

**SCOPSERV**  
INTERNATIONAL INC.

# ScopTEL™ IP PBX Software Troubleshooting

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## General Troubleshooting

- Most telephony errors are caused by one of the following causes:
  - Bad authentication credentials
  - DNS resolution
  - Class of Service misconfigurations
  - Firewall issues
  - Asterisk bugs
  - User error (DND, call forwarding etc.)
- CLI tools are used to debug most of these issues

### **Windows<sup>TM</sup> Utilities:**

- Putty (Windows<sup>TM</sup> based SSH tool)  
<http://the.earth.li/~sgatham/putty/latest/>
- WinSCP (Windows<sup>TM</sup> based, Linux file system editor and transfer client)  
<http://winscp.net/download/>



## Log files

- Server Logs: /var/log/messages
- SMTP Logs: /var/log/maillog
- Hardware Logs: dmesg
- Asterisk Logs: /var/log/asterisk/messages
- Asterisk Files: /etc/asterisk
- ScopServ PHP logs: /tmp/php2.log
- Asterisk Core Dumps (GDB files): dir /tmp/core\*



## SIP Response Codes 3XX

### Redirection 3xx

- 300 Multiple Choices
- 301 Moved Permanently
- 302 Moved Temporarily
- 305 Use Proxy
- 380 Alternative Service

## SIP Response Codes 400-416

### Request Failure 4xx

- 400 Bad Request
- 401 Unauthorized
- 402 Payment Required
- 403 Forbidden
- 404 Not Found
- 405 Method Not Allowed
- 406 Not Acceptable
- 407 Proxy Authentication Required
- 408 Request Timeout
- 410 Gone
- 412 Conditional Request Failed [RFC3903]
- 413 Request Entity Too Large
- 414 Request-URI Too Long
- 415 Unsupported Media Type
- 416 Unsupported URI Scheme



## SIP Response Codes 417-439

417 Unknown Resource-Priority	[RFC4412]
420 Bad Extension	
421 Extension Required	
422 Session Interval Too Small	[RFC4028]
423 Interval Too Brief	
424 Bad Location Information	[RFC6442]
428 Use Identity Header	[RFC4474]
429 Provide Referrer Identity	[RFC3892]
430 Flow Failed	[RFC5626]
433 Anonymity Disallowed	[RFC5079]
436 Bad Identity-Info	[RFC4474]
437 Unsupported Certificate	[RFC4474]
438 Invalid Identity Header	[RFC4474]
439 First Hop Lacks Outbound Support	[RFC5626]

## SIP Response Codes 440-494

440 Max-Breadth Exceeded	[RFC5393]
469 Bad Info Package	[RFC6086]
470 Consent Needed	[RFC5360]
480 Temporarily Unavailable	
481 Call/Transaction Does Not Exist	
482 Loop Detected	
483 Too Many Hops	
484 Address Incomplete	
485 Ambiguous	
486 Busy Here	
487 Request Terminated	
488 Not Acceptable Here	
489 Bad Event	[RFC6665]
491 Request Pending	
493 Undecipherable	
494 Security Agreement Required	[RFC3329]



## SIP Response Codes 5XX

- Server Failure 5xx
- 500 Server Internal Error
- 501 Not Implemented
- 502 Bad Gateway
- 503 Service Unavailable
- 504 Server Time-out
- 505 Version Not Supported
- 513 Message Too Large
- 580 Precondition Failure [RFC3312]

## SIP Response Codes 6XX

### Global Failures 6xx

- 600 Busy Everywhere
- 603 Decline
- 604 Does Not Exist Anywhere
- 606 Not Acceptable



## OS CLI Commands 1-3

Useful CLI commands page 1

<code>scopserv_yum update</code>	executes a full software update
<code>scopserv_yum install &lt;package name&gt;</code>	installs a package from repositories
<code>scopserv_dumpkey</code>	displays license and admin password
<code>dkms status</code>	shows install status of dahdi wanpipe mISDN drivers
<code>asterisk -r</code>	opens Asterisk CLI for Asterisk command line debugging
<code>asterisk -vr</code>	opens Asterisk CLI for Asterisk command line debugging with increased verbosity
<code>lsof -i :5555</code>	shows which service is using port 5555
<code>rpm -qa &lt;package name&gt;</code>	shows package version
<code>rpm -e &lt;package name&gt; --nodeps</code>	removes package without uninstalling dependencies
<code>rpm -qa  grep &lt;package name&gt;</code>	shows installed packages version
<code>chown -R scopserv:scopserv /&lt;path&gt;</code>	changes ownership recursively on a path
<code>kill -KILL &lt;pid&gt;</code>	kills a process ID





## OS CLI Commands 2-3

Useful CLI commands page 2

htop	shows all processes and consumption
top	shows all processes and consumption
ngrep -d any port 25 -W BYLINE	network trace on port 25 to debug SMTP issues
network trace on port 25 to debug SMTP issues	Linux DNS lookup for MX record on specified domain
rm -rf /root/.ssh/known_hosts	rm -rf /root/.ssh/known_hosts
wget <package path>	CLI command to download a file from path
ngrep -d port any 69	network trace on port 69 to display TFTP traffic
cat /<path>	display contents of file to screen
nano /<path>	Linux text editor to edit path
service <service name> restart	restart network without rebooting server
service <service name> stop	stop service name without rebooting server
service <service name> status	display service name status



## OS CLI Commands 3-3

Useful CLI commands page 3

reboot	reboot server
shutdown -h now	shutdown server
lynx <website address>	Linux command line web browser
lynx <website address>	Ping an IP address
lynx <website address>	trace an IP address through multiple hops
tcpdump -nq -s 0 -i eth1 -w /tmp/sip.pcap port 5060	saves a SIP pcap trace to /tmp using eth1
ps auwwwwx  grep crond	prints all crond PID's
rpm -e --allmatches <package name> --nodeps	`removes the package name without dependencies
rpm -e <package name> --nodeps --noscripts	removes a broken package forcibly
route	prints the routing table
Ifconfig	The "ifconfig" command allows the operating system to setup network interfaces and allow the user to view information about the configured network interfaces.



## Asterisk CLI Commands

To activate enter asterisk –r from Linux CLI

<b>core show channels</b>	<b>display active channels</b>
sip show peers	show all SIP peers status
sip show peer <peer>	show details of SIP peer
database show	display astDB info (useful to see if a phone is in DND status)
queue show	displays all ACD queues info
pri show spans	displays status of all PRI spans
pri intense debug span <span number>	shows Q.931 and SABME messages
pri set debug off span <span number	stop intense PRI debugging on span number
hangup request <channel>  <all>	Request that a channel be hung up. The hangup takes effect the next time the driver reads or writes from the channel. If 'all' is specified instead of a channel name, all channels will see the hangup request.
core show hints	This command lists registered hints
agi set debug on	prints agi debug messages (always useful when creating a support ticket)
sip set debug <on/off>	prints SIP messages to the CLI



## Database Repair Commands

- `mysqlcheck -A -o -r` : Automatically optimizes and repairs mysql tables. If crashed on Slave (HA) then this need to be done on slave and not master
- If you have to rebuild queue\_log db :
  - `service scopserv_queueolog stop`
  - `/var/www/scopserv/telephony/scripts/queue2sql.pl --recover /var/log/asterisk/queue_log`
  - `service scopserv_queueolog start`
- Update CDR database direction
  - `mysql scopserv (enter) update cdr set calldir='unknown';`



## MySQL Repair is Taking Too Long

- If the Server is not configured in High Availability Mode (standard installation):

- mysql scopserv (enter)

```
truncate cel;  
truncate phones_history;  
truncate horde_histories;
```

- If the Server is configured in High Availability Mode:

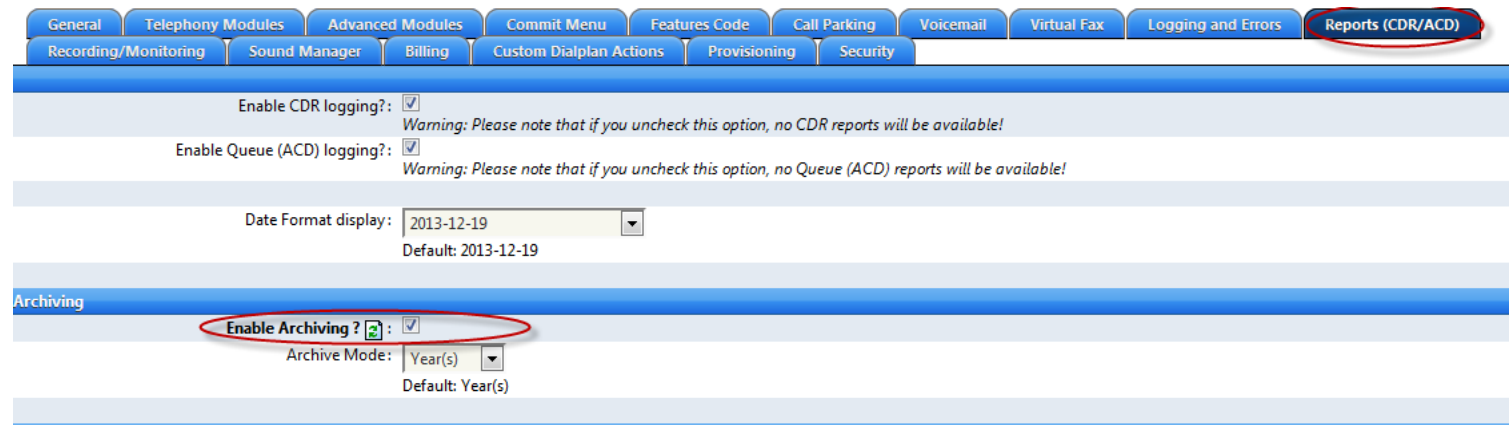
- mysql scopserv\_repl (enter)

```
truncate cel;  
truncate phones_history;  
truncate horde_histories;
```



## ScopTEL GUI is Slow

- `mysqlcheck -A -o -r` : Automatically optimizes and repairs mysql tables. If crashed on Slave (HA) then this need to be done on slave and not master
- `scopserv_yum update`: Older packages, especially prior to `scopserv_realtime` nodejs changes are not fully optimized
- Telephony>Configuration>Reports (CDR/ACD)>Archiving>Enable Archiving :[x]



## ScopTEL GUI Will Not Restart

<code>mysqlcheck -A -o -r</code>	Automatically optimizes and repairs mysql tables. If crashed on Slave (HA) then this need to be done on slave and not master
<code>service scopserv stop</code>	Stops the GUI service and realtime
<code>lsof -i :5555</code>	Displays the PID that is bound to the scopserv service port
<code>kill -KILL &lt;PID output of lsof -l 5555&gt;</code>	Kills the PID bound to the scopserv port
<code>service scopserv start</code>	Starts the GUI once the binding port is freed



## ScopTEL GUI Fatal Error and Dead Call Processing

- Most often this is caused by a full hard drive
- You must delete files on the hard drive to restore call processing
- Usually this is caused by:
  - Too many local backups
  - Too many recording files in /var/spool/asterisk/monitor/
  - Too many files in /var/log/asterisk/
  - Too many files in /tmp/
- To locate the largest folders do:
  - `cd /` Change to root directory
  - `du * -s` Print Disk Usage Summary and locate the largest folder
  - Use the 'cd' command to change into the largest directory
  - Use the Linux 'rm' command to remove files
  - Keep drilling down from / and use the 'du \* -s' command to locate the largest folders and keep deleting files with the 'rm' command until you have freed enough space in the file system to restore normal service.





## Debugging Authentications Failures 1-3

Here is a typical authentication failure in Asterisk. The reason for this failure is that peer 228 does not exist!

- **[root@demo ~]# asterisk -vr**

=====

[Aug 1 14:41:46] Running as group 'scopserv'

- [Aug 1 14:41:46] Connected to Asterisk 1.8.12.0 currently running on demo (pid = 6006)
- Verbosity is at least 3
- Core debug is at least 3
- [2012-08-01 14:50:06] NOTICE[6260]: chan\_sip.c:24974 handle\_request\_register: Registration from ""228"<sip:228@scopserv.local>' failed for '192.168.192.55:57744' - No matching peer found



## Debugging Authentications Failures 2-3

Here is a typical authentication failure in Asterisk. The reason for this failure is that the password does not match!

- **[root@demo ~]# asterisk -vr**

=====

- [Aug 1 14:41:46] Running as group 'scopserv'
- [Aug 1 14:41:46] Connected to Asterisk 1.8.12.0 currently running on demo (pid = 6006)
- Verbosity is at least 3
- Core debug is at least 3
- [2012-08-01 14:53:49] NOTICE[6260]: chan\_sip.c:24974 handle\_request\_register: Registration from "'227"<sip:227@scopserv.local>' failed for '192.168.192.55:63316' - Wrong password



## Debugging Authentications Failures 3-3

Here is a typical authentication success in Asterisk

- **[root@demo ~]# asterisk -vr**

=====

- [Aug 1 14:41:46] Running as group 'scopserv'
- [Aug 1 14:41:46] Connected to Asterisk 1.8.12.0 currently running on demo (pid = 6006)
- Verbosity is at least 3
- Core debug is at least 3
- [2012-08-01 14:56:00] NOTICE[6260]: chan\_sip.c:20812 handle\_response\_peerpoke: Peer '227' is now Reachable.  
(7ms / 2000ms)



## Debugging Call Failures With 'database show'

In this first example a call from 227 to 221 fails to ring 221

- [2012-08-01 15:02:05] == Extension Changed 227[default-local] new state InUse for Notify User 221
- [2012-08-01 15:02:05] -- Executing [221@default-default:9] Macro("SIP/227-00000005", "default-dial,SIP/221,221,default,,en,u221@default,twWxXkKg,,default\_default,,Local/0@default-local/n,vm") in new stack
- [2012-08-01 15:02:05] -- Executing [s@macro-default-dial:1] NoOp("SIP/227-00000005", ""CALL TO LOCAL EXTENSION FROM 227(227)""") in new stack
- [2012-08-01 15:02:05] -- <SIP/227-00000005>AGI Script agi://127.0.0.1:4573/dial completed, returning 0
- [2012-08-01 15:02:05] -- Executing [s@macro-default-dial:4] ExecIf("SIP/227-00000005", "1?Macro(all-vm,default,b,221@default,Local/0@default-local/n,vm)") in new stack
- [2012-08-01 15:02:05] -- Executing [s@macro-all-vm:1] NoOp("SIP/227-00000005", "CALL TO VOICEMAIL") in new stack
- [2012-08-01 15:02:05] -- Executing [s@macro-all-vm:2] VoiceMail("SIP/227-00000005", "221@default,b") in new stack

database show the extension has enabled the DND feature code!

- demo\*CLI> database show
- /CustomDevstate/dnd-default-221 : BUSY
- /DND/Local/\*78@default : On
- /DND/SIP/221 : On



## Debugging Call Failures with SIP Cause Codes

- In this second example a call from 227 to 221 fails to ring 221
- [2012-08-01 15:24:27] -- Executing [221@default-default:1] Set("SIP/227-00000009", "CDR(tenant)=default") in new stack
- [2012-08-01 15:24:27] -- Executing [221@default-default:9] Macro("SIP/227-00000009", "default-dial,SIP/221,221,default,,en,u221@default,twWxXkKg,,default\_default,,Local/0@default-local/n,vm") in new stack
- [2012-08-01 15:24:27] -- Executing [s@macro-default-dial:1] NoOp("SIP/227-00000009", ""CALL TO LOCAL EXTENSION FROM 227(227)""") in new stack
- [2012-08-01 15:24:27] -- Called SIP/221
- [2012-08-01 15:24:27] -- Got SIP response 302 "Moved Temporarily" back from 192.168.100.100:5060
- [2012-08-01 15:24:27] -- Now forwarding SIP/227-00000009 to 'Local/555@default-default' (thanks to SIP/221-0000000a)
- [2012-08-01 15:24:27] NOTICE[30807]: app\_dial.c:892 do\_forward: Not accepting call completion offers from call-forward recipient Local/555@default-default-59dd;1
- [2012-08-01 15:24:27] NOTICE[30807]: chan\_local.c:899 local\_call: No such extension/context 555@default-default while calling Local channel
- [2012-08-01 15:24:27] NOTICE[30807]: app\_dial.c:980 do\_forward: Forwarding failed to dial 'Local/555@default-default'
- [2012-08-01 15:24:27] == Everyone is busy/congested at this time (1:0/0/1)
- The SIP response code shows the extension has enabled a native SIP forward to 555 from the SIP phone! There is no 555 in the dial plan and the forward fails. The user must remove the bad forwarding attempt from their phone.



## ScopSTATS System Monitoring Logs

