AVAYA

Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Avaya Communication Server 1000E R7.5 with Visionutveckling Vision 80/20 Call Server V9 using QSIG Trunks - Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning Avaya Communication Server 1000E R7.5 to successfully interoperate with Visionutveckling Vision 80/20 Call Server V9 using QSIG Trunks. The Visionutveckling Vision 80/20 Call Server is a software application installed on a Windows Server that includes functions for voice call forwarding, interactive voice response and spoken presence with additional voice mail and queue management for attendant calls.

Information in these Application Notes has been obtained through DevConnect Compliance Testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

MC; Reviewed;
SPOC 1/13/2012

Solution & Interoperability Test Lab Application Notes
2012 Avaya Inc. All Rights Reserved

Page 1 of 14
VIP_V9_CS1K_QSG

1. Introduction

Visionutveckling Vision 80/20 Call Server includes a voice application with capability to give spoken sresence or absence information integrated with the employee recorded greetings. The system is accessible for the employee either from a phone or a web based interface. Visionutveckling Vision 80/20 Call Server has possibilities to transfer calls to mobile phones, operators, etc., depending on the settings made by the employee. These settings can be a combination of presence and absence or personal choice of IVR menu selections. If Visionutveckling Vision 80/20 Call Server transfers calls it can modify call information such as originally searched extension and diversion reason. All information given to the calling party by the system is a combination of the employees recorded greetings and the information in the Visionutveckling Vision 80/20 Call Server presence database.

2. General Test Approach and Test Results

The interoperability compliance test included both feature and functionality testing. The feature and functionality testing focused on verifying that the presence and absence or personal choice of IVR is activated in various scenarios. Basic dialing plans were configured to route call to various extensions on the Vision 80/20 Call Server. A variety of Avaya telephones were installed and configured on the Communication Server 1000E (CS1000E). A full list can be found in **Section 4**. A Vision 80/20 Server is usually installed in conjunction with the Vision 80/20 Call Server and was installed during compliance testing. See **Figure 1** for a network diagram.

2.1. Interoperability Compliance Testing

The testing included:
- Verification of connectivity between the Vision 80/20 Call Server and CS1000E using SIP Trunks
- Verification that calls were routed correctly based on employee input
- Verification that interactive voice response occurs in various telephony operations
- Verification that spoken presence answers in various telephony operations
- Verify Route Optimization

Link Failure\Recovery was also tested to ensure successful reconnection on link failure.

2.2. Test Results

Tests were performed to insure full interoperability between the Vision 80/20 Call Server and the CS1000E. The tests were all functional in nature and performance testing was not included. All the test cases passed successfully.

2.3. Support

Technical support can be obtained for Visionutveckling products as follows:

       Website: *support@visionutveckling.se* (General)
                                  http://partner.visionutveckling.se (Partners and customers)
       Phone: +46 (0) 770 770070

3. Reference Configuration

The Vision 80/20 Call Server connects to the CS1000E using a Primary Rate Card (PRI) configured with the QSIG protocol. For completeness during testing the following were also configured and are shown in the diagram below. A variety of Avaya telephone sets including a M2250 Attendant Console, from Visionutveckling a Vision 80/20 server V2.5 and a Vision Attendant Client were configured.
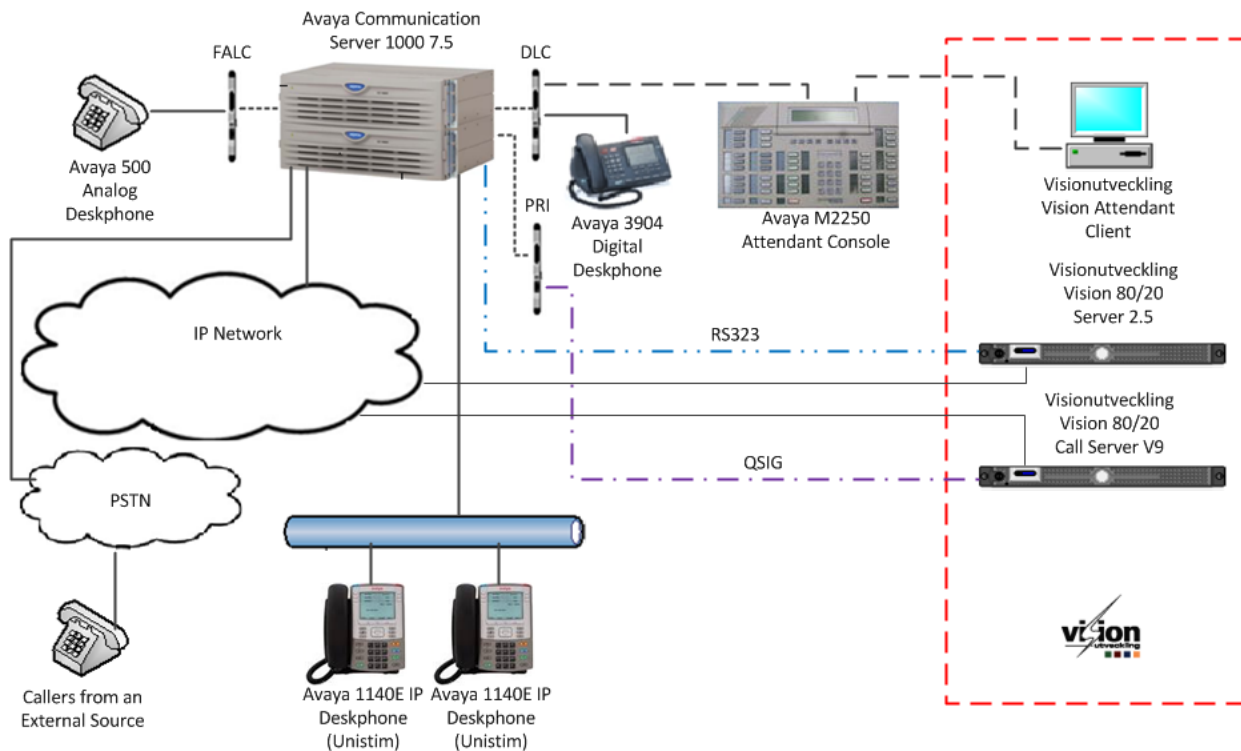
Figure 1: Network Topology and Connectivity for Visionutveckling Vision 80/20 Call Server and Avaya Communication Server 1000E using QSIG

4. Equipment and Software Validated

The hardware and associated software used in the compliance testing is listed below.

Equipment	Software Version
Avaya Communication Server 1000E CPPM	Avaya Communication Server 1000E R7.5 SP1
CP-PM CoRes	HW NTDW61
Avaya Communication Server 1000E Media Gateway	HW NTDW60
Avaya PRI Card	NTBK50
Avaya Flexible Analog Line Card	NT5K02QC
Avaya Digital Line Card	NT8D02GA
Avaya 3904 Digital set	F/W 2.4
Avaya 1140E IP set	UNIStim 4.3
Avaya Analog set	NT2N73AA
Avaya M2250 Attendant Console	NT6G48AC
Vision 80/20 Call Server	Vision 80/20 Call Server Version 9
Vision 80/20 Server	Vision 80/20 Server R2.5
Vision 80/20 Attendant Client	Vision 80/20 Attendant Client R2.5
Sangoma PRI Card	101E

Table 1: Hardware and Software Version Numbers

Note: For a complete list of the patches installed on the CS1000E see **Appendix**.

5. Configure Avaya Communication Server 1000E

Configuration and verification operations on the CS1000E illustrated in this section were all performed using terminal access over a serial link to a TTY port on the CS1000E using Telnet. The information provided in this section describes the configuration of the CS1000E for this solution. It is implied a working system is already in place. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration operations described in this section can be summarized as follows:

- Create a D-channel for QSIG
- Create Route Data Block
- Add TIE Trunks
- Create a Coordinated Dialing Plan to access the Vision 80/20 Call Server
- Create Distance Steering codes

5.1. Create a D-Channel for QSIG

Use the **CHG** command in Overlay 17 (**LD 17**) to create a D-channel for the QSIG connection. In the example below D-Channel 58 (**DCH 58**) was created. At the **IFC** prompt enter **ESGF** this signifies QSIG. During compliance testing **PR_TRIGS DIV**, **CNG**, **CON** and **CTR1** were all set to **2 1.**

Note: In the Telnet screenshots below only the unique prompt inputs are shown. CR all other prompts to set default values.

LD 17

Prompt	Response	Description
>**LD 17**		Enter Overlay 17
REQ	**CHG**	Change
TYPE	**ADAN**	Change the Action Device and Number
ADAN	**NEW**	Create New Action Device and Number
TYPE	**DCH 58**	Create new D-Channel 58
CTYP	**MSDL**	Card type is IP D-Channel
USR	**PRI**	Integrated Services Signaling Link
IFC	**ESFG**	D-Channel interface type
SIDE	**NET**	Node type
PR_TRIGS DIV	**2 1**	
PR_TRIGS CNG	**2 1**	
PR_TRIGS CON	**2 1**	
PR_TRIGS CTR1	**2 1**	

MC; Reviewed;
SPOC 1/13/2012

Solution & Interoperability Test Lab Application Notes
2012 Avaya Inc. All Rights Reserved

Page 5 of 14
VIP_V9_CS1K_QSG

5.2. Create Route Data Block

Use the **NEW** command in Overlay 16 (**LD 16**) to create a Route Data Block. The route created is a **TIE** route in order to connect to the Vision 80/20 Call Server. In the example below **Route 44** (**ROUT 44**) was created. Subsets of these commands are illustrated below.

LD 16

Prompt	Response	Description
>**LD 16**		Enter Overlay 16
REQ	**NEW**	Create new
TYPE	**RDB**	Route Data block
CUST	0	Customer Number as defined in LD15
ROUT	**44**	Route Number
TKTP	**TIE**	Route Type
VTRK	**NO**	Virtual Route
DTRK	**YES**	Digital Trunk Route
DGTP	**PRI2**	Digital Trunk type
ISDN	**YES**	Integrated Services Digital Network
MODE	**PRA**	mode of operation
IFC	**ESGF**	Interface type QSIG
ACOD	**47048**	Access Code for trunk route

5.3. Add TIE Trunks

Use the **NEW** command in Overlay 14 (**LD 14**) to add **TIE** trunks to the new route created in **Section 4.2.** If adding multiple trunks for each route use **NEW XX**, where **XX** is the number of trunks. In the example below **10** trunks were added.

LD 14

Prompt	Response	Description
>**LD 14**		Enter Overlay 14
REQ	**NEW 10**	Create New
TYPE	**TIE**	IP TIE trunk
TN	**44 1**	Loop Shelf Card Unit
CUST	0	Customer Number as defined in LD15
TRK	**PRI2**	Trunk type
RTMB	**44 1**	Route number and Member number

5.4. Create a Coordinated Dialing Plan to access the Visionutveckling Vision 80/20 Call Server

There are a number of ways to setup a Dialing plan to call the ports on the Vision 80/20 Call Server. For compliance testing a Coordinated Dialing Plan (CDP) was used. In order to create a CDP a Route List Index (RLI) in Overlay 86 (**LD 86**) is required. Use the **NEW** command in overlay **86** to create a **RLI**. Subsets of these commands are illustrated below.

Note: Enter the QSIG route **(ROUT)** that is used to route to the Vision 80/20 Call Server (i.e. **44**).

LD 86

Prompt	Response	Description
>**LD 86**		Enter Overlay 86
REQ	**NEW**	Create New
CUST	0	Customer Number
FEAT	RLB	Route list Block
TYPE	**RLI**	Route list Index
RLI	36	Route list Index number
ENTR	0	First entry for the RLI
ROUT	**44**	Enter the SIP route number

5.5. Create Distance Steering codes (DSC)

Use the **NEW** command in Overlay 87 (**LD 87**) to create a DSC entry for the extensions on the Vision 80/20 Call Server. For each extension a **DSC** entry needs to be are created during compliance test 6 extensions were used. The example below shows only the DSC for extension **5199**. A DSC for other extensions are configured in the same way. Subsets of these commands are illustrated below.

Note: The RLI number used is the one created in **Section 5.4.**

LD 87

Prompt	Response	Description
>**LD 87**		Enter Overlay 87
REQ	**NEW**	Create new
CUST	0	Customer Number as defined in LD15
FEAT	**CDP**	Coordinated dialing plan
TYPE	**DSC**	Distance Steering code
DSC	**5199**	Distant Steering code
FLEN	**4**	Flexible Length number of digits
RLI	**36**	Route list index Number

6. Configure Visionutveckling Vision 80/20 Call Server

After the Vision 80/20 Call Server software is installed a number of steps are required. Most of the steps relate to editing config files. Information of the initial software is installation is available on the Visionutveckling partner portal. The following steps are required to configure the Vision 80/20 Call Server configuration:

- Linking the **qsig** configuration file
- Edit the **zapata**.**config** file
- Edit the **zapata.config_meridian_qsig** file
- Edit the **Switchtable** file

6.1. Linking the qsig configuration File

As part of the configuration of the Vision 80/20 Call Server a specify config file needs to be linked to the correct template so to connect to the CS1000E. Perform the following steps to link the Config file:

- Login to the system root
- Go to the **root@vip2000** prompt
- Link the **wtlp_config.meridian_qsig** to the **wtlp_config** file

6.1.1. Login to the System root

To login to the system root enter:

user = **root** and **password** = Enter the correct password

6.1.2. Go to the root@vip2000 prompt

To link the required config file to the Vision 80/20 Call Server template first go to the **root@vip2000** prompt. To get to the **root@vip2000** prompt type the following:

vzctl enter 1001

6.1.3. Link the Config file

The files that are required to be linked can be found in the following directory **/etc/asterisk**. The template file is called **wtlp_config**. The config file that needs to be linked to the **wtlp_config** file is called **wtlp_config.meridian_qsig**. To link the files type the following:

ln –sf wtlp_config.meridian_qsig wtlp_config

6.2. Edit the zapata.config file

In the **zapata.config** file found in the **/etc/asterisk** directory use **vi** to add the line as shown in the table below to the end of the file. Then quit and save.

```
#include "zapata.conf_meridian_qsig"
```

6.3. Edit the zapata.config_meridian_qsig file

This file contains the configuration of the QSIG card installed on the Vision 80/20 Call Server. The **zapata.config_meridian_qsig** file is found in directory **/etc/asterisk**. Below shows the configuration during compliance testing. Use **vi** to insert or edit the following lines as illustrated in the table below. Then quit and save.

```
group = 1
switchtype=qsig
signalling=pri_cpe
context=zapata_meridian_qsig
channel => 1-15,17-31
```

6.4. Edit the Switchtable file

The switchtable is used to configure numbers/extensions which are routed to the Vision 80/20 Call Server. To edit the **switchtable** change to a User which has Super User permissions, as example **vip2000.** To change to Super User **vip2000** type **su – vip2000**. The switchtable file can be found in directory **/u/vip2000/Config**. Use **vi** to insert or edit the following lines as illustrated in the table below. During compliance testing numbers **6198**, **5198**, **5197** and **5196** were used. Then quit and save.

```
*        *        [.]* [.]*  [.]*  * *     vmail "-c I <ANR> <BNR> <CNR> <TYPE> <ORIGIN>"
*        *        [.]* [.]* ^6198$ * *     vmail "-c I <ANR> <CNR> <BNR> <TYPE> external"
*        *        [.]* [.]* ^5198$ * *     vmail "-c I <ANR> <CNR> <BNR> <TYPE> <ORIGIN>"
*        *        [.]* [.]* ^5197$ * *     vmail "-c I <ANR> <CNR> <BNR> <TYPE> external"
*        *        [.]* [.]* ^5196$ * *     vmail "-c I <ANR> <CNR> <BNR> <TYPE> external"
```

7. Verification Steps

This section provides the tests that can be performed to verify correct configuration of the CS1000E and Vision 80/20 Call server

7.1. Status of D-Channel on Avaya Communication Server 1000E

Check the status of the D-channel setup in **Section 5.1** by running the command **STAT DCH** in Overlay 96 (**LD 96**) as shown below. The example below shows that D-Channel 58 is operational and established.

LD 96

Prompt	Response	Description
>**LD 96**		Enter Overlay 96
STAT DCH 58		Check status of D-Channels

8. Conclusion

These Application Notes describe the configuration steps required for Avaya Communication Server 1000E R7.5 to successfully interoperate with Visionutveckling Vision 80/20 Call Server V9 using QSIG. All functionality and serviceability test cases were completed successfully.

9.   Additional References

This section references the Avaya and Visionutveckling documentation that is relevant to these Application Notes. Product documentation for Avaya products may be found at *http://support.avaya.com*

[1] *Software Input Output Reference — Administration Avaya Communication Server 1000 7.5, NN43001-611, 05.09 September 2011*

[2] *System Management Reference Avaya Communication Server 1000 7.5, NN43001-600, 05.07 August 2011*

[3] *Telephones and Consoles Fundamentals Avaya Communication Server 1000 - NN43001-567, 05.01, November 2010*

Technical documentation for Visionutveckling can be found at the following location: (requires login, Swedish only)

[1]*http://www.vision8020.se/wiki/*

Appendix A
Avaya Communication Server 1000E Software and patch list

VERSION 4121
RELEASE 7
ISSUE 50 Q +
DepList 1: core Issue: 01 (created: 2011-03-15 10:26:33 (est))

IN-SERVICE PEPS

PAT#	CR #	PATCH REF #	NAME	DATE	FILENAME	SPECINS
000	wi00688505	ISS1:1OF1	p30595_1	14/06/2011	p30595_1.cpl	NO
001	wi00835294	ISS1:1OF1	p30565_1	14/06/2011	p30565_1.cpl	NO
002	wi00832106	ISS1:1OF1	p30550_1	14/06/2011	p30550_1.cpl	NO
003	wi00837618	ISS1:1OF1	p30594_1	14/06/2011	p30594_1.cpl	NO
004	wi00852365	ISS1:1OF1	p30707_1	14/06/2011	p30707_1.cpl	NO
005	wi00843623	ISS1:1OF1	p30731_1	14/06/2011	p30731_1.cpl	YES
006	wi00839255	ISS1:1OF1	p30591_1	14/06/2011	p30591_1.cpl	NO
007	wi00832626	ISS2:1OF1	p30560_2	14/06/2011	p30560_2.cpl	NO
008	wi00857566	ISS1:1OF1	p30766_1	14/06/2011	p30766_1.cpl	NO
009	wi00841980	ISS1:1OF1	p30618_1	14/06/2011	p30618_1.cpl	NO
010	wi00837461	ISS1:1OF1	p30597_1	14/06/2011	p30597_1.cpl	NO
011	wi00839821	ISS1:1OF1	p30619_1	14/06/2011	p30619_1.cpl	NO
012	wi00842409	ISS1:1OF1	p30621_1	14/06/2011	p30621_1.cpl	NO
013	wi00838073	ISS1:1OF1	p30588_1	14/06/2011	p30588_1.cpl	NO
014	wi00850521	ISS1:1OF1	p30709_1	14/06/2011	p30709_1.cpl	YES
015	wi00860722	ISS1:1OF1	p30784_1	14/06/2011	p30784_1.cpl	YES
016	wi00839134	ISS1:1OF1	p30698_1	14/06/2011	p30698_1.cpl	YES
017	wi00836981	ISS1:1OF1	p30613_1	14/06/2011	p30613_1.cpl	NO

Appendix B
Avaya Communication Server 1000E Peripheral Software Version (PSWV) data

```
PSWV        VERSION: PSWV 100
LCRI:       VERSION NUMBER: AA02
XNET:       VERSION NUMBER: AC23
XPEC:       VERSION NUMBER: AC43
FNET:       VERSION NUMBER: AA07
FPEC:       VERSION NUMBER: AA08
MSDL:       VERSION NUMBER: AJ73
SDI:        VERSION NUMBER: AH51
DCH:        VERSION NUMBER: AA72
AML:        VERSION NUMBER: AK81
BRIL:       VERSION NUMBER: AK83
BRIT:       VERSION NUMBER: AK82
MISP:       VERSION NUMBER: AJ71
MPH:        VERSION NUMBER: AH51
BRSC:       VERSION NUMBER: AJ71
BBRI:       VERSION NUMBER: AH54
PRIE:       VERSION NUMBER: AA87
BRIE:       VERSION NUMBER: AK89
ISIG:       VERSION NUMBER: AA33
SWE1:       VERSION NUMBER: BA53
UKG1:       VERSION NUMBER: BA51
AUS1:       VERSION NUMBER: BA49
DEN1:       VERSION NUMBER: BA48
FIN1:       VERSION NUMBER: BA49
GER1:       VERSION NUMBER: BA54
ITA1:       VERSION NUMBER: AA54
NOR1:       VERSION NUMBER: BA49
POR1:       VERSION NUMBER: BA49
DUT1:       VERSION NUMBER: BA50
EIR1:       VERSION NUMBER: BA49
SWI1:       VERSION NUMBER: BA53
BEL1:       VERSION NUMBER: BA49
SPA1:       VERSION NUMBER: BA51
NET1:       VERSION NUMBER: BA48
FRA1:       VERSION NUMBER: BA52
CIS1:       VERSION NUMBER: BA48
ETSI:       VERSION NUMBER: BA48
E403:       VERSION NUMBER: BA07
N403:       VERSION NUMBER: BA05
JTTC:       VERSION NUMBER: AC08
TCNZ:       VERSION NUMBER: AA13
AUBR:       VERSION NUMBER: AA14
```

AUPR: VERSION NUMBER: AA04
HKBR: VERSION NUMBER: AA06
HKPR: VERSION NUMBER: AA08
SING: VERSION NUMBER: AA15
THAI: VERSION NUMBER: AA07
NI02:   VERSION NUMBER: AA26
T1IS: VERSION NUMBER: AA10
T1ES: VERSION NUMBER: AA09
ESGF: VERSION NUMBER: AC30
ISGF: VERSION NUMBER: AC31
ESGFTI: VERSION NUMBER: AC29
ISGFTI: VERSION NUMBER: AC31
INDO: VERSION NUMBER: AA06
JAPN: VERSION NUMBER: AA16
MSIA: VERSION NUMBER: AA04
CHNA: VERSION NUMBER: AA04
INDI: VERSION NUMBER: AA03
PHLP: VERSION NUMBER: AA02
TAIW: VERSION NUMBER: AA03
EAUS: VERSION NUMBER: AA02
EGF4:   VERSION NUMBER: AC14
DCH3:   VERSION NUMBER: AA10
PUP3:   VERSION NUMBER: AA14
T1E1:   VERSION NUMBER: AA19
DITI: VERSION NUMBER: AA40
CLKC: VERSION NUMBER: AA20
3902:   VERSION NUMBER: AA84
3903:   VERSION NUMBER: AA91
3904:   VERSION NUMBER: AA94
3905:   VERSION NUMBER: AA94
MGC, MGX and MGS: CSP VERSION: MGCC CD01
 MSP VERSION: MGCM AB01
 APP VERSION: MGCA BA07
 FPGA VERSION: MGCF AA18
 BOOT VERSION: MGCB BA07
 DSP1 VERSION: DSP1 AB03
 DSP2 VERSION: DSP2 AB03
 DSP3 VERSION: DSP3 AB03
 DSP4 VERSION: DSP4 AB01
 DSP5 VERSION: DSP5 AA01
UDT VERSION NUMBER: AA42

©2012 Avaya Inc. All Rights Reserved.
Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at *devconnect@avaya.com*.