

Technical Information Bulletin

SV8100 SIP Trunk Enabling Pedantic Mode Security



Overview

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Author	Technical Support	

Document History

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1.0	October 2017	Initial version	Technical Support

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Introduction

Some SIP Trunk Servers use Pedantic Mode for dialogue security. The way these SIP servers identify whether an incoming message belongs to a specific dialog is to check the call-id, to tag, and from tag. This document provides the script setting required to activate pedantic mode on the SV8100.

Outgoing SIP Trunk Call Drop Issue

SV8100 V10.17 or lower does not support pedantic mode script Prg 84-39-09 setting. Therefore when a carrier enables pedantic mode at the SIP server, an outgoing SIP trunk call that is established will disconnect due to sip server session timing out.

Cause

This is caused by the SV8100 SIP message “from tag” during invite challenge having a different “from tag” to Invite with MD5 password. This causes the SIP server that validates the “from” tag to reject our ACK to a 200OK message.

Below example Wireshark trace showing an established outgoing call disconnecting after 30sec due to script 84-39-09=0. This is caused by the “from tag” during invite challenge having a different “from tag” when Invite with MD5 password is sent. This causes the SIP server that validates the “from” tag to reject our ACK to a 200OK message.

SV8100_V10.21_84-39-09=1(Padantic_Disabled)_result_Call_drop_30sec.pcap - Wireshark

Filter: sip Expression... Clear Apply

No. .	Time	src Port	Source	Destination	dest Port	Protocol	Info
19	9.846023	5060	10.10.10.10	202.52.129.50	5060	SIP/SDP	Request: INVITE sip:0398142401@sip.ntdco.com.au:5060, with session description
20	9.894467	5060	202.52.129.50	10.10.10.10	5060	SIP	Status: 401 Unauthorized
21	9.966043	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@sip.ntdco.com.au:5060
22	9.967299	5060	10.10.10.10	202.52.129.50	5060	SIP/SDP	Request: INVITE sip:0398142401@sip.ntdco.com.au:5060, with session description
23	10.078243	5060	202.52.129.50	10.10.10.10	5060	SIP	Status: 100 Trying
24	10.081252	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 183 Session Progress, with session description
365	14.027010	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
374	14.099150	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
418	14.525968	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
426	14.598488	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
562	15.590498	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
568	15.658806	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
760	17.525572	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
769	17.599313	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
1177	21.526283	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
1185	21.592275	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
1588	25.560700	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
1596	25.630433	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
1997	29.576167	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
2005	29.646291	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
2402	33.525560	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
2410	33.595586	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
2809	37.532681	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
2816	37.604811	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
3247	41.538505	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
3255	41.605622	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
3656	45.525966	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
3664	45.598778	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
3716	46.153657	5060	202.52.129.50	10.10.10.10	5060	SIP	Request: BYE sip:s1154464@10.10.10.10:5060
3721	46.226523	5060	10.10.10.10	202.52.129.50	5060	SIP	Status: 200 OK
3724	46.670909	5060	202.52.129.50	10.10.10.10	5060	SIP	Request: BYE sip:s1154464@10.10.10.10:5060
3725	46.736619	5060	10.10.10.10	202.52.129.50	5060	SIP	Status: 200 OK
3726	46.652470	5060	202.52.129.50	10.10.10.10	5060	SIP	Request: BYE sip:s1154464@10.10.10.10:5060
3727	47.716301	5060	10.10.10.10	202.52.129.50	5060	SIP	Status: 200 OK
3731	49.658499	5060	202.52.129.50	10.10.10.10	5060	SIP	Request: BYE sip:s1154464@10.10.10.10:5060
3732	49.730755	5060	10.10.10.10	202.52.129.50	5060	SIP	Status: 200 OK
3736	53.663327	5060	202.52.129.50	10.10.10.10	5060	SIP	Request: BYE sip:s1154464@10.10.10.10:5060
3737	53.728643	5060	10.10.10.10	202.52.129.50	5060	SIP	Status: 200 OK

Note: If script 84-39-09=0 (default) the “from tag” from 1st invite will be different to “from tag” for second Invite. From tag highlighted in Yellow.

INVITE sip:0398142401@sip.ntdco.com.au:5060 SIP/2.0
 From: <sip:999999@sip.ntdco.com.au>;tag=7F5432463135364100367322
 To: sip:0398142401@sip.ntdco.com.au:5060

SIP/2.0 401 Unauthorized
 Via: SIP/2.0/UDP

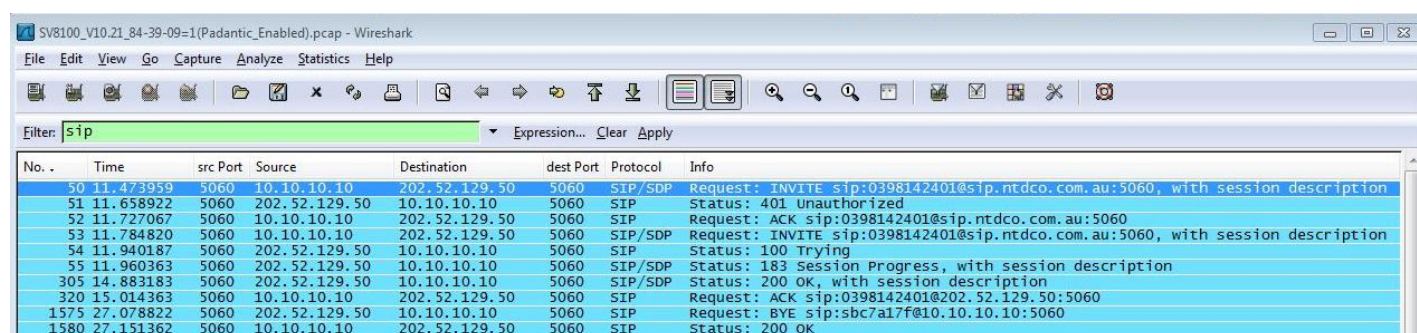
ACK sip:0398142401@sip.ntdco.com.au:5060 SIP/2.0

INVITE sip:0398142401@sip.ntdco.com.au:5060 SIP/2.0
 From: <sip:702096@sip.ntdco.com.au>;tag=7F5E32463135364100367323

Resolution

SIP script with Prg 84-39-09=1 (Pedantic Mode Enable) needs to be uploaded. Prg 84-39-09=1(Enabled) is only supported on SV8100 V10.21 or higher main software.

Below example Wireshark trace showing an established outgoing not dropping due to script 84-39-09=1. This is caused by the “from tag” during invite challenge matching the “from tag” when Invite with MD5 password is sent. This causes the SIP server that validates the “from” tag to accept our ACK to a 200OK message.



No.	Time	src Port	Source	Destination	dest Port	Protocol	Info
50	11.473959	5060	10.10.10.10	202.52.129.50	5060	SIP/SDP	Request: INVITE sip:0398142401@sip.ntdco.com.au:5060, with session description
51	11.658922	5060	202.52.129.50	10.10.10.10	5060	SIP	Status: 401 Unauthorized
52	11.727067	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@sip.ntdco.com.au:5060
53	11.784820	5060	10.10.10.10	202.52.129.50	5060	SIP/SDP	Request: INVITE sip:0398142401@sip.ntdco.com.au:5060, with session description
54	11.940187	5060	202.52.129.50	10.10.10.10	5060	SIP	Status: 100 Trying
55	11.960363	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 183 Session Progress, with session description
305	14.883183	5060	202.52.129.50	10.10.10.10	5060	SIP/SDP	Status: 200 OK, with session description
320	15.014363	5060	10.10.10.10	202.52.129.50	5060	SIP	Request: ACK sip:0398142401@202.52.129.50:5060
1575	27.078822	5060	202.52.129.50	10.10.10.10	5060	SIP	Request: BYE sip:0398142401@10.10.10.10:5060
1580	27.151362	5060	10.10.10.10	202.52.129.50	5060	SIP	Status: 200 OK

Note: If script 84-39-09=1 the “from tag” from 1st invite will be the same for “from tag” for second Invite.

```
INVITE sip:0398142401@sip.ntdco.com.au:5060 SIP/2.0
From: <sip:99999@sip.ntdco.com.au>;tag=7F5E32463135364100367322
To: sip:0398142401@sip.ntdco.com.au:5060
```

```
SIP/2.0 401 Unauthorized
Via: SIP/2.0/UDP
```

```
ACK sip:0398142401@sip.ntdco.com.au:5060 SIP/2.0
```

```
INVITE sip:0398142401@sip.ntdco.com.au:5060 SIP/2.0
From: <sip:702096@sip.ntdco.com.au>;tag=7F5E32463135364100367322
```

Knowledge Base

The SIP scripts can be found on the NEC knowledge base website:

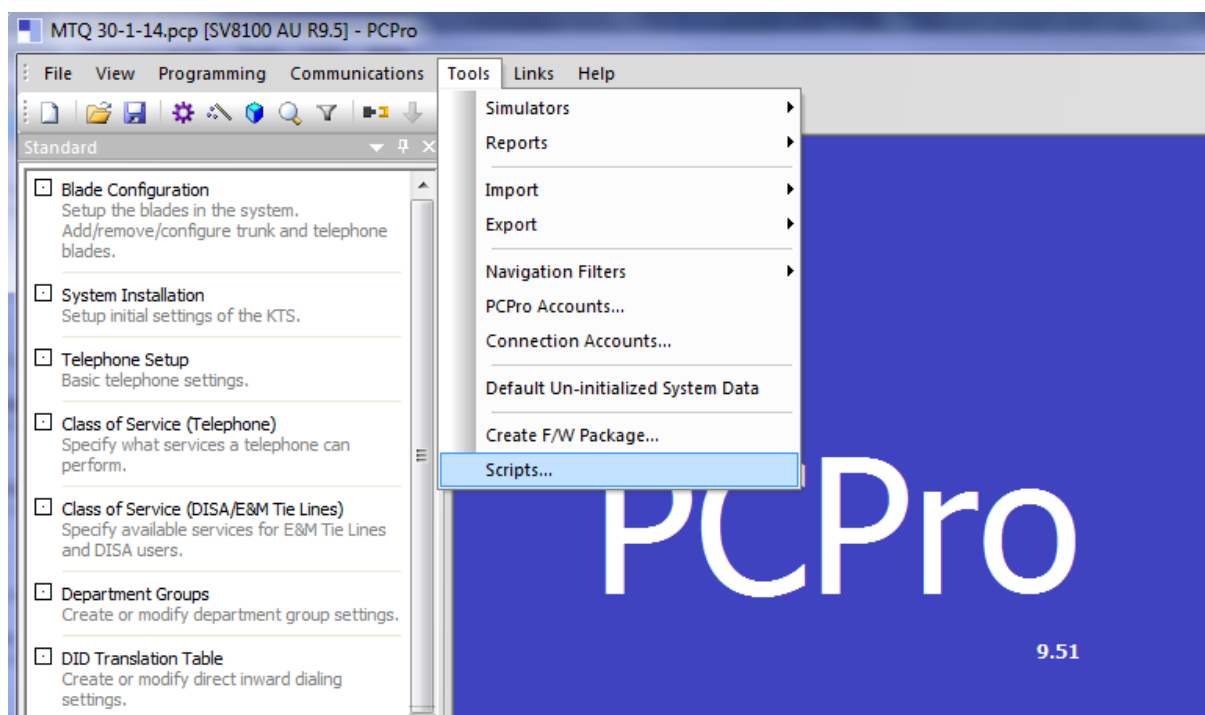
<https://extranet.nec.com.au/sites/kbase/SitePages/NewHome.aspx>

Sip_Cust_Script_84-34-09=1_Enable_Pedantic.pcs (This SIP Script required for above issue)

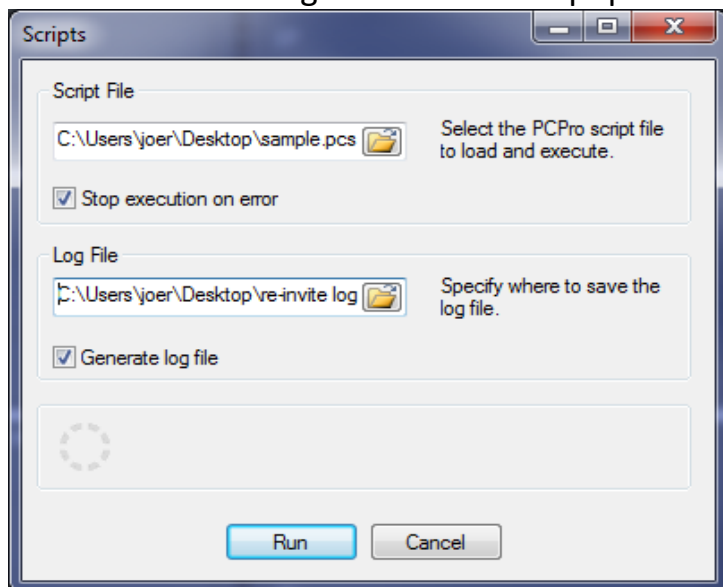
Sip_Cust_Script_84-34-09=0_Disable_Pedantic.pcs (This SIP Script set this value back to default)

PCPro SIP Script Upload Procedure

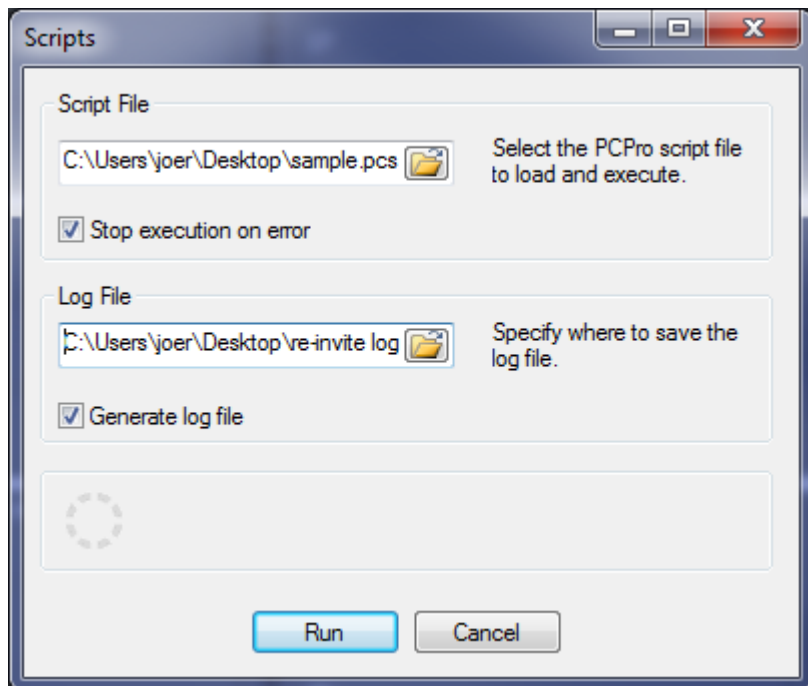
1. Connect to the customers SV8100 system via PCPro s/w.
2. Download Customer Database
3. When download has completed, Save Database.
4. Then within the tool bar, select “Tools” and then select “Scripts...”



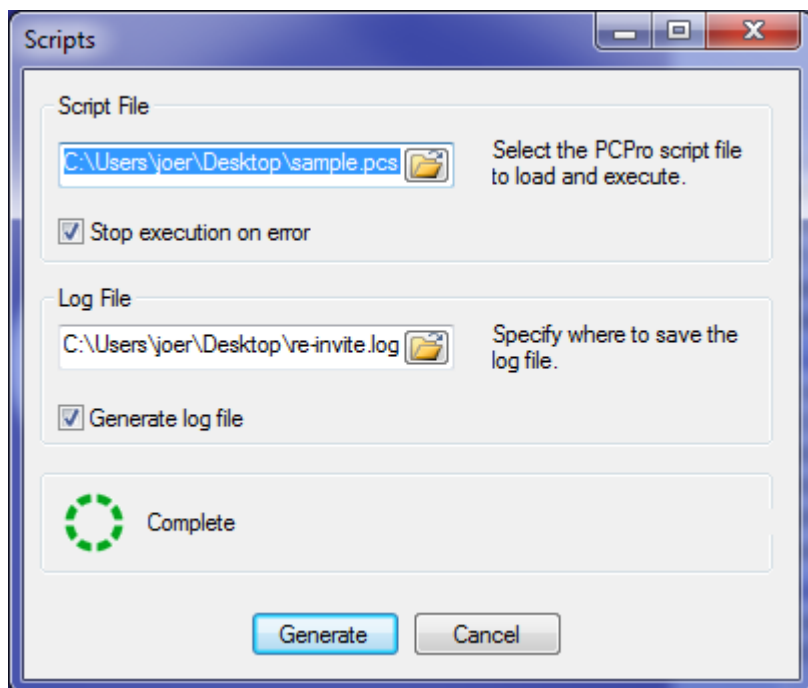
5. The following screen below is populated.



6. Select the folder icon and browse to the location of PCPro script file to be uploaded.



7. Specify the name for the Log file, and location (E.g. re-invite log), then select the open button.
8. Select the "Run" button to complete the process.



9. This will automatically launch the log file which can simply be closed.

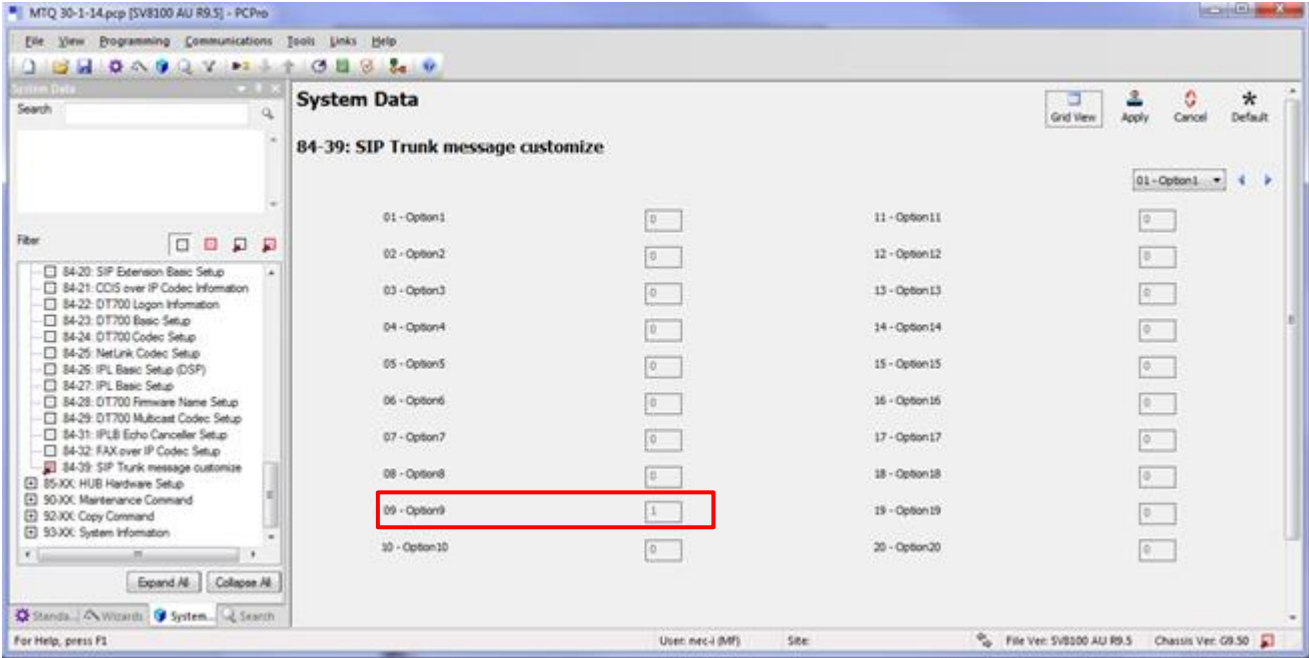
10.At this stage, you can upload ALL the system data or just upload only the changes made in PRG 84-39-06.

Below shows the PRG 84-39: SIP Trunk message customize - Option 9 has been modified to equal 1.

This PRG can select the following mode about Behaviour of Invite.

Mode 0: The from tag information which is added in "Initial Invite without authorization" and the from tag information which is added in "initial Invite with Authorization" are deferent

Mode 1: The from tag information which is added in "Initial Invite without authorization" and the from tag information which is added in "initial Invite with Authorization" are the same.



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