



# **SIP**

## **Session Initiation Protocol**

A Guide to configuring SIP

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# SIP Trunking

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# SIP Trunk Providers



- Below is a list of SIP Trunk providers that have been tested on the OfficeServ 7000 range:
  - Gamma – IP Direct and V3 versions
  - Frontier
  - VoIP Unlimited
  - Coms.com
- Please note that only one SIP service provider can be used on the systems at any one time.
- Although the above suppliers have been tested you should be made aware that providers periodically change their service.
  - If a provider does change the way their service is provided, it is the installer's duty to check compatibility
- Any SIP Trunk provider that has not been tested by Samsung.....it is the installer's duty to check compatibility.
- Technical Support will be happy to help you in any of these situations
  - It is strongly recommended that you contact support prior to installation to avoid any unnecessary delays



# Software Levels

- For SIP Trunking only the below are supported:
  - OfficeServ 7400 – V3.34 and above
  - OfficeServ 7200 – V2.69 and above
  - OfficeServ 7100 – V4.07 and above
  - OfficeServ 500 - V2.69
  - OfficeServ 100 - V2.69
- Please note that there is no further development for the OfficeServ 100 and 500

# MMC 832 & 833



- Some SIP Trunk providers have a simple setup
- MMC 832 and 833 are simple used to route SIP calls to a specified IP address.....the SIP provider sorts it all out.
- This method is not common



# MMC 837 – SIP Options

- Most SIP Trunk providers will use settings that will need to be entered in MMC 837.
- You will need to satisfy yourself as to what settings need adjusting and what may need to be entered.
- It is not possible to provide a “*cheat sheet*” as many suppliers differ from each other

# MMC 837 – Gamma example



in [IP Address] field, Avariable input value is only numeric data. (ex. 1

Item	Value
GateWay Call ID	
Caller ID Type	ANI
Default DIL Number	0001001156638
UDP Port : Trunk	5060
UDP Port : Phone	5070
Retrans T1 Time (100ms)	5
Retrans T2 Time (100ms)	40
Retrans T4 Time (100ms)	50
General Ring Time (100ms)	50
Invite Ring Time (100ms)	50
Provisional Time (100ms)	1800
Inv. No Response Time (100ms)	50
Gen. No Response Time (100ms)	50
Req. Retry Time (100ms)	50
Signal Port	10000
Send CLIP Table	1
Incomming Mode	Follow DID Trans
SIP Server Enable	Enable
Server IP Address	88.215.60.14
SIP Server Port	5060
Allow GateWay IP Check	Disable
Regist T-GW Number	0001001156638
CLIR with Number	Disable
SIP Registered	Yes
Reg Per User	Disable
GW Domain Name	gw1.man1.theiptele.com
GW User ID	0001001156638
Register PSWD	password
Reg Expire Time	10
Session Timer	None
Service Vendor	0
Link Test	None

Left blank

User ID

Enable SIP Server

SIP Server IP Address

User ID or CLI

SIP Domain

User ID

Account passcode

# MMC 837 – VoIP Unlimited example



in [IP Address] field, Variable input value is only numeric data. (ex,	
Item	Value
GateWay Call ID	01422410223
Caller ID Type	ANI
Default DIL Number	
UDP Port : Trunk	5060
UDP Port : Phone	5070
Retrans T1 Time (100ms)	5
Retrans T2 Time (100ms)	40
Retrans T4 Time (100ms)	50
General Ring Time (100ms)	50
Invite Ring Time (100ms)	50
Provisional Time (100ms)	1800
Inv. No Response Time (100ms)	50
Gen. No Response Time (100ms)	50
Req. Retry Time (100ms)	50
Signal Port	10000
Send CLIP Table	1
Incomming Mode	Follow DID Trans
SIP Server Enable	Enable
Server IP Address	91.151.2.130
SIP Server Port	5060
Allow GateWay IP Check	Disable
Regist T-GW Number	01422410223
CLIR with Number	Disable
SIP Registered	Yes
Reg Per User	Disable
GW Domain Name	sip.voip-unlimited.net
GW User ID	01422410223
Register PSWD	password
Reg Expire Time	0
Session Timer	None
Service Vendor	0
Link Test	None

CLI Number

Left blank

Enable SIP Server

SIP Server IP Address

CLI Number

SIP Domain

User ID

Password



# MMC 837 – Frontier example



in [IP Address] field. Variable input value is only numeric data. (ex. 1)

Item	Value
GateWay Call ID	01784770041
Caller ID Type	ANI
Default DIL Number	84411131
UDP Port : Trunk	5060
UDP Port : Phone	5070
Retrans T1 Time (100ms)	5
Retrans T2 Time (100ms)	40
Retrans T4 Time (100ms)	50
General Ring Time (100ms)	50
Invite Ring Time (100ms)	50
Provisional Time (100ms)	1800
Inv. No Response Time (100ms)	50
Gen. No Response Time (100ms)	50
Req. Retry Time (100ms)	50
Signal Port	10000
Send CLIP Table	1
Incomming Mode	Follow DID Trans
SIP Server Enable	Enable
Server IP Address	146.101.248.200
SIP Server Pnrt	5060
Allow GateWay IP Check	Disable
Regist T-GW Number	01784770041
CLIR with Number	Disable
SIP Registered	No
Reg Per User	Disable
GW Domain Name	sip.voicellex.com
GW User ID	84411131
Register PSWD	password
Reg Expire Time	0
Session Timer	None
Service Vendor	0
Link Test	None

CLI Number

User ID

Enable SIP Server

SIP Server IP Address

CLI Number

SIP Domain

User ID

Password

# MMC 837 – Coms.com



in [IP Address] field. Variable input value is only numeric data. (ex. 1)

Item	Value
GateWay Call ID	02071483354
Caller ID Type	ANI
Default DIL Number	02071483354
UDP Port : Trunk	5060
UDP Port : Phone	5070
Retrans T1 Time (100ms)	5
Retrans T2 Time (100ms)	40
Retrans T4 Time (100ms)	50
General Ring Time (100ms)	50
Invite Ring Time (100ms)	50
Provisional Time (100ms)	1800
Inv. No Response Time (100ms)	50
Gen. No Response Time (100ms)	50
Req. Retry Time (100ms)	50
Signal Port	10000
Send CLIP Table	
Incomming Mode	Follow DID Trans
SIP Server Enable	Enable
Server IP Address	85.90.225.100
SIP Server Port	5060
Allow GateWay IP Check	Disable
Regist T-GW Number	02071483354
CLIR with Number	Disable
SIP Registered	Yes
Reg Per User	Disable
GW Domain Name	sip.coms.com
GW User ID	02071483354
Register PSWD	password
Reg Expire Time	30
Session Timer	None
Service Vendor	0
Link Test	None

Annotations:

- CLI Number (points to GateWay Call ID)
- CLI Number (points to Default DIL Number)
- Enable SIP Server (points to SIP Server Enable)
- SIP Server IP Address (points to Server IP Address)
- CLI Number (points to Regist T-GW Number)
- SIP Domain (points to GW Domain Name)
- User ID (points to GW User ID)
- Password (points to Register PSWD)

# Trunk Numbers & Groups



- All SIP calls will require an MGI channel per call
  - MGI Trunks are numbered 3801 onwards
  - SIP Trunks have a virtual number of 8501 onwards
  - This number scheme can be adjusted in MMC 724 as normal
- By default all SIP trunks have been put into Trunk Group 805
  - i.e. Dial 805 to dial out over SIP



# Routing incoming calls

- All calls in to an OfficeServ 7000 will appear as DDI numbers
- These can be routing accordingly by programming MMC 714 – DDI Translation Table
- All incoming calls/DDI numbers not programmed in MMC 714 will be routed to the Operator/Group 500 by default



# Out going CLI

- CLI is programmed as normal using MMC 323 – Send CLIP Number.
- However, this feature is supplier dependant
  - You should check your SIP service provider to confirm what CLIs (and format) can be sent



# Network Setup

- Network setup should be treated the same as for any VoIP calls
- MMC 830/831 should be programmed as normal
  - Public and private IP address
  - System IP Type = Public with private
- Network router should be running NAT (if required)
  - Port 5060 should be forwarded to the MCP/MP processor
- Firewalls should allow port 5060
- A SIP-ALG compatible router must be used for all systems connected to the internet that do not use valid public addresses for the MCP/MP and MGI cards
  - Please be aware that not all SIP-ALG router are the same



# SIP Stack Licenses

- For OfficeServ 7000 range with V4.11 and above system software level a license is required.
- A license is required for:
  - SIP Trunks
  - SIP-UA (covered later in this course)
  - H.323 Trunks
  - IP-UMS/IVR (future product release)
  - OfficeServ SoftPhone
- Only 1 license is required for all of the above
- Licenses are based on the MAC address of the main processor
- Entered into MMC 841
- No license is required for proprietary ITP or SMT-W5100 handsets
- No license is required for OfficeServ 100 and 500, but will not support SIP-UA, IP-UMS or 2<sup>nd</sup> Generation WiFi

## MMC 841 Example

Item		Value
Feature	License Key	KWBRLNBJ-SGGWWHEE-AEFYBYPG-EEXLSHVB-Q KZXXQET-XSYNNUCJ
	License Status	OK
News Service	Allowed	No
Soft Phone	Max Count	20
	Used	14
Non SEC SIP Phone	Connected	0
	Max Count	20
	Used	3
	Connected	0
SEC SIP Phone	Max Count	20
	Used	0
	Connected	0
H.323 Stack License	Allowed	64
SIP Stack License	Total Count	128
	Available	53
	Non SEC SIP Phone	20
	SIP Trunk Allowed	10
	SEC SIP Phone Allowed	20
	IP-UMS/IVR Allowed	0



# SIP-User Agents (UA)

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# What is SIP-UA?

- SIP-UA allows 3<sup>rd</sup> party SIP devices to register to the OfficeServ 7000 and act as extensions off the system.
- Again, it is up to the installer to ensure than SIP devices are compatible
  - Not all SIP is the same.
- SIP-UA can be used over a LAN or WAN
  - For SIP-UA over WAN connections, network router and firewall settings as for SIP Trunking should be considered
- As already discussed, a SIP Stack License is required for non-Samsung SIP devices

# MMC 842 – SIP STN Info



- MMC 842 lists all the parameters for SIP-UA
  - Similar to MMC 840 for ITP and SoftPhone
- SIP-UA stations are numbered 32XX by default
  - These can be changed in MMC 724 as required
- SIP-UA devices should be registered using the:
  - User ID (the same as the stn number by default)
  - Passcode = 0000 (by default)
    - Details of the above can be found in MMC 842
  - The SIP domain is the MCP/MP IP address



# Supported Features

- Features supported are:
  - Registration
  - Basic call – answer and receive
  - CLI
  - Hold/Resume
  - MOH
  - Consultation Hold
  - Transfer (supervised or unsupervised)
  - Call waiting
  - Call Pickup
  - Call Forward (All, busy, no answer, busy/no answer)
  - Conference
  - Call Park (System hold)
  - DND
  - Call Back
  - Voicemail Indication
- Feature compatibility should be checked against the SIP devices



# The Numbers

System Configuration.

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# The Numbers



	OfficeServ 7100			OfficeServ 7200			OfficeServ 7400					
Max SLT Virtual Ports	24	24 (max)		64	64 (max)		192	384 (max)				
Max DGP Virtual Ports	24			64			384					
DLI/SLI Stations	32	32 (max)	32 (max)	120	120 (max)	120 (max)	480	480 (max)	480 (max)			
ITP Handsets	32			120			480					
OfficeServ Softphone	32			120			480					
Proprietary WiFi Handsets	32			32	32 (max)		128	128 (max)				
3rd Party SIP Handsets/SIP-UA/Server Connections	32			32			128					
IP Trunks-SIP	16	16 (max)		30 (max)	32		32 (max)	60 (max)		128	120 (max)	240 (max)
IP Trunks-H.323	16				16					64		
PCM Trunks (Analogue/ISDN)	30	30 (max)	60		60 (max)	240	240 (max)					
Networking Trunks (SPnet/Qsig)	30		60			240						
Total Stations and Trunks	62				180				720			
WBS24 Access Points	24				40				80			
SMT-R2000 Access Points	Unlimited				Unlimited				Unlimited			

# MMC 857



- The system is configured using MMC 857, the Virtual Cabinets
- Depending how MMC 857 is programmed will determine how many of each IP device/type the system can use
- The system must never be over-configured
- See next slides

	OfficeServ 7100	OfficeServ 7200	OfficeServ 7400
Virtual Chassis	4	3	2
Slots per Virtual Chassis	3	6	12
Ports per Virtual Chassis Slot	8	16	32

# OS7400 Virtual Ports



Cabinet	1												2											
Slot	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
V SLI	•	•																						
V DLI			•	•	•																			
ITP						•	•	•	•															
WIP										•	•													
SIP/S												•	•											
IP-UMS														•	•									
S <sub>0</sub>																•	•							
GCONF																	•							
SPnet																		•	•					
SIP/T																				•	•			
H.323/T																						•	•	

Available		Default	•
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# OS7200 Virtual Ports



Cabinet	1						2						3					
Slot	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
V SLI	•																	
V DLI		•	•															
ITP				•	•	•												
WIP							•	•										
SIP/S									•	•								
IP-UMS											•	•						
S <sub>0</sub>													•	•				
GCONF															•			
SPnet																•		
SIP/T																	•	
H.323/T																		•

Available		Default	•
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# OS7100 Virtual Ports



Cabinet	1			2			3			4		
Slot	1	2	3	1	2	3	1	2	3	1	2	3
V SLI	•											
V DLI		•	•									
ITP				•	•	•						
WIP							•					
SIP/S												
S <sub>0</sub>								•				
GCONF									•			
SPnet										•		
SIP/T											•	
H.323/T												•

Available		Default	•
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