

Communication Server 1000 Rls 5.0 Configuration Guide:

BT Italy SIP Trunking

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Introduction

This document provides a typical network deployment of Communication Server 1000 (CS1000) utilizing the BT Business SIP Trunking product offering. It is not possible to document every possible variation of configuration and this document should serve as general guidelines. Further information may be obtained from your Nortel support representative.

The CS1000E system is configured as a non-registered SIP endpoint on the BT network. The example below is based upon using Public IP addresses for the sets and TLAN, and private IP addressing for the ELAN. Should Private IP addressing be utilized in the entire enterprise network, a SIP aware Firewall such as an ALG or SBC will be required for both SIP & RTP NAT/PAT.

The CS1000 does not use SIP Redirect or Proxy for Carrier SIP trunking, the SIP Virtual Gateway is simply provisioned with the SBC as the static SIP endpoint of the SIP Trunk. The software and patch lineup for the configuration is as follows:

Call Server Software – 5.00W Patches – Latest DEPLIST PLUGIN - 4, 14, 15, 22, 27, 59 Signaling Server Software - 5.00.31 Patches – Latest DEPLIST, MPLR22452, MPLR26057, MPLR26072, MPLR25982 MPLR22452:Multi Fix and no MCDN on SIP MPLR26057:FAX call MPLR26072:Invite within the session SDP MPLR25982:No speech path if 183 comes before 180

Users will have to utilize Enterprise Configurator (EC) to determine what specific hardware & software changes will be required prior to configuring the CS1000 to use SIP trunking to BT. Given the flexibility in deploying the CS1000 a standard system Bill of Materials cannot be provided.

Lab Network Diagram

Network Diagram



Deployment Options

There are a number of possible engineering options to consider when deployed SIP based trunking. The two main considerations that affect hardware and patching are redundancy and Private Networking requirements.

ISP1100 servers are shown in the diagrams below, but COTS and CP-PM servers can be used as well.

Figure 1 below depicts the simplest deployment model, utilizing one or more Signaling Servers to provide Telephone Proxy and SIP GW capability. The single Node configuration would have TPS and SIP GW applications enabled for all servers in the Node. The engineering rules for co-resident TPS and SIP GW would apply. Patching on the Signaling Servers would consist of the current DEPLIST plus the required patches to support BT Italy SIP Trunking. Private Networking to other Nortel products or Nortel Developer Partner products is **not** supported due the changes the BT Italy specific patches introduce to the SIP signaling.



Figure 1 - Stand-Alone Communication Server and BT Italy Sip Trunking

In environments that will experience call rates that would exceed the co-resident TPS/SIP GW engineering recommendations, the TPS and SIP GW functionality must be split apart into different Nodes. See Figure 2 as an example where Node A is configured for TPS and is patched with the current DEPLIST. Node B is configured with SIP GW only and is patched with the current DEPLIST plus the patches required to support BT Italy SIP Trunking.

Note: When creating a new Node on a separate Sig Server, remember to configure a dedicated D-Channel for each Node to communicate to the Call Server.



Figure 2 - Stand-Alone Communication Server and BT Italy Sip Trunking for High Call Volume

The deployment options become more complex when additional Call Servers or SIP Applications are introduced behind the CS1K., such as SIP DECT, OCS, ICP etc.

See Figure 3 for an example utilizing SIP Private Networking to a BCM and a SRG.

Node A is configured for TPS and SIP GW, and patched with the current DEPLIST. Node B is configured with SIP GW only and is patched with the current DEPLIST plus the patches required to support BT Italy SIP Trunking.

Note: A deployment using SIP Public trunking and H.323 Private Networking is not recommended due to limitations that occur when translating between the 2 protocols.

Note: When creating a new Node on a separate Sig Server, remember to configure a dedicated D-Channel for each Node to communicate to the Call Server.



Figure 3 - Multiple Call Server with Tandem to BT Italy Sip Trunking

Element Manager Configuration

The following configuration examples are based upon the network deployment as detailed above.

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-Virtual Terminals							
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+,4(3)1111	- IP Telephony Node						
- Maintenance	Node ID 5001						
- Parinheral Equipment							
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-Maintenance and Reports	Entredited Law (ELaw) gareway IP address 17222330.123						
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- Qu9 Thresholds	- VGW and IP phone codec profile						
-Personal Directones	Dankis Daka onesoliter						
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+Emernenci Services	Echo canceller tall delay 128 v (milliowards)						
+Geographic Redundancy	(interview)						
+Sufware	Voice activity detection threshold -17 (30-+10 DBM	3					
- Customers							
-Rootes and Trunks	lide noise level -65 (.427 .+427 08	M)					
-Routes and Trunks	DTMC Town datastics						
-D-Channels							
- Digital Trunk Interface	Enable V.21 FAX tone detection						
-Dialing and Humbering Plans							
-Electronic Switched Network	FAX maximum rate 14400 ⊻ (tps)						
-Network Routing Service	ENV absord acroined delay 71						
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8		🔮 Erternet					

T38 is disabled on the BT network, so must it also be disabled in the CS1K. To do so, V.21 is turned off in the codec profile.



The BT network supports both g.711 and g.729, with the preference set to g.729.

The Fax packet size is set to 20 to match the network also.

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- Links - Virtual Terminals	Diffserv Codepoint(DSCP) Control packets	40 (0-63)				
- System	Diffser∨ Codepoint(DSCP) Voice packets	46 (0-63)				
+ Alarms - Maintenance	Enable 802.1Q support						
+ Core Equipment - Peripheral Equipment	802.1Q Bits value (802.1p)	6 (0-7)					
- IP Network	- LAN configuration						
- Maintenance and Reports	Embedded LAN (ELAN) configuration						
– Media Gateways – Zones	Call server IP address	172.22.98.131					
- Host and Route Tables	Unistem Signaling port	15000					
- QoS Thresholds	Broadcast port	15001 (1024	- 65535)				
+ Interfaces	Telephony LAN (TLAN) configuration						
- Engineered Values	Unistem Signaling port	5000					
+ Geographic Redundancy	RTP/RTCP Starting port	5200 (1024	- 65536)				
- Customers	Embedded LAN (ELAN) Routes	Add					
-Routes and Trunks - Routes and Trunks	Host Table	Add					
- D-Channels	DNS Servers						
- Dialing and Numbering Plans	Primary DNS Server IP address	0.0.0.0					
 Electronic Switched Network Network Routing Service 	Alternate DNS Server1 IP address	0.0.0.0					
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Diff Serv is required for the network, and the default values in the system are correct.

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- Virtual Terminals - Bookmarks Security Policy Security Disabled	
- System 5061 (1.6535)	
- Maintenance Client Authentication	
+ Core Equipment - Peripheral Equipment Re-negotiation	
- IP Network	
- Maintenance and Reports Primary Proxy or Re-direct Server	
- Media Gateways	
- Host and Route Tables Primary Proxy or Redirect (TLAN) IP address 213.213.83.151	
- Network Address Translation Port 5060	
- Personal Directories Supports Registration	
Interfaces Engineered Values Definition (DE Drove of Portface on Portface)	
+ Emergency Services	
Geographic Redundancy Transport Protocol UDP	
- Customers Secondary Proxy or Re-direct Server	
- Routes and Trunks Secondary Proxy or Redirect (TLAN) IP address 0.0.0	
-D-Channels Pott 5060	
- Digital Trunk Interface	
- Electronic Switched Network	
- Network Routing Service Secondary CDS Proxy or Re-direct server flag	
Transport Protocol UDP V	<u> </u>
<u>@</u>	Internet

The primary Proxy server is the Acme SBC IP address. All calls are routed to the SBC, then to the BT network.

BT also requires different port configuration, with all services fully operational on each port. This is not the typical 5060 port but is dependent on the port assigned by BT.



NRS is not enabled for the system, all calls are routed to the SBC for routing.

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• Cords Public E.164/Special Number domain name • Peripheral Equipment Private/UDP domain name • Private/UDP domain name Private/UDP domain name • Maintenance and Reports Private/UDP domain name • Maintenance and Reports Private/UDP domain name • Maintenance and Report Private/Special Number domain name • Hotst and Route Tables Private/Special Number domain name • Hotst and Route Tables Private/Special Number domain name • Personal Directories Private/Special Number routing) domain name • Engineered Values • SIP CD Services • Engineered Values • SIP CD Services • Subware • Cards • Customers • Signaling Servers • Outles and Trunks - Signaling Servers • Diditig and Numbering Plans - Save and Transfer • Electonic Switched Network • Signaling Server 172.22.98.132 Properties • Network Notting Servet Save and Transfer	+ Alams – Maintenance	Public E. 164/Unknown domain name	
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- Engineered Values - Emgregney Services - Eographic Redundancy + Software - Customers - Routes and Trunks - Doptan Trunks - Digital Trunk Interface - Digital Trunk Interface - Electonic Switched Network - Electonic Switched Network - Network Notting Server	+ Interfaces	Unknown/Unknown domain name	
	- Engineered Values	+ SIP CD Services	
	+ Emergency Services + Geographic Redundancy	+ SIP CTI Services	
- Customers - Customers - Routes and Trunks - Signaling Servers - Dochannels - Signaling Server 172.22.98.132 Properties - Digital Trunk Interface Save and Transfer - Electonic Switched Network Save and Transfer - Network Routing Server Save and Transfer	+ Software	. Cardo	
- Routes and Trunks - Signaling Servers Add - Routes and Trunks + Signaling Server 172.22.98.132 Properties Remove - Diching and Kumbering Plans - Save and Transfer Cancel - Network Routing Server Save and Transfer Cancel	- Customers	+Calus Au	
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Please note that no domain information should be contained within the E.164 fields.

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-Home	^	- Basic Configuration	<u>^</u>				
- Links		Input Description Input Value					
– Virtual Terminals – Bookmarks		Route Data Block (RDB) (TYPE)					
- System		Customer number (CUST) 00					
- Maintenance		Route Number (ROUT) 80					
+ Core Equipment		Designator field for trunk (DES) SID ATD/					
- IP Network							
- Nodes: Servers, Media Cards		Irunk Type (TKTP) TTE					
- Maintenance and Reports - Media Gateways		Incoming and Outgoing trunk (ICOG) Incoming and Outgoing (IAO)					
- Zones		Access Code for the trunk route (ACOD) 1990080					
- Network Address Translation		Trunk type M911P (M911P)					
- QoS Thresholds		The route is for a virtual trunk route (VTRK) 📝					
+ Interfaces		- Zone for codec selection and bandwidth nn2 Range 0 255					
- Engineered Values		Mada ID of cimaline server of this rule					
+ Geographic Redundancy		(NODE) 501 Signaling server of the store 5001 Range: 0 - 9999					
+ Software		- Protocol ID for the route (PCID) SIP (SIP)					
- Customers - Routes and Trunks		- Print Correlation ID in CDR for the route					
- Routes and Trunks							
– D-Channels – Digital Trunk Interface		integrated Services Digital Network option (ISDN)					
- Dialing and Numbering Plans		- Mode of operation (MODE) Route uses ISDN signaling Link (ISLD)					
- Electronic Switched Network		- D channel number (DCH) 79 Range: 0 - 254					
<	V	- Interface type for route (IFC) Meridian M1 (SL1)	~				
Done		a Inter	net				
New York							

Basic SIP trunk route configuration, set up in a different zone than the sets.







Basic SIP trunk configuration.



DCH configuration with Meridian 1 simulation for the far end.





Call Server Configuration "SIP Route"

REQ: prt TYPE: rdb CUST 0 **ROUT 80** TYPE RDB CUST 00 **ROUT 80** DES SIP_VTRK TKTP TIE NPID_TBL_NUM 0 ESN NO **RPA NO CNVT NO** SAT NO **RCLS EXT VTRK YES ZONE 002** PCID SIP **CRID NO** NODE 5001 DTRK NO **ISDN YES** MODE ISLD **DCH 79** IFC SL1 PNI 00101 NCNA YES NCRD NO FALT NO **CTYP NPA** INAC NO **ISAR NO** DAPC YES TBL 1 PTYP ATT AUTO NO DNIS NO DCDR NO **ICOG IAO** SRCH LIN **TRMB NO** STEP ACOD 1990080 TCPP YES TARG CLEN 1

BILN NO OABS INST 1998 IDC NO DCNO 0 * NDNO 0 DEXT NO SIGO STD STYP SDAT MFC NO ICIS YES OGIS YES TIMR ICF 512 OGF 512 EOD 13952 DSI 34944 NRD 10112 DDL 70 ODT 4096 RGV 640 GTO 896 GTI 896 SFB 3 NBS 2048
DTD NO SCDT NO 2 DT NO NEDC ORG FEDC ORG CPDC NO DLTN NO HOLD 02 02 40 SEIZ 02 02 SVFL 02 02 SVFL 02 02 DRNG NO CDR NO NATL YES SSL CFWR NO IDOP NO
MUS YES MRT 100

PANS YES
RACD NO
MANO NO
FRL 0 0
FRL10
FRL 2 0
FRL 3 0
FRL 4 0
FRL 5 0
FRL 6 0
FRL 7 0
AUTH NO
TTBL 0
ATAN NO
OHTD NO
PLEV 2
OPR NO
ALRM NO
ART 0
PECL NO
DCTI 0
TIDY 1990080 80
ATRR NO
TRRL NO
SGRP 0
ARDN YES
AACR NO

Call Server Configuration "SIP Trunk"

REQ: prt TYPE: tnb TN 104 0 0 0 DATE PAGE DES DES SIPTRK TN 104 0 00 00 VIRTUAL **TYPE IPTI** CDEN 8D CUST 0 **XTRK VTRK ZONE 002** LDOP BOP **TIMP 600 BIMP 600** AUTO_BIMP NO NMUS NO **TRK ANLG** NCOS 0 **RTMB 80 1** CHID 1 TGAR 0 STRI/STRO IMM IMM SUPN YES AST NO IAPG 0 CLS UNR DTN CND ECD WTA LPR APN THFD XREP SPCD MSBT P10 NTC MID TKID AACR NO DATE 10 NOV 2006 NACT

Call Server Configuration "Virtual DCH"

REQ prt TYPE adan dch 79 ADAN DCH 79 CTYP DCIP DES DCH_VTRK **USR ISLD ISLM 4000 SSRC 1800 OTBF 32** NASA YES IFC SL1 CNEG 1 RLS ID 4 RCAP ND2 MBGA NO H323 **OVLR NO OVLS NO**

Call Server Configuration "CDB"

REQ: prt

TYPE: cdb CUST 0 TYPE CDB CUST 00 AML_DATA OPT DNX VSID **GP02 GP03 GP04** GP05 **GP06 GP07 GP08 GP09 GP10 GP11** GP12 **GP13** GP14

GP15 ATT_DATA OPT ABDD AHD BIND BIXA BLA BOHA DNCA DRE DNX DRE FACD IC2 XTG IDP XLF XBL FKA MCTD NCD CUI MWUD LOD PSD RECA REA EHS SLD SIAD THPD ATDA **ATDN 99** NCOS 0 **CWUP NO CWCL 1 1 CWTM 0 0 CWBZ NO YES** MATT NO RTIM 30 30 30 ATIM 0 AQTT 0 AODN SPVC 00 SBLF NO **RTSA RSAD** SACP SNGL ABDN NO **IRFR NO** XRFR NO ADHT 0 AFNT 0 AFBT 0 IDBZ NO PBUZ 02 10 ICI 00 LD0 ICI 01 LD1 ICI 02 ICI 03 RLL ICI 04 CFB ICI 05 CFN ICI 06 DL0 ICI 07 DF0 **ICI 08 INT ICI 09 IAT** ICI 10 R000 ICI 11 ICI 12 **ICI 13** ICI 14 **ICI 15** ICI 16

ICI 17 ICI 18 ICI 19 RICI 0 AWU_DATA AWU YES ATRC NO RANF RAN1 RAN2 LA11 LA12 LA21 LA22 LA31 LA32 LA41 LA32 LA41 LA42 LA51 LA52 R2BN 00 00
R2ED 00 00 NRWU 5 TAWU 3
WUD NO
STE NO
CCS_DATA
ECC1 UNR
ECC2 UNR
CNCS 7
PELK NO
CDR_DATA
CHLN 0
FCAF NO
FCR_DATA
NFCR YES MAXT 8
OCB1 255
OCB2 255
OCB3 255
FEC DATA
CCRS SRE

SCPL 4 SBUP YES FFCS NO STRL 0 STRG ADLD 0 DFLT_SCPW NO FTR DATA **DAPC**PREFIX TABLE NO: 00 ** UNKN**INTL**NATL**ESPN**LOCL**ELOC**ECDP** UNKN* E164* 00 0 PRIV* E163* 00 0 TELX* X121* NATL* **DAPC**PREFIX TABLE NO: 01 ** UNKN**INTL**NATL**ESPN**LOCL**ELOC**ECDP** UNKN* 0 E164* PRIV* E163* TELX* X121* OPT ABDD AHD BIND BIXA BLA BOHA CFO CFRA COX CPA CTD DBD DNCA DNX DSX DRE DSTD FACD HTU HVD XBL IC2 IDP XLF IHD XTG FKA LOD LRA MCI MCTD CUI MWUD NCD PCMD PSD PVCA RECA REA RNA RTR RTD ROX SBD SDDE SIAD SLD EHS THPD TTAD VOBA CWRD HLPD HRLD CXOD BWTD DGRP 0 **IRNG NO** PKND 4 DNDL NO **SPRE 1888** PREO 0 **BPSS NO** SRCD NONE EEST YES DTMF YES EESD NO TTBL 0 MUS YES

MUSR 100 HCC NO ALDN **RECD NO** PORT 0 TFDR NO **RPA NO** MCDC NO NAUT NO **IDEF NO** MTAR NO LEND NO MSCD NO CONF_DSP CNFFIELD YES CNF NAME CONF **INTFIELD YES** INT_NAME I **EXTFIELD YES** EXT NAME E **BSFE NO** ASPCT 010 **FXS NO** DFLT_LANG ENG STS MSG MSG01 Please leave message MSG02 Back to work MSG03 In a meeting MSG04 On a conference call MSG05 At lunch MSG06 Busy call MSG07 Out of the office today MSG08 On a business trip MSG09 Project deadline today MSG10 Will reply after VO_ALO NO PCA OFF TPDN **BFS_CFW YES** VO_CUR_ZONE_ZDM NO VO_CUR_ZONE_TD NO ICP_DATA **ICP NO** IMS_DATA IMS YES

IMA YES APL NONE UST NO **APL NONE** UMG NO **APL NONE** INT DATA ACCD OVF OVF OVF ATN CTVN OVF OVF OVF ATN MBNR OVF OVF OVF ATN CTRC OVF NAP OVF NAP CLDN NAP OVF NAP NAP NINV OVF OVF OVF ATN NITR OVF OVF OVF ATN NRES OVF OVF OVF ATN NBLK OVF OVF OVF ATN MFVOOVF OVF OVF ATN MEVN OVE OVE OVE ATN MFCG OVF OVF OVF ATN LCKT BSY BSY BSY BSY RCLE ATN OVF ATN ATN CONG OVF LLT OVF DNDT BSY ESAM OVF LDN DATA **OPT XLDN** DLDN NO LDN0 1800 LDN1 LDN2 LDN3 LDN4 LDN5 **ICI 00 LD0** ICI 01 LD1 ICI 02 ICI 03 RLL ICI 04 CFB ICI 05 CFN **ICI 06 DL0** ICI 07 DF0 ICI 08 INT **ICI 09 IAT** ICI 10 R000

ICI 11

ICI 12 ICI 13 **ICI 14 ICI 15 ICI 16** ICI 17 **ICI 18 ICI 19** MON_DATA **USBM NO** MPO DATA FMOP **RGNA STD STD** AOCS DIS ATN **RCY1 06 RCY2 04 RALL NO** CDTO 14 **IFLS NO** MHLD NO PCDS CNFD 3 TGLD 2 DISD 1 CCDO NO AFCO NO ACNS NO NET_DATA OPT RTD AC1 INTL NPA SPN NXX LOC AC2 **FNP YES ISDN YES VPNI 100 PNI 100** PINX_DN 199999 MBG 0 **BSGC 65535** PFX1 PFX2 HLOC LSC RCNT 5 **PSTN NO TNDM 15 PCMC 15**

SATD 1 OCLI EXT TNDM 15 TIDM NO DASC DITI YES TRNX YES EXTT YES FTOP FRES APAD 3 0 VNR NO NIT 8 FOPT 14 CNDN CNAT CNIP YES CNTC 02 NATC 39			
INTC 00 NIT_DATA NIT1 2000 TIM1 NIT2 TIM2 NIT3 TIM3 NIT4 TIM4 RPNS NO ENS NO OAS_DATA ODN0 ODN1 ODN2 ODN3 ODN4 ODN5 ODN6 ODN7 ODN8			
ASTM 30 HDOPT 0 HDTM 30 RDR_DATA OPT CFO C	FRA DSTD	PVCA CWRI	D MCI

FNAD FDN FNAT FDN **FNAL FDN** CFTA NO CCFWDN **CFN04 CFN14 CFN2 4 DFN04 DFN14** DFN2 4 DNDH NO MDID NO NDID NO **MWFB NO** TRCL 0 DFNR 0 CRT0 00 00 00 00 CRT1 00 00 00 00 CRT2 00 00 00 00 CRT3 00 00 00 00 DAY0 DAY1 DAY2 DAY3 HOLIDAY0 HOLIDAY1 HOLIDAY2 HOLIDAY3 ROA DATA **OPT ROX** RICI 0 TIM DATA FLSH 45 896 PHDT 30 DIND 30 32 30 DIDT 14 16 14 LDTT 6 DLAT 0 BOTO 14 **DBRC 60** RTIM 30 30 30 ATIM 0 AQTT 0 ADLD 0 AFNT 0

NFNA 0 ADHT 0 HWTT 300 NIT 8 FOPT 14 TST_DATA

Call Server Configuration "CLID"

REQ: prt TYPE: clid CUST 0 SIZE 10 RNGE **INTL 39** ENTRY 0 HNTN 068899 ESA_HLCL ESA_INHN NO ESA_APDN YES HLCL 4820 **DIDN NO** HLOC LSC CLASS_FMT DN ENTRY 1 HNTN 068899 ESA_HLCL ESA_INHN NO ESA_APDN YES HLCL 47844 **DIDN NO** HLOC LSC CLASS_FMT DN ENTRY 2 HNTN 068899 ESA_HLCL ESA_INHN NO ESA_APDN YES HLCL 47846 **DIDN NO** HLOC LSC CLASS_FMT DN

Call Server Configuration "CFN"

REQ prt TYPE cfn ADAN HIST SIZE 5000 USER MTC SCH BUG OSN ADAN TTY 0 CTYP CPSI DNUM 0 PORT 0 DES CS_Maint0 **BPS 9600** BITL 8 STOP 1 PARY NONE FLOW NO USER MTC SCH BUG OSN XSM NO TTYLOG 0 **BANR YES** ADAN TTY 1 **CTYP MGC** IPMG 0 0 DNUM 1 PORT 1 DES CS Maint1 **BPS 9600** BITL 8 STOP 1 PARY NONE FLOW NO USER MTC SCH BUG OSN XSM NO TTYLOG 0 **BANR NO** ADAN TTY 2 **CTYP MGC** IPMG 0 0 DNUM 2 PORT 2 DES CS_Maint2 **BPS 9600** BITL 8 STOP 1 PARY NONE FLOW NO

USER MTC SCH BUG OSN

XSM NO TTYLOG 0 BANR YES ADAN TTY 13 CTYP PTY **DNUM 13** PORT 0 DES pty0 FLOW NO USER MTC SCH BUG OSN XSM NO TTYLOG 0 BANR YES ADAN TTY 14 CTYP PTY DNUM 14 PORT 1 DES pty1 FLOW NO USER MTC SCH BUG OSN XSM NO TTYLOG 0 BANR YES ADAN TTY 15 CTYP PTY **DNUM 15** PORT 2 DES pty2 FLOW NO USER MTC SCH BUG OSN XSM NO TTYLOG 0 **BANR YES** ADAN ELAN 16 **CTYP ELAN** DES ELAN N1 512 ADAN DCH 79 CTYP DCIP DES DCH_VTRK **USR ISLD ISLM 4000 SSRC 1800 OTBF 32** NASA YES IFC SL1

MTRO MR SBA_ADM_INS 001 SBA USER 010 **BCAP SPEECH** IDLE_SET_DISPLAY NORTEL **ICON YES** MSEC OFF CEQU MPED 8D TERM REMO TERD REMD TERQ REMQ SUPL V000 N096 V100 V104 SUPC SUPF DDCS MG_CARD DTCS XCT CONF MGTDS IPMG IPMG_TYPE 124 000 0 MGC MGCONF IPMG PORTS IPMG_TYPE 125 000 0 30 MGC MFSD * 124 APVL DTI2 MG_CARD MISP MG_CARD SYNM 0 EXT0 3PE EXT1 3PE MCFN 011 MB OVLY SID 0 **BKGD 044 PBXH 01 TODR 01** DROL 030 034 038 043 044 135 MID_SCPU NO CY45 00 MULTI_USER ON VAS **VSID 016** DLOP

ELAN 016 SECU YES INTL 0001 MCNT 9999 ATRN CODE 2 SOLR 7 ROLR +45.00 AOLR +39.90 TOLR -45.00 AGCD YES **VOLR YES** HRLR +42.00 HTLR -44.00 ESA LIS NONE DYNAMIC_ELIN_TIMEOUT 180 DYNAMIC_ELIN_REUSE YES

Call Server Configuration "SUPL"

Call Server Configuration " IP Phone"

```
REQ: prt
TYPE: tnb
TN 100 0 1 1
DATE
PAGE
DES
DES 1120
TN 100 0 01 01 VIRTUAL
TYPE 1120
CDEN 8D
CTYP XDLC
CUST 0
NUID
NHTN
CFG_ZONE 010
CUR_ZONE 010
ERL 25610
ECL 0
FDN 2003
TGAR 0
LDN NO
NCOS 0
SGRP 0
RNPG 100
SCI 0
SSU 0001
LNRS 16
XLST
SCPW 1111
SFLT NO
CAC_MFC 0
CLS TLD FBD WTA LPR PUA MTD FNA HTA TDD HFA CRPA
WWA LIMPN RIMID SMWD AAD IMD XHD IRA NIA OLA VCE DRG1
POA DSX VMD SLKD CCSD SWD LNA CNDA
CFTD SFD MRD DDV CNIA CDCA MSID DAPA BFED RCBD
ICDD SCD MICD DDV GNIA GUCA MIGD DAY A DI LO NOOD
ICDD CDMD MCTD CLBD AUTU
GPUD DPUA DNDA CFXA ARHD CLTD ASCD
CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD
UDI RCC HBTD AHA IPND DDGA NAMA MIND PRSD NRWD NRCD NROD
 DRDD EXR0
USRA ULAD RTDD RBDD RBHD PGND OCBD FLXD FTTC DNDY DNO3 MCBN
FDSD NOVD VOLA VOUA CDMR ICRD MCDD T87D KEM3 MSNV FRA PKCH
CPND_LANG ROM
RCO 0
HUNT 03481580185
LHK 0
LPK 16
PLEV 02
DANI NO
AST
IAPG 0
AACS NO
ITNA NO
DGRP
MLWU_LANG 0
MLNG ITA
DNDR 0
KEY 00 MCR 2000 0 MARP
01 MCR 2000 0
02 ADL 16 03481580185
03 ADL 16 03486919602
04
05
06
07
08
09
10
11
12
13
14
15
16 MWK 2222
17 TRN
18 AO6
19 CFW 16 2005
20 RGA
21 PRK
22 RNP
23
24 PRS
25 CHG
26 CPN
27
28
29
30
```

Call Server Configuration "DLC Phone"

```
REQ: prt
TYPE: tnb
TN 0 0 7 0
DATE
PAGE
DES
DES 3904
TN 000 0 07 00 VIRTUAL
TYPE 3904
CDEN 8D
CTYP XDLC
CUST 0
ERL 0
FDN
TGAR 0
LDN NO
NCOS 0
SGRP 0
RNPG 100
SCI 0
SSU 0001
LNRS 16
XLST
SCPW 1111
SFLT NO
CAC_MFC 0
CLS CTD FBD WTA LPR PUA MTD FND HTD TDD HFA GRLD CRPA STSD
MWA LMPN RMMD SMWD AAD IMD XHD IRA NIA OLA VCE DRG1
POA DSX VMD SLKD CCSA-CSI SWD LNA CNDA
CFTD SFD MRD DDV CNIA CDCA MSID DAPA BFED RCBD
ICDD CDMD MCTD CLBD AUTU
GPUD DPUA DNDA CFXA ARHD CLTD ASCD
CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD
UDI RCC HBTD AHA IPND DDGA NAMA MIND PRSD NRWD NRCD NROD
DRDD EXR0
USRD ULAD RTDD RBDD RBHD PGND OCBD FLXD FTTC DNDY DNO3 MCBN
FDSD NOVD CDMR MCDD T87D PKCH
CPND_LANG ROM
RCO 0
HUNT
LPK 16
PLEV 02
DANI NO
AST
IAPG 0
AACS NO
ITNA NO
DGRP
MLWU_LANG 4
MLNG ITA
DNDR 0
KEY 00 SCR 2004 1 MARP
01 ADL 16
02 ADL 16
03 ADL 16
04 ADL 16
05 ADL 16
06 ADL 16
07 ADL 16
08 ADL 16
09 ADL 16
10 ADL 16
11 ADL 16
12
13
14
15
16
17 TRN
18 AO6
19 CFW 16
20 RGA
21 PRK
22 RNP
23
24 PRS
25 CHG
26 CPN
27 CLT
28 RLT
```

Call Server Configuration "Analog Phone"

REQ PRT TYPE: TYPE TNB TN 0 0 3 0 DATE PAGE DES **DES 500** TN 000 0 03 00 VIRTUAL **TYPE 500** CDEN 4D CUST 0 ERL 00000 WRLS NO DN 2006 2 MARP AST NO IAPG 0 HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 **RNPG 100** XLST SCI 0 **SCPW** SFLT NO CAC MFC 0 CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LPR XRD AGRD CWD SWD PUA MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD TSA MBXD CPFA CPTA UDI RCC HBTD IRGD IAMD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD EXR0 SHL ABDD CFHD DNDY DNO3 CWND USRD BNRD OCBD RTDD RBDD RBHD FAXD CNUD CNAD PGND FTTC FDSD NOVD CDMR MCDD T87D PKCH PLEV 02 AACS NO MLWU LANG 0

Call Server Configuration Outgoing Call

The Outgoing Call must be modify the NUM PLAN with DMI from SPN to NPA LD 90 **REQ** prt CUST 0 FEAT net TRAN ac1 TYPE spn SPN 0 FLEN 10 **RLI 80** LD 86 REQ prt CUST 0 TYPE RLB **RLI 80** ENTRY 0 ROUTE 80 (SIP Route) DMI 80 **REQ** prt CUST 0 TYPE DGT DMI 80 CTYP npa Example Call Trace DCH DCH 79 OMSG SETUP REF 00000194 CH 104 0 0 00 TOD 14:25:02 FEAT :NAS FEAT :CRID FEAT :CDS FEAT :NCID PROGRESS: ORIG ADDR IS NOT ISDN CALLING #:0688994820 NUM PLAN: E164/NATIONAL / NPA CALLED #:0651529316 NUM PLAN: E164/NATIONAL / NPA

Call Server Configuration Incoming Call

In order to configure the SIP DDI you have two choices: 1. Under the SIP Route at the prompt INST insert the number, and create the LSC with the same number, and associate the DMI with DEL = Number INST + DDI Number and INST the digit of internal num plane Example: DDI Number 068899482x Extensions from 2000 to 2009 LD 21 REQ prt TYPE rdb CUST 0 ROUTE 80 (SIP Route) **INST 1998** LD 86 REQ prt CUST 0 TYPE DGT DMI 180 **DEL 13** INST 200 CTYP npa LD 87 REQ prt CUST 0 FEAT cdp TYPE lsc LSC 1998 DMI 180 2. Under the SIP Route at the prompt IDC insert the IDC 10 created before with IDGT the DDI Number and CDGT the digit of internal num plane. Example: DDI Number 068899482x Extensions from 2000 to 2009 LD 49 REQ prt TYPE idc CUST 0 DCNO DCNO 10 SDID NO IDGT CDGT 068899482 200

Test Plan and Results

Test Group	Total test	Pass	Fail	N/A	N/E
REGISTRATION & AUTHENTICATION	6	2	0	4	0
PHONE DEVICES	5	5	0	0	0
CODECS	6	6	0	0	0
BASIC CALL	26	26	0	0	0
DATA CALL	13	4	0	9	0
DTMF CALL	3	1	0	2	0
PBX INTERWORKING	10	0	0	10	0
PSTN INTERWORKING	10	0	0	10	0
SUPPLEMENTARY SERVICES	43	42	1	0	0
Total	122	86	1	35	0



70%

19

Test ID	Test Number/Title/Subtitle	Result	Remarks	
	1 REGISTRATION & AUTHENTICATION			
	1.1 IP PBX Registration & Authentication			
TC010101	1.1.1 IP PBX Registration & Authentication procedure	Pass	N001	
TC010102	1.1.2 DDI Without Registration & Authentication	Pass		
	1.2 IP Phone Registration & Authentication			
TC010201	1.2.1 Local IP Phone Registration & Authentication (Internal DHCP)	N/A		
TC010202	1.2.2 Local IP Phone Registration & Authentication (External DHCP)	N/A		
TC010203	1.2.3 Remote IP Phone Registration & Authentication	N/A		
TC010204	1.2.4 Phone Login/Password Encription (H.235/2/RFC 2617)	N/A		
	2 PHONE DEVICES			
	2.1 Legacy Devices			
TC020101	2.1.1 Analog port connection	Pass		
TC020102	2.1.2 Digital port connection	Pass		
	2.2 IP Phone			
TC020201	2.2.1 LAN Ethernet port connection - Power over Ethernet	Pass		
TC020202	2.2.2 LAN Ethernet port connection - External Power Supply	Pass		
	2.3 Soft Phones			
TC020301	2.3.1 Operating System Support (Windows 2000/XP, Apple MacOS X)	Pass	<u>N002</u>	
	3 CODECS			
	3.1 G.711 preferred codec			
TC030101	3.1.1 Internal Call	Pass		
TC030102	3.1.2 Outgoing Call	Pass		
TC030103	3.1.3 Incoming Call	Pass		
	3.2 G.729 preferred codec			
TC030201	3.2.1 Internal Call	Pass		
TC030202	3.2.2 Outgoing Call	Pass		
TC030203	3.2.3 Incoming Call	Pass		
	4 BASIC CALL			
	4.1 Normal Call Setup			
TC040101	4.1.1 Internal Call – Calling release	Pass		
TC040102	4.1.2 Internal Call – Called release	Pass		
TC040103	4.1.3 Outgoing Call – Calling release	Pass		
TC040104	4.1.4 Outgoing Call – Called release	Pass		
TC040105	4.1.5 Incoming Call – Calling release	Pass		
TC040106	4.1.6 Incoming Call – Called release	Pass		
TC040107	4.1.7 Loop-back Call – Calling release	Pass		
TC040108	4.1.8 Loop-back Call – Called release	Pass		
	4.2 Normal Call Release			
TC040201	4.2.1 Internal Call – Calling release before ringing	Pass		
TC040202	4.2.2 Internal Call – Calling release before answer	Pass		
TC040203	4.2.3 Internal Call – Calling and called contemporary release	Pass		
TC840204	4.2.4 Outgoing Call – Calling release before ringing	Pass		
TC040205	4.2.5 Outgoing Call – Calling release before answer	Pass		
TC040206	4.2.6 Outgoing Call – Calling and called contemporary release	Pass		
TC040207	4.2.7 Incoming Call – Calling release before ringing	Pass		
1C040208	4.2.8 incoming Call – Calling release before answer	Pass		
TC040209	4.2.9 incoming Call – Calling and called contemporary release	Pass		
	4.3 Call Setup Failures			
TC040301	4.3.1 Internal Call – User Busy	Pass		
TC040302	4.3.2 Internal Call – Device Out-of-Service	Pass	<u>N003</u>	
TC040303	4.3.3 Internal Call – Insufficient digits	Pass	<u>N004</u>	
TC040304	4.3.4 Outgoing Call – User Busy	Pass		
TC040305	4.3.5 Outgoing Call – Device Out-of-Service	Pass	<u>N006</u>	
1C040306	4.3.6 Outgoing Cail – insufficient digits	Pass	<u>N007</u>	
10040307	4.3.7 Incoming Call – User Busy	Pass		
10040308	4.3.8 incoming Call – Device Out-of-Service	Pass	<u>N009</u>	
TC040309	4.3.9 Incoming Call – Insumcient digits - Wrong Number	Pass		
	5 DATA CALL			
	5.1 Modem Call Setup			
10050101	5.1.1 Internal Call – Analog Modern	N/A		
TC050102	5.1.2 Internal Call – ISDN Modem	N/A		
TC050103	5.1.3 Outgoing Call – Analog Modem	Pass		
TC050104	5.1.4 Outgoing Call – ISDN Modem	N/A		
10050105	5.1.5 incoming Call – Analog Modem	N/A		
TC050106	5.1.6 Incoming Call – ISDN Modem	N/A		
	5.2 FAX Call Setup			
TC050201	5.2.1 Internal Call – Fax G3	Pass		
TC050202	5.2.2 Internal Call – Fax G4	N/A		
TC050203	5.2.3 Outgoing Call – Fax G3	Pass		
TC050204	5.2.4 Outgoing Call – Fax G4	N/A		

10090205	5.2.5	Incoming Call – Fax G3	Pass	
TC050206	5.2.6	Incoming Call – Fax G4	N/A	
	5.3	POS Call Setup		
0050301	5.3.4	Outgoing Call - DOS	NIZA	
0000001	0.0.1	DTHE CALL	19/0	
	6 1	DIMF GALL		
	6.1	DTMF sending		
FC060101	6.1.1	Outgoing Call – DTMF Transmission RFC 2833	Pass	
C060102	6.1.2	Outgoing Call – DTMF Transmission non-RFC 2833	N/A	N010
	6.2	DTMF Receiving		
0060201	621	Incoming Call – External user to embedded volcemail server	N/A	N011
0000201	7		N/A	14211
	/	PDA INTERWORKING		
CU/U1XX	7.1	Basic Call (ISUN)	N/A	
C0702xX	7.2	Data Call (ISDN)	N/A	
C070301	7.3	DTMF Call (ISDN)	N/A	
C0704xx	7.4	Calling Address/Alias Presentation (ISDN)	N/A	
C0705xx	7.5	Voice message (ISDN)	N/A	
C0705wv	7.6	Basic Call (O SIG)	N/A	
0070000	7.0	Data Call (0,010)	N/A	
	1.1	Data Call (0.516)	N/A	
C0708xx	7.8	DTMF Call (Q.SIG)	N/A	
C0709xx	7.9	Calling Address/Alias Presentation (Q.SIG)	N/A	
C0710xx	7.10	Volce message (Q.SIG)	N/A	
	8 1	PSTN INTERWORKING		
0080192	8.1	Basic Call (DRI)	N/A	
X10000	0.1	Date Call (PN)	NVA NVA	
0060230	0.2	Data Call (PRI)	N/A	
C0803xX	8.3	DTMF Call (PRI)	N/A	
C0804xx	8.4	Calling Address/Alias Presentation (PRI)	N/A	
TC0805xx	8.5	Voice message (PRI)	N/A	
COBDEVY	8.6	Basic Call (BRI)	N/A	
0000000	0.0	Date Call (DN)	NZA	
0000730	0.7	Data Cali (DRI)	N/A	
CORREXX	8.8	DIME Call (BRI)	N/A	
XX608037	8.9	Calling Address/Allas Presentation (BRI)	N/A	
C0810xx	8.10	Voice message (BRI)	N/A	
	9	NETWORK INTEROPERABILITY SUPPLEMENTARY SERVICES		
	91	Calling Line identity Presentation		
1010000	011	Outroing Call - Calling Party Name Presentation	Dare	ND40
0090101	2.1.1	Outgoing Call - Calling Party Name Presentation	Fdee	NUTZ
10090102	9.1.2	Outgoing Cail - Cailing Party Number Presentation	Pass	
	9.2	Calling Line identity Restriction		
FC090201	9.2.1	Outgoing Call - Calling Party Name Restriction	Pass	<u>N013</u>
TC090202	9.2.2	Outgoing Call - Calling Party Number Restriction	Fall	N014
TC090203	9.2.3	Incoming Call - Calling Party Number Restriction	Pass	
	0.3	Call Economics		
0000000000	0.3.4	Incoming and CELL to Internal upon		
CUSUSUI	9.5.1	Incoming call - CPU to Internal user	Pass	
090302	9.3.2	Internal call - CFU to external user	Pass	
FC090303	9.3.3	Incoming call - CFU to external user	Pass	
rc090304	9.3.4	Incoming call - CFB to internal user	Pass	
0090305	935	Infernal call - CEB to external user	Pass	
0000306	036	Incoming call - CEB to external user	Dase	
00000000	0.2.7	Inserting call OEN to Internal user	Date	
0090307	9.3.7	incoming call - CFIN to internal USEP	P355	
0090308	9.3.8	internai cali - CEN to external usër	Pass	
C090309	9.3.9	Incoming call - CFN to external user	Pass	
	9.4	Call Hold and Retrive (with Music on Hold)		
000001	9.4.1	Outgoing Call - CH&R Initiated by calling party	Pass.	
0000402	0.4.2	Incoming call - CHSR initiated by a called party	Dase	
3050402	0.5	Call Dark and Relative	- 400	
	9.5	Gail Park and Relive		
0090501	9.5.1	Outgoing Call - Call Park by calling and retrive	Pass	
C090502	9.5.2	Outgoing Call – Call Park by calling and retrive by other extension	Pass	
C090503	9.5.3	Incoming Call – Call Park by called and retrive	Pass	
0090504	9.5.4	Incoming Call - Call Park by called and retrive by other extension	Pass	
	9.6	Call Swap		
00000001	0.6.4	Outering Call 2nd autoring and and sure	Deer	
0090601	9.0.1	Outgoing Call - 2nd outgoing call and swap	Patab	
0090602	9.6.2	Outgoing Call – 2nd Internal call and swap	Pass	
C090603	9.6.3	Outgoing Call – Several calls (Internal/external) and swap	Pass	
C090604	9.6.4	Incoming Call – Outgoing call and swap	Pass	
0090605	965	Incoming Call – Internal call and swap	Pass	
10000605	965	incoming Cal - 2nd incoming call and swap	Date	
000000	5.0.0	Incoming Call – Zhu mooning call allo Swap	- dob	
0090607	9.6.7	incoming call – Several calls (internal/external) and swap	P355	
	9.7	Call Conference		
C090701	9.7.1	Outgoing Call – 2nd outgoing call and conference	Pass	
0090702	972	Outgoing Call – 2nd Internal call and conference	Pass.	
0000702	073	Outroing Call - Soveral calls (Internal/ovternal) and conferences	Dace	
0000070-	0.7.3	Incoming Call - Original and and exclamate and conference	Date	
10090704	12.7.4	incoming car – outgoing car and conference		1

TC090705 9.7.5	5 Incoming Call – Internal call and conference	Pass	
TC090706 9.7.6	5 Incoming Call – 2nd Incoming call and conference	Pass	
TC090707 9.7.7	7 Incoming Call – Several calls (Internal/external) and conference	Pass	
9.8	Call Pick-up		
TC090801 9.8.1	1 Incoming Call – Pick-up by Internal IP phone	Pass	
TC090802 9.8.2	2 Incoming Call – Pick-up by Internal digital phone	Pass	
TC090803 9.8.3	3 Incoming Call – Pick-up by Internal analog phone	Pass	
9.9	Call Transfer		
9.9 TC090901 9.9.1	Call Transfer 1 Internal Call – Call Transfer to Outgoing Call	Pass	
9.9 TC090901 9.9.1 TC090902 9.9.2	Call Transfer 1 Internal Call – Call Transfer to Outgoing Call 2 Incoming Call – Call Transfer to Outgoing Call	Pass Pass	
9.9 TC090901 9.9.1 TC090902 9.9.2 TC090903 9.9.3	Call Transfer Call Transfer Internal Call Call Transfer to Outgoing Call Incoming Call Call Transfer to Outgoing Call Outgoing Call Outgoing Call	Pass Pass Pass	
9.9 TC090901 9.9.1 TC090902 9.9.2 TC090903 9.9.3 TC090904 9.9.4	Call Transfer Internal Call – Call Transfer to Outgoing Call Incoming Call – Call Transfer to Outgoing Call Incoming Call – Call Transfer to Outgoing Call Incoming Call – Call Transfer to Internal Call Incoming Call – Call Transfer to Internal Call	Pass Pass Pass Pass	
9.9 TC090901 9.9.1 TC090902 9.9.2 TC090903 9.9.3 TC090904 9.9.4 TC090905 9.9.5	Call Transfer Internal Call – Call Transfer to Outgoing Call Incoming Call – Call Transfer to Outgoing Call Incoming Call – Call Transfer to Outgoing Call Outgoing Call – Call Transfer to Internal Call Internal Call – Call Transfer to Outgoing Call (blind transfer)	Pass Pass Pass Pass Pass Pass	

Remarks	Gravity	Description
<u>N001</u>	-	In case of reg the DDI call not working, because the issw Italtel send on the INVITE URI only the DDI number.
<u>N002</u>	-	Only W2000/XP
<u>N003</u>	-	180 Ringing
<u>N004</u>	-	Release and try again after 30 second
N005	-	
<u>N006</u>	-	Continus Ring
<u>N007</u>	-	484 Address Incomplete
N008	-	
<u>N009</u>	-	180 Ringing
<u>N010</u>	-	No INFO on the ISSW ITALTEL
<u>N011</u>	-	Voce Mail N.A. During the test
<u>N012</u>	-	Only SIP TO SIP
<u>N013</u>	-	Custom Configuration on PBX
<u>N014</u>	-	Override Category on ISSW Italtel, Restricted only the Extention
N015	-	
N016	-	
N017	-	
N018	-	
N019	-	
N020	-	

SW Port		ELAN			TLAN		SW Port
		SUBNET			SUBNET		
		255.255.255.224	06 8899482x		255.255.255.0		
		Gateway			Gateway		
		172.22.98.129			172.20.10.1		
		BLAN			TLAN		
			Node ID 5001 Cust 0				
			Node 172.20.10.131				
			MG1	I			
			Miran III				
			Falc				
Int	NAME : XXXXXXXXXXXX	172.22.98.132	SigServer Cust 0		172.20.10.130	NAME:CS1000	Int
	NAME : XXXXXXXXXXXX	172.22.98.131	Call Server 0		172.20.10.129	DB96	
	NAME : XXXXXXXXXXXX	172.22.98.130	MGC		172.20.10.128	NAME : MGC	
			MG1 Expander	I			
	NAME: XXXXXXXXXXX					NAME: CALLPILOT	
	NAME:XXXXXXXXXXX	172.22.98.133	MC		172.20.10.132		
	NAME:XXXXXXXXXXX		DLC				
			ITALTEL Proxy Cust 0		213.213.83.151		
			ITALTEL Proxy Cust 1				
			IP 1110 Tel 2003		172.20.10.133		
			IP 1120 Tel 2000		172.20.10.134		
			PC		172.20.10.135		
			D 3904 Tel 2004				
			D 3904 Tel 2005				
			Analoq Tel 2006				
			Analoq Tel 2007				
			Bay 5520		172.20.10.142		

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