## **PSOM 4.0.1 Logging**

In this section we collect all the logs about events that has happened. This type of logs are written once the event has finished and do not represent a live photograph of the state of the service or of the appliance. They are mostly useful for debugging user's issues and provide support.



figure 1. the static logs menu

As you can see in figure 1. the static logs menu all these logs are grouped under the "LOGGING" label into the main menu.

### 1. Security Events

Since 14.1 version Security Events has been added to PrivateServer logging. This log category lists every event captured by our Security Information and Event Management (SIEM) interface, which has been introduced in that version.

#### SecurityEvent List

Timestamp ▼	Description	Event Type	Processed
2014-03-25 16:28:10.430	CDR masking policy changed to MASK	SECURITY_CONFIGURATION_CHANGE	True
2014-03-25 16:21:15.952	Successful login	LOG_IN	True
2014-03-25 16:20:47.266	Logout due to session timeout	LOG_OUT	True
2014-03-25 16:16:47.074	Logout due to session timeout	LOG_OUT	True
2014-03-25 16:00:00.260	Heartbeat event	HEARTBEAT	True
2014-03-25 15:46:07.234	Successful login	LOG_IN	True
2014-03-25 15:41:46.232	Logout due to session timeout	LOG_OUT	True
2014-03-25 15:02:08.110	sip.conf.general.reroute_on_trunk changed to yes	APPLIANCE_CONFIGURATION_CHANGE	True
2014-03-25 15:01:52.086	sip.conf.general.reroute_on_trunk changed to no	APPLIANCE_CONFIGURATION_CHANGE	True
2014-03-25 15:00:23.414	Deleted TLS item test for subject myserver.privatewave.com	SECURITY_CONFIGURATION_CHANGE	True
2014-03-25 14:59:26.098	Successful login	LOG_IN	True
2014-03-25 14:47:32.384	Successful login	LOG_IN	True
2014-03-25 14:08:45.956	Logout due to session timeout	LOG_OUT	True
2014-03-25 13:36:23.668	Added new TLS item test for subject myserver.privatewave.com	SECURITY_CONFIGURATION_CHANGE	True
2014-03-25 13:34:16.030	Successful login	LOG_IN	True

figure 2. Security Events list

SIEM interface catches and rewrites SIEM style events that are currently managed in underlying event log layers such the one described just after present paragraph. This means that each event listed under this section is also present in a specific on but shown in different format, often raw one. SIEM formatted events are instead all present here.

#### Show SecurityEvent



figure 3. Security Event detail

Just clicking on Timestamp you get single event details as shown in figure 3. Security Event detail.

You can tell we're dealing with SIEM formatted log just by reading **Details** part. Consider that we're talking of a generic SIEM format that can be more refined and adapted for being processed by external systems. PrivateServer can generate events in CEF format, compatible with HP Arcsight product.

#### 2. System Events

System Events list shows all events occurred to PrivateServer but not directly intercepted by Web appliance because triggered out of its scope.

## SystemEvent List

Timestamp ▼	Description	Details
2014-03-25 16:00:00 CET	Heartbeat event	
2014-03-25 12:00:00 CET	Heartbeat event	
2014-03-25 08:00:00 CET	Heartbeat event	
2014-03-25 04:00:00 CET	Heartbeat event	
2014-03-25 00:00:00 CET	Heartbeat event	
2014-03-24 20:00:00 CET	Heartbeat event	
2014-03-24 16:00:00 CET	Heartbeat event	
2014-03-24 12:00:00 CET	Heartbeat event	
2014-03-24 11:33:43 CET	Appliance updated from version 14.1-4834.fc14 to 14.1-4835.fc14	
2014-03-24 11:33:29 CET	Appliance Software Upgrade	
2014-03-24 08:00:00 CET	Heartbeat event	
2014-03-24 04:00:00 CET	Heartbeat event	
2014-03-24 00:00:00 CET	Heartbeat event	

figure 4. System Events list

#### Examples are:

- Web appliance updates
- Web appliance reboot
- Appliance backup and restores
- Heartbeat

## Show SystemEvent

Timestamp: 2014-03-24 11:33:43 CET

Description: Appliance updated from version 14.1-4834.fc14 to 14.1-4835.fc14

Details:

figure 5. System Event details

Clicking on Timestamp part of the log shows you System Event's details as show in figure 5. System Event details.

## 3. Auditing

The **Auditing** page shows any change to the configuration performed via web console.

## AuditLogEvent List

Timestamp	Username	Change	Object Type	Object ID		
2013-10-09 13:11:46.000		INSERT	User's role			
2013-10-09 13:11:27.000		INSERT	User's role			
2013-10-09 11:02:31.000		INSERT	Asterisk Setting	937		
2013-10-09 11:02:31.000		INSERT	Asterisk Setting	936		
2013-10-09 11:02:30.000		INSERT	Setting	84		
2013-10-09 11:02:30.000		DELETE	Setting	83		
2013-10-08 17:16:35.000		INSERT	Asterisk Setting	935		
2013-10-08 17:16:35.000		INSERT	Asterisk Setting	934		
2013-10-08 17:16:34.000		INSERT	Setting	83		
2013-10-08 17:16:34.000		DELETE	Setting	82		
2013-10-08 16:34:51.000		UPDATE	privateserver.SmsSenderConfig	5		
2013-10-08 15:45:58.000		UPDATE	Repository	11		
2013-10-08 15:44:52.000		UPDATE	Repository	11		
2013-10-08 15:44:52.000		INSERT	Asterisk Setting	933		
2013-10-08 15:44:52.000		INSERT	Asterisk Setting	932		
2013-10-08 15:44:51.000		INSERT	Setting	82		
2013-10-08 15:44:51.000		DELETE	Setting	81		
2013-10-08 15:18:58.000		INSERT	Asterisk Setting	931		
2013-10-08 15:18:58.000		INSERT	Asterisk Setting	930		
2013-10-08 15:18:57.000		INSERT	Setting	81		
2013-10-08 15:18:57.000		DELETE	Setting	80		
2013-10-08 15:12:21.000		UPDATE	Account	737		
2013-10-08 15:12:02.000		UPDATE	privateserver.SmsSenderConfig	10		
2013-10-08 15:12:02.000		UPDATE	privateserver.SmsSenderConfig	9		
2013-10-08 15:12:02.000		UPDATE	privateserver.SmsSenderConfig	8		
2013-10-08 15:12:02.000		UPDATE	privateserver.SmsSenderConfig	7		
2013-10-08 15:10:40.000		UPDATE	Account	737		
2013-10-08 15:10:32.000		INSERT	privateserver.SmsSenderConfig	10		
2013-10-08 15:10:32.000		INSERT	privateserver.SmsSenderConfig	9		
2013-10-08 15:10:32.000		INSERT	privateserver.SmsSenderConfig	8		
1 2 3 4 5 6 7 8 9 10 78 Next Filter Pure and Unfiltered!						
□ csv						

figure 6. List of Audit Events Log List

As shown above in figure 6. List of Audit Events Log List, we can collect several informations:

• Timestamp: the exact time the event happened.



Please remember that the timestamp is related to the appliance's time configuration. It's local time which gets reported.

- Username: the user who performed the change is traced by the username used in the login.
  Change: the type of changes performed.
  Object Type
  Object ID

These informations can be used for security checks as for post-issue analysis.

#### 4. Web Sessions

In the web sessions it's possible to read the list of all the access made to the web console.

#### AuthenticationEvent List

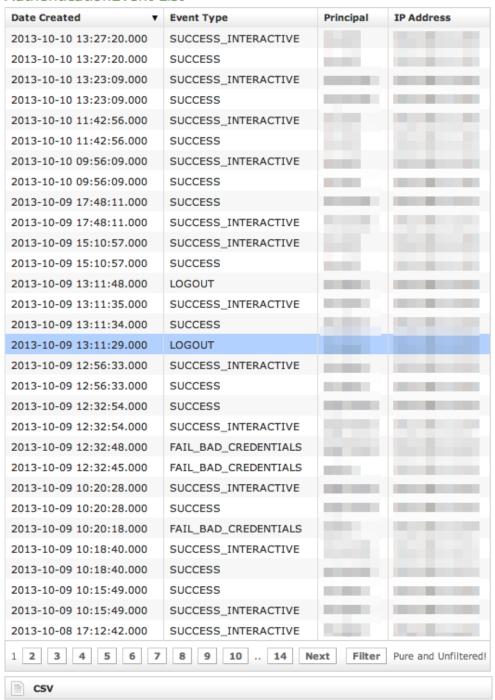


figure 7. List of Web Session Logs

Just click on the Web Sessions entry in the main menu and you get a list as in figure figure 7. List of Web Session Logs. Fields shown are:

- Date Created: this is when the event occurred
- Event Type: there are several type of Events (see specifications below)
- Principal: the username used to log in.
- IP Address: the IP address from which the connection has been performed.

#### 4.1. Event Types

Here follows a list of all the event types logged in this table:

- SESSION\_TIMEOUT : pretty self explanatory
- LOGOUT: The user performed a logout
- SUCCESS\_INTERACTIVE / SUCCESS: these two events always come together and indicates a login has successfully performed. The former
  one points out the login happened through the web interface ("interactive"), the latter is a generic successful login log.
- FAIL\_USER\_NOT\_FOUND : the login used was not found among the users configured.
- FAIL\_CREDENTIALS\_EXPIRED: the password or the credentials used are set as expired
- FAIL\_BAD\_CREDENTIALS : wrong password

#### 5. Call Detailed Records

Despite its name the CDR is a debugging and quality assurance facility. It saves all the calls status, meaning it is very useful to understand is something is going wrong with you Secure Call Service.

To access the CDR you must click on the Call Detailed Record in the main menu. You'll get the "Cdr List" page which includes all the calls recorded.

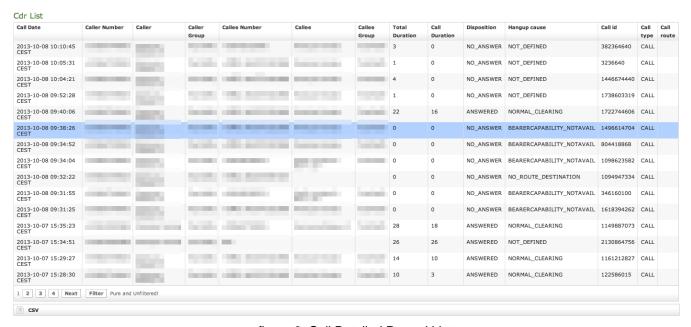


figure 8. Call Detailed Record List

If the table is empty, please place a phone call between the two SIp Accounts. Then come back on this page and check that the call has been correctly registered. The shown fields are:

- · Call Date: when the call has been placed.
- Caller Number: The virtual phone number used to place the call.
- Caller: The caller description, if any.
- Caller Group: The caller's group description, if any.
- Callee Number: The virtual phone number called.
- Callee: The callee description, if any.
- Callee Group: The callee's group description, if any.
- Total Duration: how long the call lasted. Time elapsed from the moment the "Call Button" is pressed on the caller's client to the one in which the
  communication is closed at all.
- Call Duration: how long the call lasted, just the voice.
- **Disposition**: which result the call had.
- Hangup Cause: how long the call lasted.
- Call id: a unique number that identifies the call.
- Call type: nature of the call performed.
- Call route: if the call transited on a trunk this field would shown the trunk's name.

#### 5.1. Relevant fields in CDR

The **Disposition** is very important because it tells you the exit code of each call. Possible codes are:

- 1. **ANSWERED**: the call was taken by the callee
- 2. NO\_ANSWER: nobody picked up the phone to answer (mostly this is a time out code)
- 3. BUSY: the callee refused the call
- 4. FAILED: for some reason the call was not able to be placed

The Hangup Cause describes in details what caused the hangup. Possible causes are:

- 1. NO\_ROUTE\_DESTINATION: The callee is not reachable because of network issues.
- 2. NORMAL\_CLEARING: Call closed normally.
- 3. USER BUSY: The user is busy.
- 4. NO\_ANSWER: The callee didn't answer and the call was closed for timeout reason.
- 5. CALL\_REJECTED: The callee rejected the call, as by pressing the "hold" button.
- 6. BEARERCAPABILITY\_NOTAVAIL: The caller and the callee were using different security models that are not compatible.
- 7. NO\_USER\_RESPONSE: The same as in "NO\_ANSWER", but this happens when the call goes out by Trunk.

The **Call Type** identifies the nature of the call. Used with the Call id fields this value is useful to trace down complex calls like three-way calls, conferences or transferred calls. Possible values are:

- 1. CALL: Usual call between two persons
- 2. 3-WAY: Usual call (as above) with an added person during the call
- 3. CONFERENCE: Conference call
- 4. TRANSFER: Usual call that is transferred to a third person

The **Call id** is a number that identifies uniquely the call. It can be used to trace a call if it changes its nature (ie becoming a three-way call) or to group all the participants (ie in a conference room).



It's possible to avoid any call record, as a Privacy option. To enable the "No-CDR" option, you just have to set the CDR Period to "DAY" and the duration to '0' (zero).



The above statement about the CDR Privacy option is true only for the DIRECT calls (which are the calls between two users). Conferences and 3-way calls will be logged as ever, though.

#### 6. Messages

The Messages page lists Secure Messages managed by PrivateServer.

(i)

Only transport data are listed in this view: no payload or other data about Secure Messages are showed up

figure 9. list of Secure Messages

The list represent the log of Secure Messages transaction happened, so that it's showed:

- Received: when PrivateServer actually received the Secure Message
- From: sender's account name
- To: recipient's account name
- Status: status of the message. Secure Message Statuses are described in next paragraph

Each Secure
Message managed
by PrivateServer is
represented on one
single line, as
shown in figure 9.
list of Secure
Messages.

## Message List

Received ▼	From	То	Status	Sent
2014-01-20 14:12:30.712	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:28.80	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:24.176	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:19.216	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:13.368	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:13.344	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:12.912	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:10.200	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:07.344	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:06.216	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 14:12:05.752	HTC One X	Samsung Galaxy SII	DELIVERED	1
2014-01-20 13:40:37.416	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:36.372	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:36.788	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:34.732	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:34.468	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:34.216	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:32.20	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:31.580	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:31.376	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:29.212	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:29.976	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:28.732	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:27.336	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:26.776	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:25.576	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:23.140	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:23.304	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:22.376	Samsung Galaxy SII	HTC One X	DELIVERED	1
2014-01-20 13:40:21.296	Samsung Galaxy SII	HTC One X	DELIVERED	1
Previous 1 2 3 4	5 6 7 8 9	10 33 Next		

#### 6.1. Secure Message Status

Each Message walks through different statuses, each one representing a miles tone towards its delivery:

- ENQUEUED:
   PrivateServer
   received the
   request to deliver
   one Secure
   Message and put it
   in its queue to be
   managed
- DELIVERED:
   Secure Message
   has been delivered
   to recipient's device
   which sent back a
   receive confirmation.

There are statuses describing **issues** ra ised **during the delivery**, such as:

- EXPIRED: the message has been in queue for more than 72 hours and thus it's no more considered valid.
- 2. INVALID\_RECIPIE NT: recipient's cannot deal with Secure Messages
- 3. INVALID\_DEVICE: recipient's device does not support Secure Messaging
- 4. INVALID\_PAYLOAD
  : message content
  is empty or bigger
  than 600 byte (this
  should never
  happen)

# 7. SIP Sessions

The **SIP Sessions** p age show the activities each Account did with the server.

SessionLogEntry List

Timestamp	Event	Source	Peername	Account	Details	Useragent	Remoteaddr	Tiscipher	Transport
2014-01-22 16:55:15.116	REGISTER	CLIENT		9.99	200 OK	PGSM_ENT-14.0.2233-iphone iPhone-5/7.0.3		AES256- SHA	TLS
2014-01-22 16:55:00.182	REGISTER	CLIENT			200 OK	PGSM_ENT-14.0.3611-android samsung-GT- I9300/4.1.2		AES256- SHA	TLS
2014-01-22 16:55:00.162	DISCONNECT	UNKNOWN			REPLACED	PGSM_ENT-14.0.3611-android samsung-GT- I9300/4.1.2		AES256- SHA	TLS
2014-01-22 16:54:59.594	CONNECT	CLIENT				PGSM_ENT-14.0.3611-android samsung-GT- I9300/4.1.2		AES256- SHA	TLS
2014-01-22 16:54:49.718	REGISTER	CLIENT		1	200 OK	PGSM_ENT-14.0.3627-android samsung-GT- I9505/4.3		AES256- SHA	TLS
2014-01-22 16:54:49.212	CONNECT	CLIENT				PGSM_ENT-14.0.3627-android samsung-GT- I9505/4.3		AES256- SHA	TLS
2014-01-22 16:54:39.074	UNREGISTER	SERVER		777	DISCONNECTION	PGSM_ENT-14.0.3627-android samsung-GT- I9505/4.3		AES256- SHA	TLS
2014-01-22 16:54:39.028	DISCONNECT	SERVER			CLOSED	PGSM_ENT-14.0.3627-android samsung-GT- I9505/4.3		AES256- SHA	TLS
2014-01-22 16:54:39.010	UNREGISTER	SERVER		1	EXPIRATION	PGSM_ENT-14.0.3627-android samsung-GT- I9505/4.3		AES256- SHA	TLS
2014-01-22 16:49:51.484	REGISTER	CLIENT			200 OK	PGSM_ENT-14.0.2233-iphone iPhone-5/7.0.3		AES256- SHA	TLS
2014-01-22 16:49:31.608	REGISTER	CLIENT	-		200 OK	PGSM_ENT-14.0.2262-iphone iPhone-4/7.0.2		AES256- SHA	TLS
2014-01-22 16:47:57.102	REGISTER	CLIENT			200 OK	PGSM_ENT-14.0.2233-iphone iPhone-4/7.1		AES256- SHA	TLS

figure 10

To get this list just click on the SIP Sessions entry in the main menu. The activities are listed by date and they give you a detailed overview of the SIP status for each one. These logs are very useful for debugging the networking issues on the client side.

The Event column lists the SIP events:

- CONNECT: PrivateGSM client opened a connection to PrivateServer. This usually means the client has been activated
- . REGISTER: The Account has been correctly registered and is now on line
- UNREGISTER: The Account has been correctly unregistered and is now off line
- DISCONNECT: PrivateGSM client closed the connection. This usually means the client has been stopped.

Each one has its **Details** column which explains the exact message provided by the PrivateServer.

**CONNECT/DISCONNECT** event are bound to a remote address, not directly related to a specific VoIP account. A periodic background task analyses the SIP session logs and, when possible, reconcile them binding these events to a specific account.

Reconciliation is very useful while debugging SIP session for a specific user: clicking on username field will show a filtered list of SIP session events.

#### 8. Install messages

Install messages are one amongst the numerous means for installing PrivateGSM on the customers' mobile device.



To make the Install messages work fine you have to configure the Application download URL.

What we accomplish sending an Installation message is to help the customer to find out the correct edition of PrivateGSM application (either Professional or Enterprise) and automatically install it.

#### Install messages

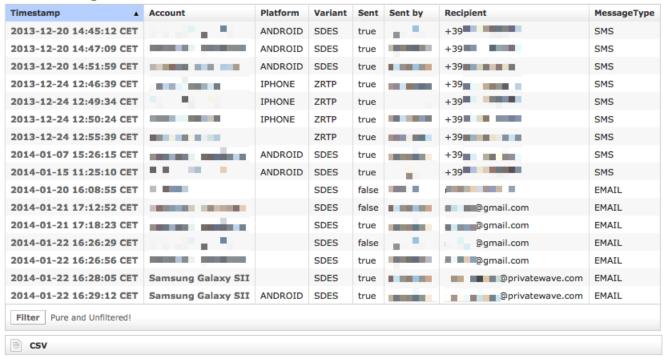


figure 11. list of the install messages sent

main features of the logs of the install messages are:

- Timestamp: the exact date & time when the message has been sent
- Account: to who the message has been sent to
- Platform: which mobile platform
- Variant: this could be either:
  - o ZRTP: this is the Professional Edition
  - o SDES: this is the Enterprise Edition
- Sent: if the message results to be effectively sent or if there were issues in sending it
- Sent by: the User who sent the Install Message.
- Recipient: the number of mobile device or the email address to whom message has been sent to
- Message Type: this could be either:
  - EMAIL: Installation message was sent by email (user's mailbox must be set up)
  - o SMS: Installation message was sent by Text Message (SMS) using user's virtual phone number

#### Install message

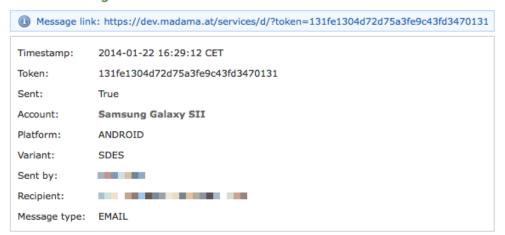


figure 12. details of one install message

Tip

Clicking on the Account field brings you straight to the Account's detail.

#### 9. Provisioning messages

Provisioning messages are basically the mean for delivering the download URI of the provisioned configuration. Long story short: whenever you push an automatic activation by sending the provisioning message you're sending a text message that contains the URI to the user's configuration. Part of this configuration is created by the Provisioning Profile, part of it is taken by the Account configuration. Nevertheless, it's always a configuration file to be downloaded and then installed in your PrivateGSM.

## **Activation Messages**

Timestamp	Consumed	Account	Sent	Sent by	Recipient	Message type
•						
2014-01-22 15:57:01 CET	True		True		@gmail.com	EMAIL
2014-01-22 12:17:19 CET	True		True		+393	SMS
2014-01-22 10:57:17 CET	True	Samsung Galaxy SII	True		+393	SMS
2014-01-22 10:56:14 CET	True	iPhone 4s	True		+393	SMS
2014-01-21 17:18:13 CET	True		False		@gmail.com	EMAIL
2014-01-21 17:15:38 CET	True		False		@gmail.com	EMAIL
2014-01-20 16:09:40 CET	False		False		@gmail.com	EMAIL
2014-01-20 16:02:44 CET	True	iPhone 4s	True		+393	SMS
2014-01-20 15:54:37 CET	True	iPhone 4s	True		+393	SMS
2014-01-20 15:05:30 CET	True	Samsung Galaxy SII	True		+393	SMS
2014-01-20 15:05:07 CET	True	null	True		+393	SMS

figure 13. Log list of the provisioning messages

Clicking on the **Provisioning Messages** link brings you to the logs list shown in figure 13. Log list of the provisioning messages. Here you have all the primary informations about the automatic activation performed:

- Timestamp: when each message has been sent
- Consumed: status of the message, or else either it's been used (consumed) or not. This means if the customer has ever clicked on the link inside the text message/email
- Account: user to whom the message has been sent
- if the text message has been Sent or not, meaning if any problem arose during the delivery and the text never left the server.
- Sent by: the web console user who sent this provisioning message
- Recipient: the number of mobile device or the email address to whom message has been sent to
- Message Type: this could be either:
  - EMAIL: Installation message was sent by email (user's mailbox must be set up)
  - o SMS: Installation message was sent by Text Message (SMS) using user's virtual phone number

#### Show Activation message



figure 14. detail of provisioning message

Clicking on the Timestamp field it becomes possible to reveal details about each message. You can have an example in figure 14. detail of provisioning message.



Clicking on the Account field brings you straight to the Account's detail.

Three are the contents shown in the detail form that are not present in the list above:

- 1. The Message link
- 2. The Token
  3. The Validity

PSOM 4.0.2 Real-Time management