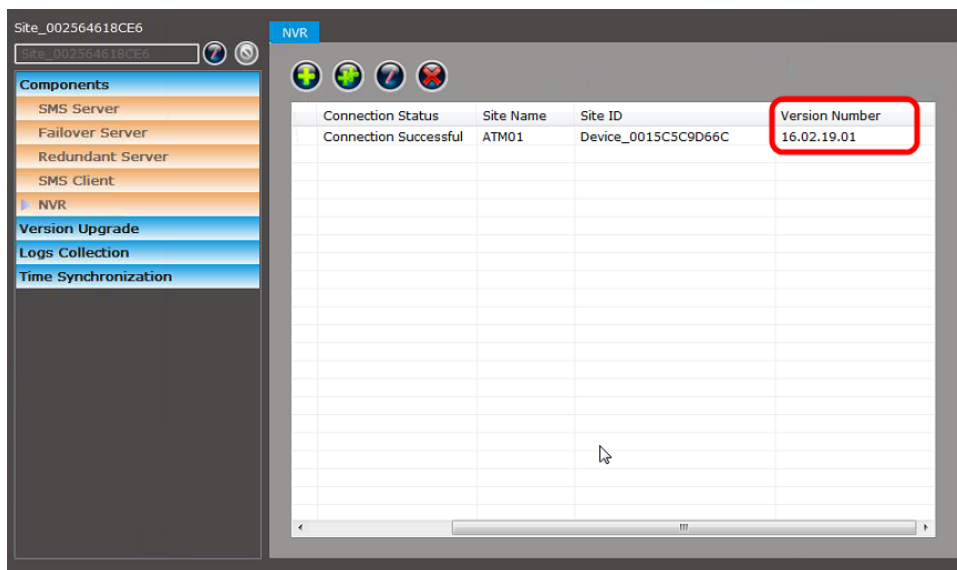
12. Select all the target servers from the list and click on the 'Add' button to add these NVRs to the list and to close the 'Search Components' dialog.



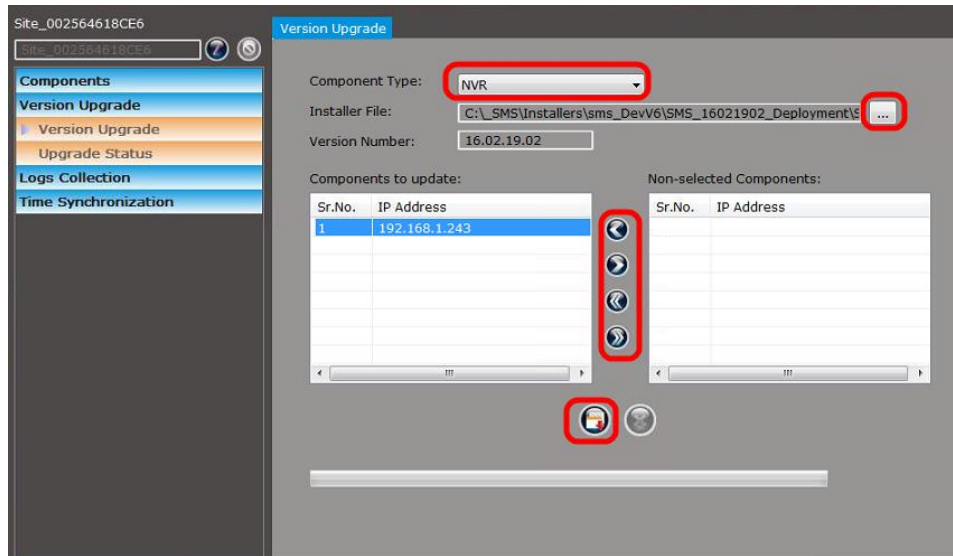
13. Type the 'Administrator Username' and 'Password'. The default 'Administrator' privilege user configured in the NVRs is 'admin' (without quote characters) and has password 'admin' (without quote characters).
Note – this document does not mention steps to add new 'Administrator' user to NVR, this document also does not mention about changing password for the default 'Administrator' privilege use 'admin'. Hence the NVRs would be using default 'Administrator' privilege user configuration.
14. Click on the 'Add' button to close the 'Add Multiple NVR Servers' dialog box
15. Alternatively please use 'Add NVR server..' button from the 'Components -> NVR' page, to add NVRs one by one.
16. Please wait till 'Connection Status' for all added NVRs is displayed as 'Connection Successful'



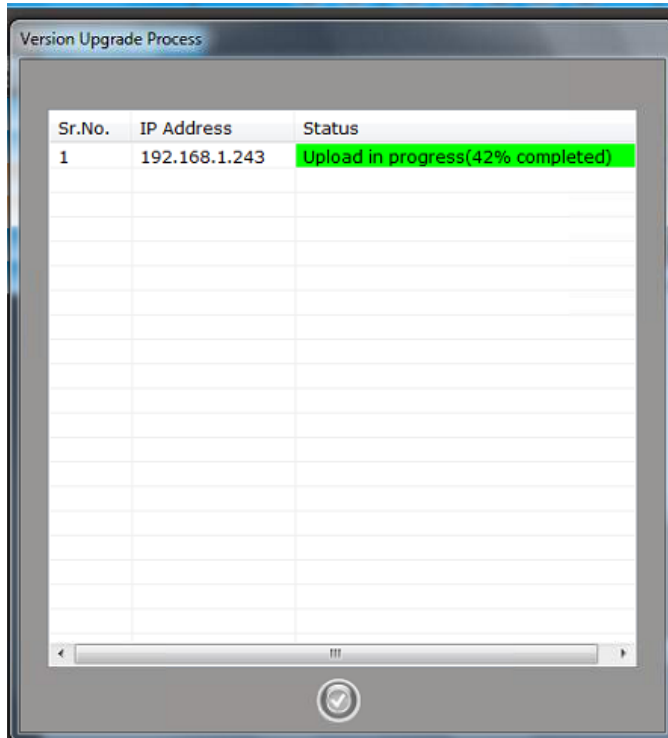
17. Use the horizontal scrollbar to check the currently installed firmware version on each of the added NVRs.



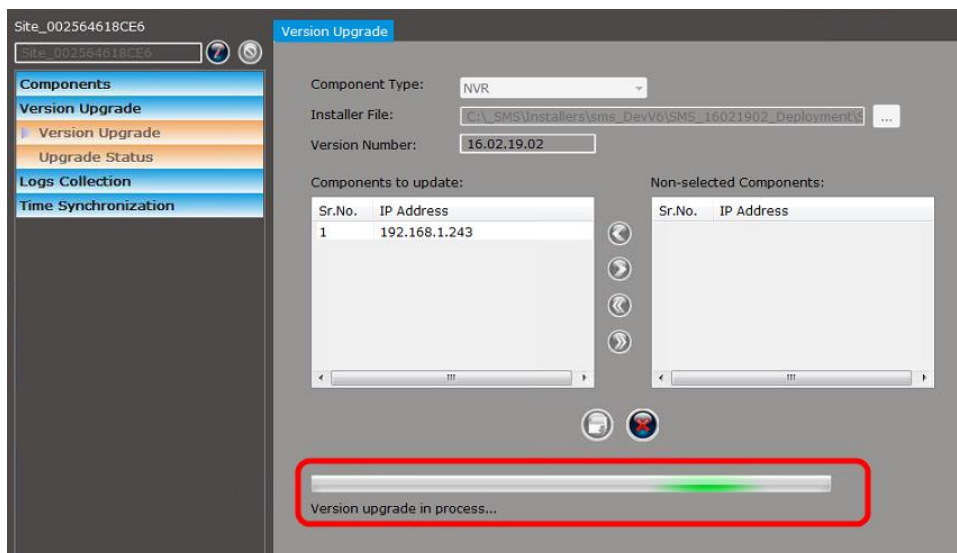
18. Navigate to the 'Version Upgrade -> Version Upgrade' page



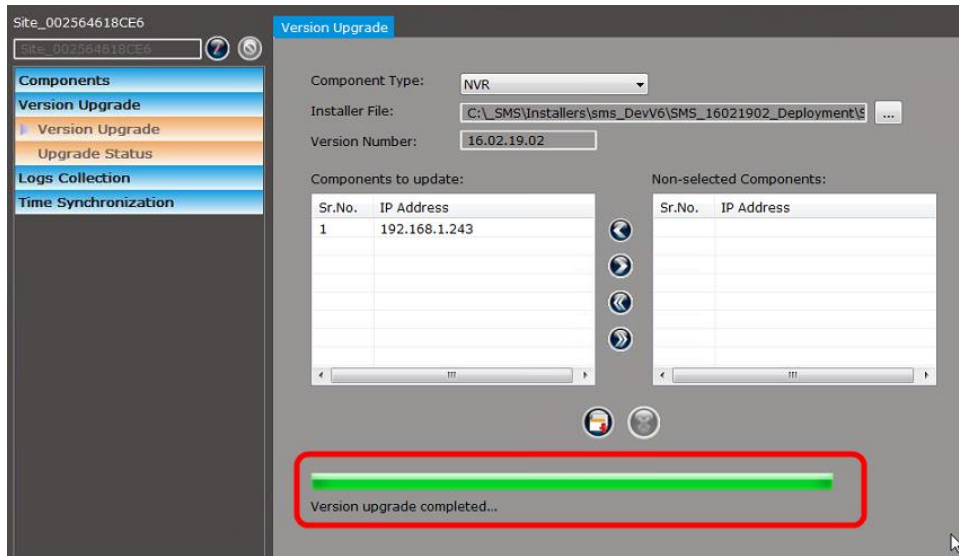
19. Select 'Component Type' as 'NVR'.
20. Click on the 'Browse..' button and browse the new version 'Security Management System server software' installer EXE and select it
21. The 'Version Number' will automatically be displayed for the selected 'Security Management System server software' installer EXE. If the version number of the selected installer EXE does not match with the CMS version, error message will be displayed. The target server software version needs to be installed on the CMS computer and the process needs to be followed again in such case.
22. Select the IP addresses of the target NVRs for which version upgrade needs to be processed.
23. Click on the 'Start version upgrade' button to start the upgrade process.
24. The upgrade is processed in 2 steps, first the installer EXE is uploaded on each of the selected NVRs and then the version upgrade is performed.
25. The 'Version Upgrade Process' dialog box will be displayed. It will display the installer EXE upload progress for each of the selected NVRs.



26. Please wait till the upload completes.
27. The 'Version Upgrade Process' will close automatically when upload completes for all NVRs.
28. The upgrade is performed on each of the NVRs after this and the 'System Administrator' tool displays 'Version upgrade in process...' message.



29. Please wait till the upgrade completes and 'System Administrator' tool displays the 'Version upgrade completed' status



30. Navigate to the 'Components -> NVR' page, and confirm the version number for all the NVRs listed. All NVRs should show the new version number after the upgrade process.

