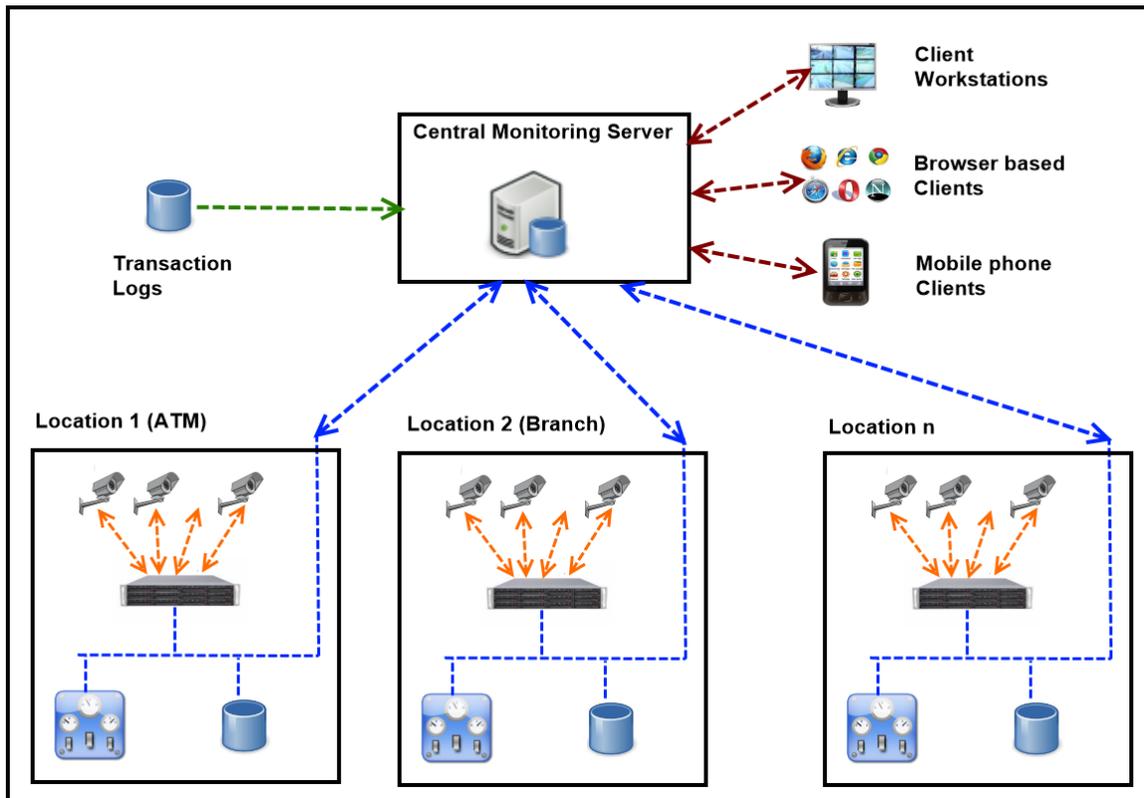


**Integration between ATM/POS Device
and Embedded VMS / NVR Device
(Real-time Messaging)
16.03.07.01**

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 ‘Integration between ATM / POS device and Embedded VMS / NVR device (real-time messaging)’ integration mode in detail.

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

16.03.07.01

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Integration between ATM / POS device and Embedded VMS / NVR device (real-time messaging)

Overall working

1. Embedded VMS / NVR has TCP server socket, listening for transaction record notifications from external systems (the external system in this case is ATM / POS device)
2. The ATM / POS device connects to the TCP server socket from Embedded VMS and sends a transaction record notification message in pre-defined XML format
3. The Embedded VMS processes the transaction record notification and sends back response indicating success / failure
4. If the transaction record notification message is valid, it is parsed by the Embedded VMS and the data is added to Embedded VMS database. The transaction record message is also forwarded to the CMS

Integration example used in this document

For every ATM/POS integration, the transaction record may contain different information (fields). Embedded VMS / NVR supports definition of these fields, as per the project requirement.

The examples in this document are for following integration requirements –

- (a) Type of integration – ATM
- (b) Number of fields in each transaction record – 4
- (c) Field 1 = ATM ID (text type field)
- (d) Field 2 = Date and time (data-time type field)
- (e) Field 3 = RequestID (text type field)
- (f) Field 4 = CardNumber (text type filed)

TCP server socket

1. The TCP server socket is available at port number 5500
2. The TCP server socket is available at IP address displayed in the Embedded VMS GUI
3. The ATM / POS device connects to the TCP server socket whenever a transaction record notification is needed to be sent and closes it after sending the notification

and receiving the response; for next transaction record notification, new connection is made with the TCP server socket.

Notification Format

The notification is in XML format, as follows –

```
<NData>
  <NRequestType>smsATMPOSNotificationRealTime</NRequestType>
  <NAuth>
    <UserName>ATMSource</UserName>
    <UserPassword>MTIzNA==</UserPassword>
  </NAuth>
  <NType>ATM_POS Transaction</NType>
  <DataStandard>
    <SMSModuleName>ATM01</SMSModuleName>
  </DataStandard>
  <DataCustom>
    <DParam>
      <ParamName>RequestID</ParamName>
      <ParamVal>A98265</ParamVal>
    </DParam>
    <DParam>
      <ParamName>CardNumber</ParamName>
      <ParamVal>9856728976AA</ParamVal>
    </DParam>
  </DataCustom>
</NData>
```

1. NData :: NRequestType – should have exact text ‘smsATMPOSNotificationRealTime’
2. NData:: NAuth :: UserName - has user name in plain text format
3. NData:: NAuth :: UserPassword - has base64 encoded user password
4. NData:: NType – should have exact text ‘ATM_POS Transaction’
5. NData:: DataStandard :: SMSModuleName – indicates the module ID
6. NData :: DataCustom – has multiple sub-nodes (DParam). One sub-node for every ‘parameter’. The list of parameters is pre-defined during integration analysis phase of every integration.
7. NData :: DataCustom :: DParam – has 2 sub-nodes –

- (a) ParamName – this is a string pre-defined during integration analysis phase of every integration
- (b) ParamVal – value associated with the parameter

Notes –

1. The list of parameters under 'NData :: DataCustom' needs to be defined, in the integration analysis phase
2. No software changes / customizations are required for every deployment, as the Video Management System software provides graphical user interface to specify these deployment specific parameters

Response Format

The response is in XML format, as follows –

```
<NResponse>  
  <NRequestType>smsATMPOSNotificationRealTime</NRequestType>  
  <ResponseStandard>  
    <RCode>1</RCode>  
    <RDescription>Success</RDescription>  
  </ResponseStandard>  
</NResponse>
```

1. NResponse :: NRequestType – indicates the type of request for which response is being sent back
2. NResponse :: ResponseStandard :: RCode – indicates the response code. It is a number.
 - (a) 1 indicates success
 - (b) 0 indicates unknown error
 - (c) Negative values indicate specific errors
 - (d) Positive values indicate warnings
3. NResponse:: ResponseStandard :: RDescription – indicates human readable string describing the success / failure of the notification processing

Integration Step 1 – Using Security Management System server software and Test Application

Introduction

(A) The Security Management System server software

1. The Security Management System server software and the Embedded VMS / NVR device use exactly same software core.
2. In normal situations, getting access to Security Management System server software is easier and faster, as it does not involve any hardware components to be shipped.
3. Hence it is recommended to use Security Management System server software for integration, instead of the Embedded VMS / NVR device.
4. Since the Security Management System server software and the Embedded VMS / NVR device use exactly same software core, it is guaranteed that same integration would work with Embedded VMS / NVR devices too.

(B) Test application 'smsATMPOSRealTimeIntegrationTest.exe'

1. A pre-compiled test application 'smsATMPOSRealTimeIntegrationTest.exe' is available along with this document.
2. The test application 'smsATMPOSRealTimeIntegrationTest.exe' demonstrates 3rd party / external application which sends ATM/POS transaction record notifications to the Security Management System server software / Embedded VMS / NVR device.

(C) Integration

1. This integration step 1 involves using Security Management System server software and 'smsATMPOSRealTimeIntegrationTest.exe' test application; to understand the overall integration process and to see the integrated solution in effect.

2. The test application 'smsATMPOSRealTimeIntegrationTest.exe' can also be used as reference application, to analyze and debug the issues if any are observed during next step which involves updates to 3rd party external application for sending real-time ATM/POS transaction messages to the Security Management System server software / Embedded VMS / NVR device

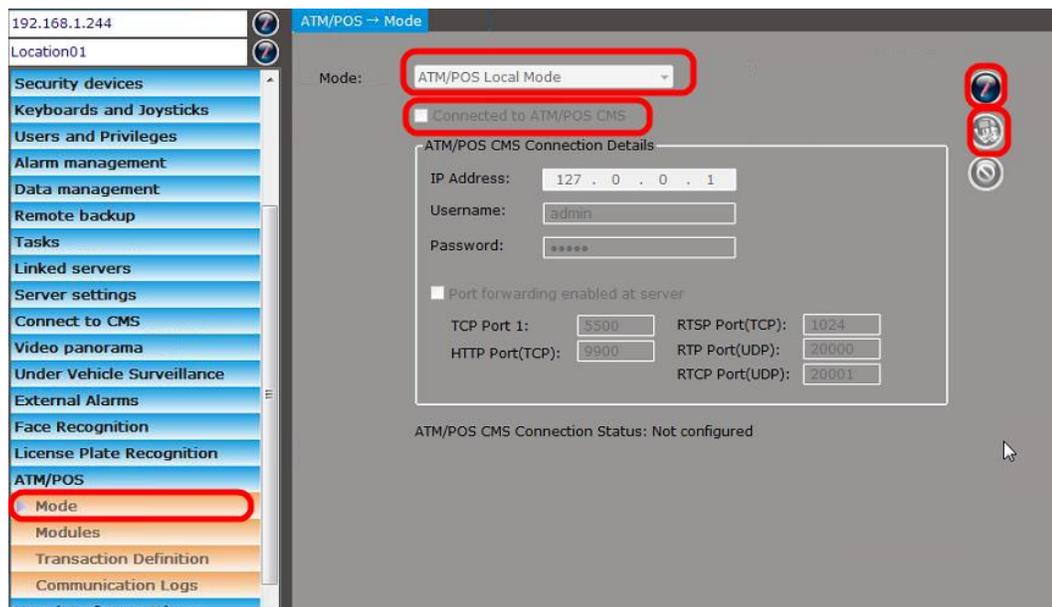
Security Management System server software configuration

Add Camera

1. Execute 'Security Management System Server' software.
2. Add any available camera to 'Security Management System Server' software for monitoring.

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

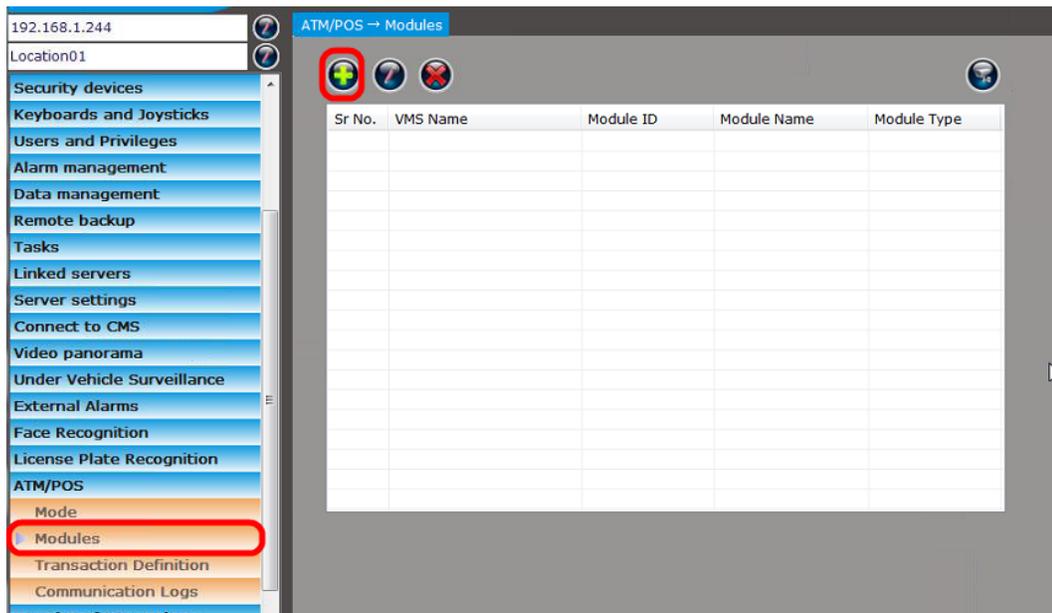
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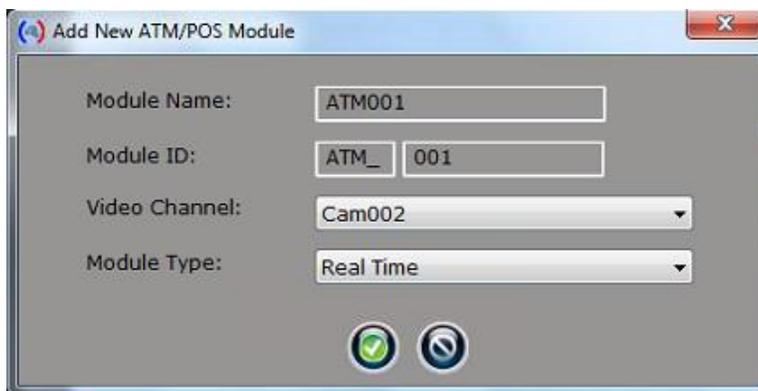
4. Ensure that 'Connected to ATM/POS CMS' checkbox is NOT selected.
5. Click on save button, to save the updated settings.

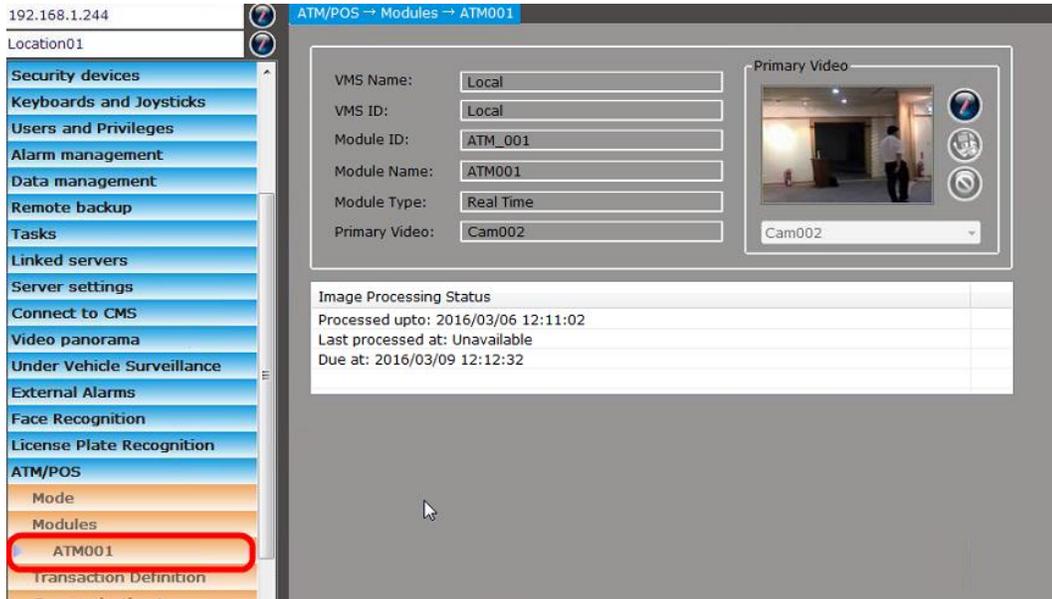
Configuring ATM/POS Modules

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



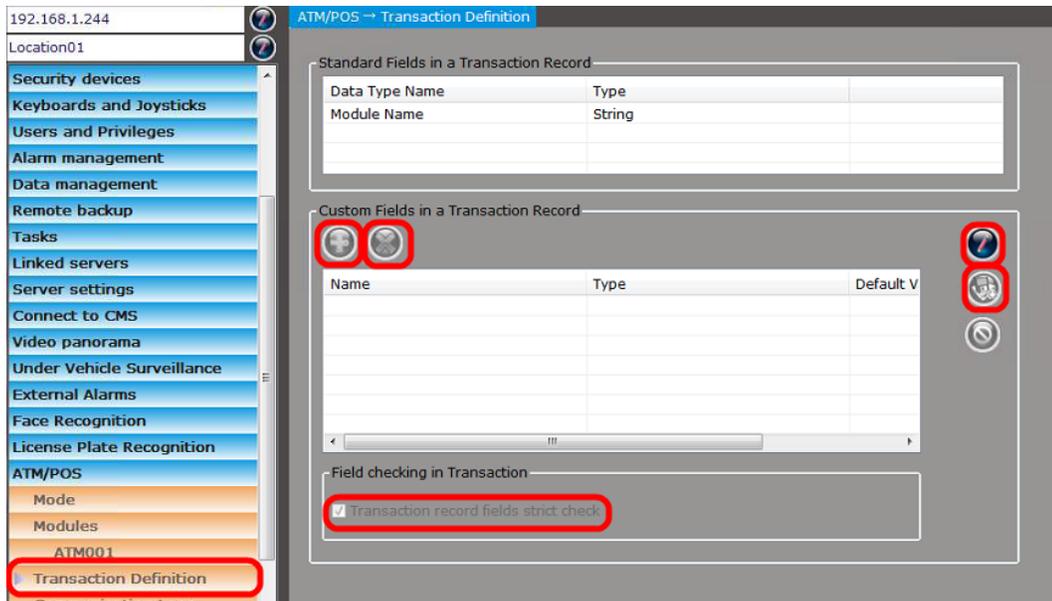
2. Click on the 'Add ATM/POS Module..' button. This will pop-up Add New ATM/POS Module dialog box.





Transaction Definition

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



2. This page shows two lists – 'Standard Fields in a Transaction Record' and 'Custom Fields in a Transaction Record'

3. '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.
4. '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 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 / Infinova 2217 VMS server software, through TCP socket.

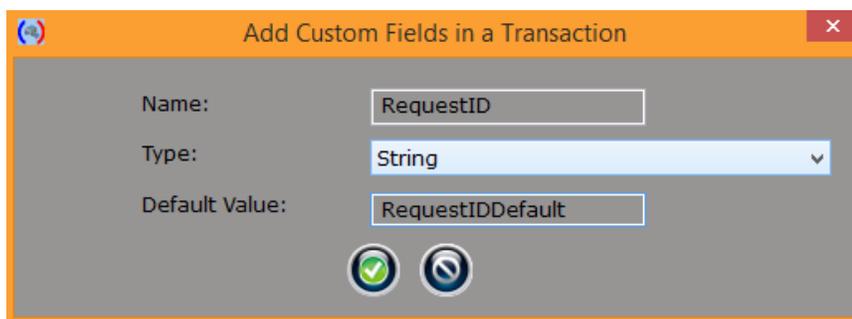
We are adding 2 custom fields, as an example for this document –

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.

5. Click on 'Edit' button available under the 'Custom Fields in a Transaction Record' section to enable the graphical user interface for editing.
6. 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.



7. 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.

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

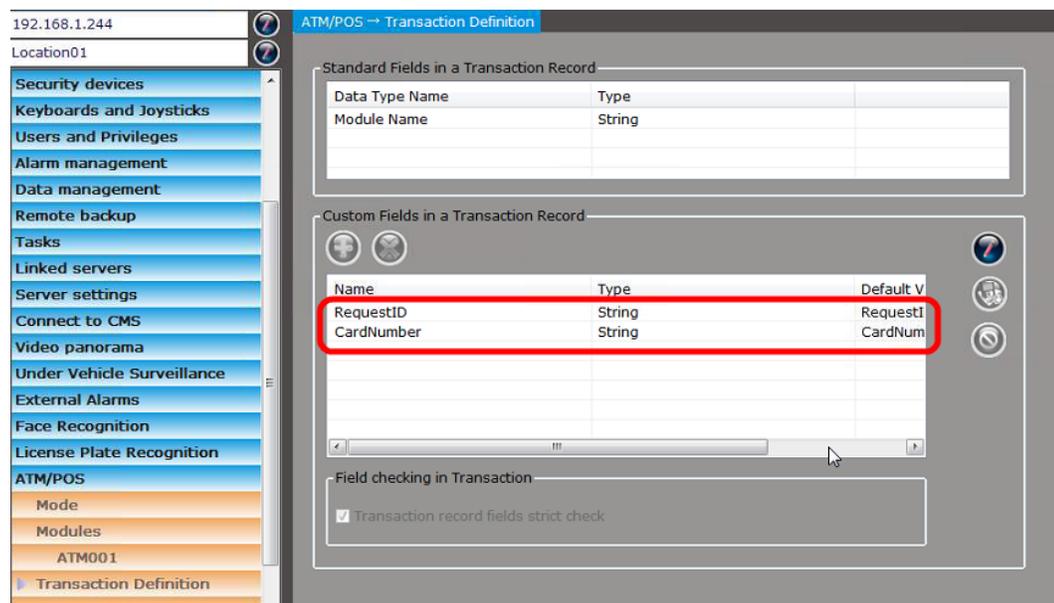
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Type the suitable default value.

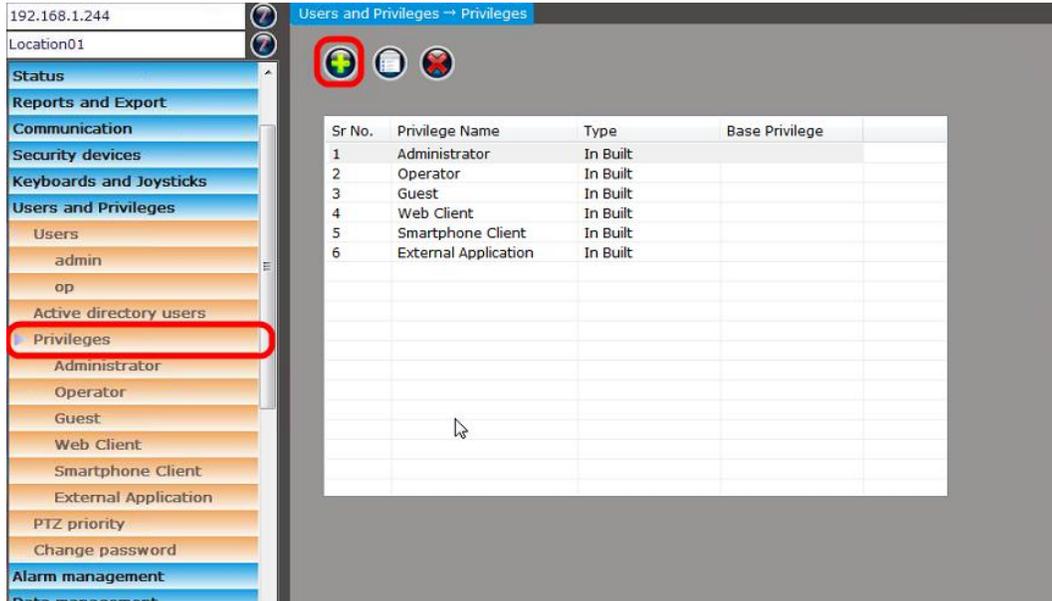
Click on the 'OK' button to finish adding the custom field to the transaction definition.

8. Similarly add more custom fields to the transaction definition, as per the integration requirements.
9. 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 NVR / Infinova 2217 VMS server software validates 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.
10. Strict check helps in ensuring integrity of the communication between the 'External application (ATM / POS device / software / system)' and the NVRs / Infinova 2217 VMS server softwares.
11. Click on save button, to save the updated settings.
12. All the configured custom transaction fields will be displayed in the 'Custom Fields in a Transaction Record' list.

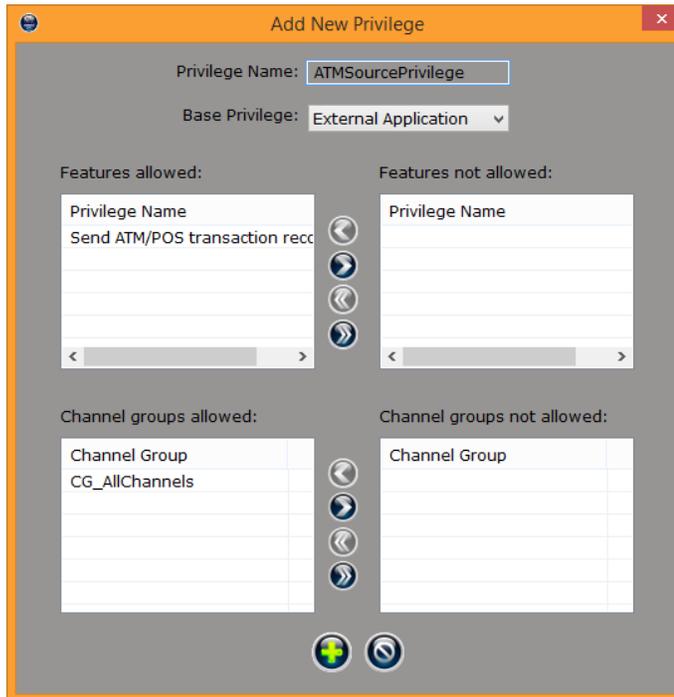


Adding New User

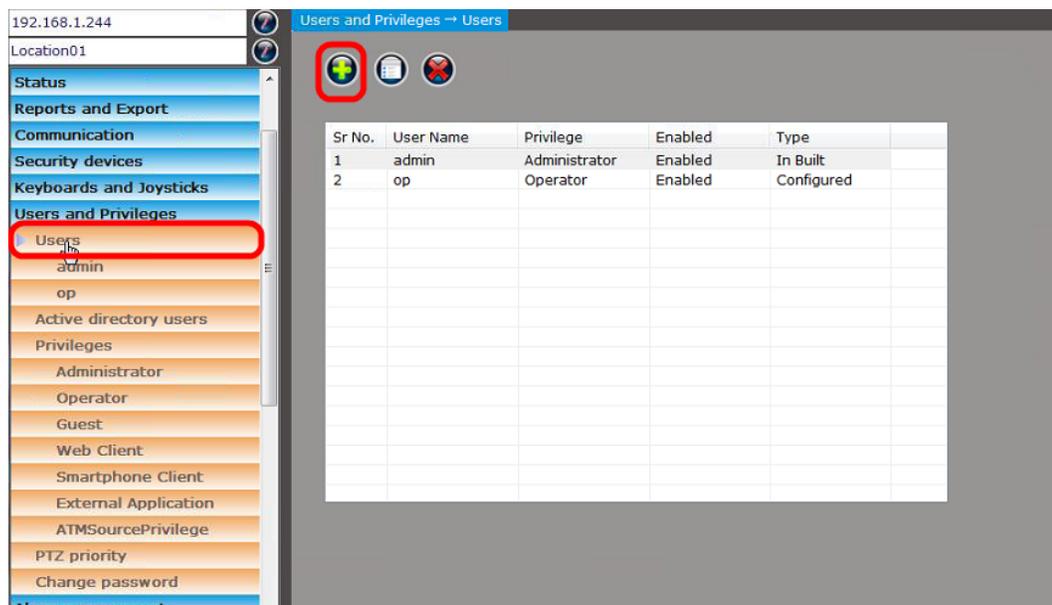
1. Please navigate to the 'Users and Privileges->Privileges' page from left hand side navigation menu.



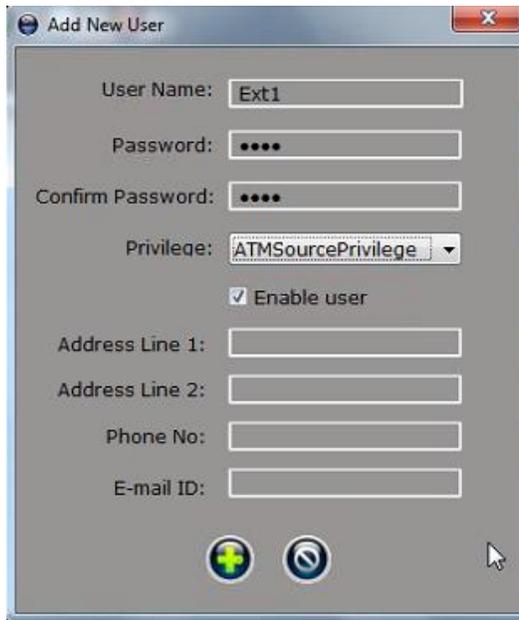
2. Click on the 'Add Privilege...' button, this will pop-up 'Add New Privilege' dialog box.



3. 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.
4. Please navigate to the 'Users and Privileges->Users' page from left hand side navigation menu.



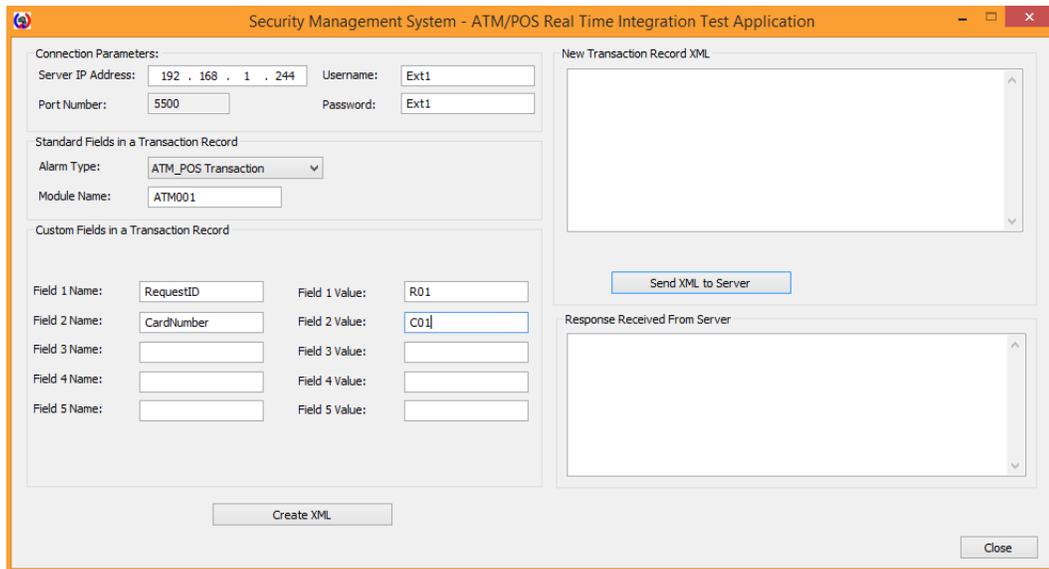
5. Click on the 'Add New User..' button, this will pop-up the 'Add New User' dialog box.



6. 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 Ext1 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.

Using Test Application [smsATMPOSRealTimeIntegrationTest.exe](#)

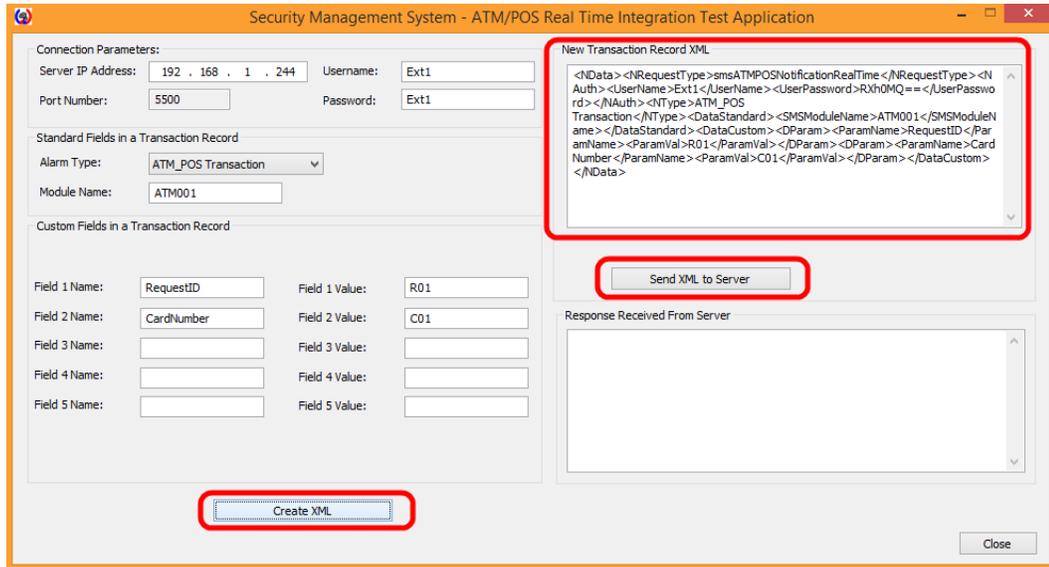
1. The test application 'smsATMPOSRealTimeIntegrationTest.exe' is available with this document
2. Copy smsATMPOSRealTimeIntegrationTest.exe test application to any computer which is on the same network as the computer hosting Security Management System server software.
3. Execute smsATMPOSRealTimeIntegrationTest.exe



4. Type 'Server IP Address'. This is the IP address of the Security Management System server software. In the server software GUI, this is displayed at the left-top corner.

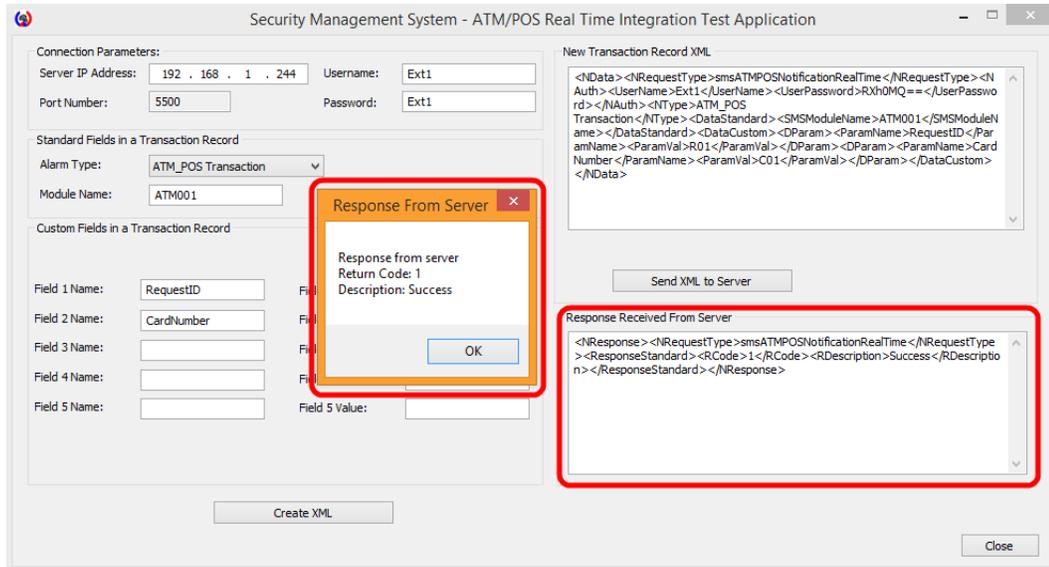


5. Type username and password. These are related to the new user added to the Security Management System server software, as described above in this document.
6. Under 'Standard Fields in a Transaction Record', select 'Alarm Type' as 'ATM_POS_Transaction'.
7. Under 'Standard Fields in a Transaction Record', type 'Module Name'. This should match with the ATM/POS module added to the Security Management System server software, as described above in this document.
8. Under 'Custom Fields in a Transaction Record', type field name and value pairs. The field names should match the 'Transaction definition' configured in the Security Management System server software, as described above in this document.
9. Click on the 'Create XML' button available below the list of 'Custom Fields in a Transaction Record'.

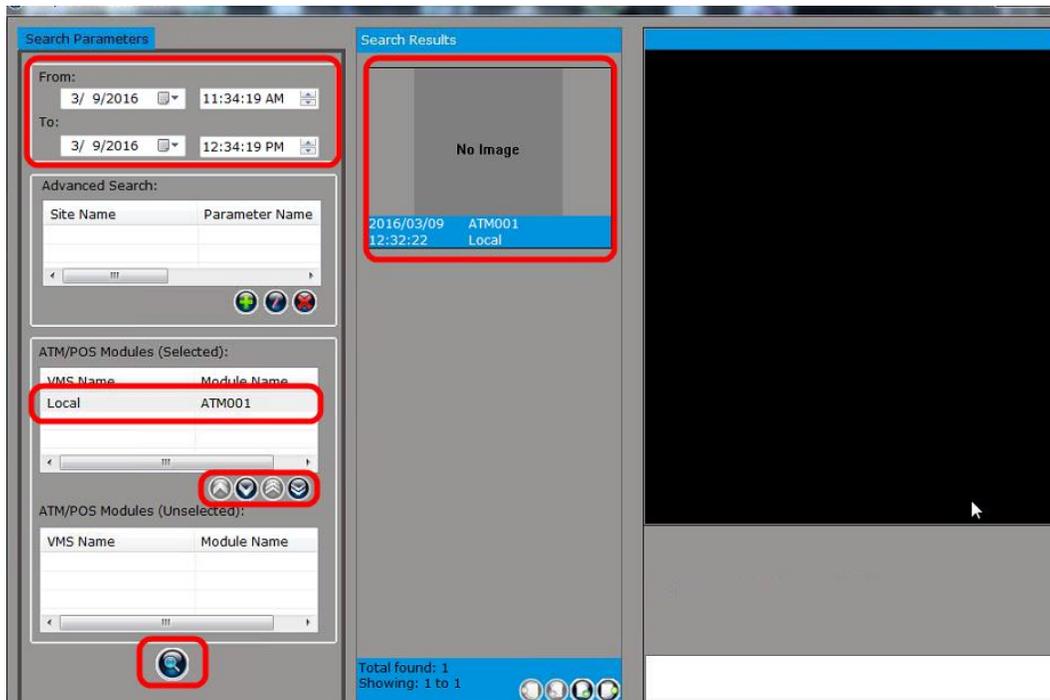


10. The XML will be created and displayed in the ‘New Transaction Record XML’ box

11. 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.



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

Integration Step 2 – Using Security Management System server software and 3rd party External Application

1. Before moving to step 2; it is important to confirm that the step 1 as described in above section is successful. The transactions logs report in server software should display the ATM/POS transaction records sent from the test application smsATMPOSRealTimeIntegrationTest.exe. This ensures that Security Management System server software is configured properly, and there are no issues in the definitions of various parameters.

If any problem is observed in step, please resolve the problem first before moving to step 2.

2. Please update the source code of the 3rd party external application, to communicate with the Security Management System server software and to send the ATM/POS transaction records one by one.
3. For sending one ATM/POS transaction record to the Security Management System server software; the 3rd party external application should follow these steps–
 - (a) Open a TCP client socket.
 - (b) Connect to TCP server socket in the Security Management System server software. The IP address and port number should be same as those used in the 'smsATMPOSRealTimeIntegrationTest.exe' test application, during the Step 1 described above
 - (c) Create XML string. Please refer to the 'New Transaction Record XML' string for comparison.
 - (d) Send the XML string to the server socket
 - (e) Receive response from the server socket.
 - (f) Confirm that the response indicates 'success'. If the response indicates failure, please check the response description to understand the exact problem and improve the transaction record XML string sent from 3rd party external application
 - (g) Close the connection with the server socket. For every new ATM/POS transaction record to be sent to the server socket, a new socket connection should be used.
4. Check the 'Transaction logs' in the Security Management System server software to confirm that server software has added all transaction records to its database.

Integration Step 3 – Using Embedded VMS / NVR device and 3rd party External Application

1. Start the Embedded VMS / NVR device.
2. The 'Settings' page on Embedded VMS / NVR device can be accessed from the taskbar available at the bottom of the main screen.
3. Add new privilege and user to the Embedded VMS / NVR device. The steps are same as those described for the Security Management System server software, in this document (in 'Integration Step 1' section)
4. Add new ATM/POS module and configure transaction definition in the Embedded VMS / NVR device. The steps are same as those described for the Security Management System server software, in this document (in 'Integration Step 1' section)
5. Try sending ATM/POS transaction records from 3rd party external application to the Embedded VMS / NVR device.

If any problems are observed, please use the 'smsATMPOSRealTimeIntegrationTest.exe' test application and try sending transaction records to the Embedded VMS / NVR device