Avaya Solution & Interoperability Test Lab

Application Notes for Imagine Soft CLARity with Avaya IP Office– Issue 1.0

Abstract

These Application Notes describe the compliance testing of Imagine Soft CLARity with Avaya IP Office. CLARity is a call accounting program which processes Call Detail Records generated by IP Office.

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.

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1. Introduction

The Imagine Soft CLARity Server processes Call Detail Records which it receives from IP Office. It can produce call usage reports on incoming and outgoing calls involving internal, external, and network parties. It can calculate call charges for individual users or for groups of users.

CLARity calculates the cost of a call based on the duration, origin, and destination of the call. CLARity can differentiate calls made via trunks to the PSTN from calls made to local extensions or trunks to other PBXs, and compute calling charges accordingly.

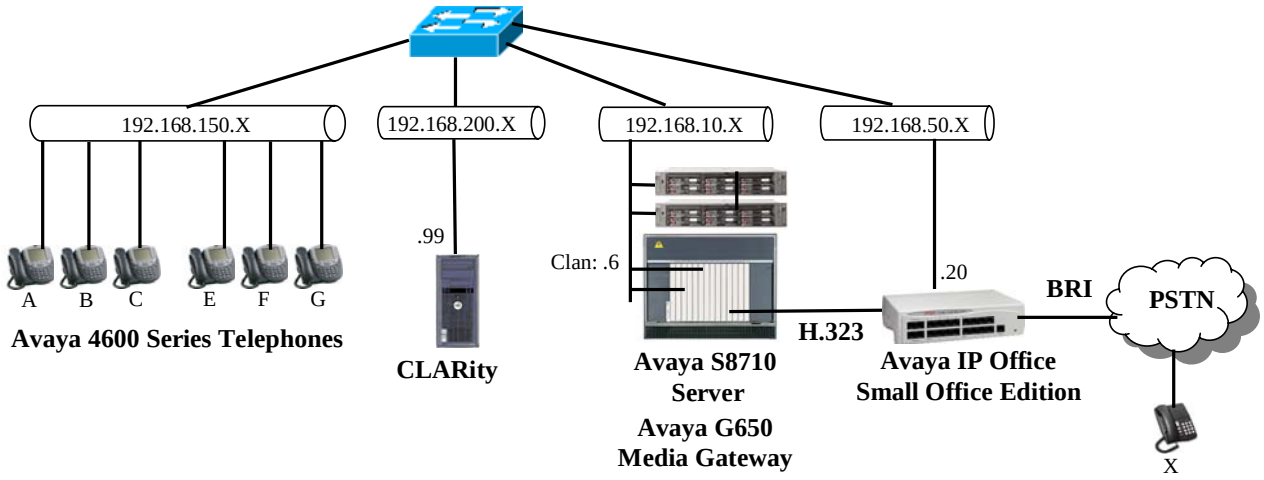

Figure 1: Imagine Soft CLARity Configuration

The presence of Avaya S8710 Server in the above configuration is solely for the purpose of generating CDR records (from the IPO) for calls which are made via a trunk to another PBX, and is otherwise not essential for usage of CLARity with IP Office. The H.323 trunk between the Avaya IP Office Small Office Edition (SOE) and the Avaya S8710 Server could be replaced with any other type of trunk supported by both systems, i.e. PRI, SIP, etc. The S8710 system is not configured to generate CDR records. The function of each of the components in Figure 1 is as follows:

- Avaya IP Office SOE sends CDR records to the CLARity server as call events occur.
- The CLARity server processes CDR records which it receives from Avaya IP Office SOE.
- The Avaya IP Office has a BRI trunk interface to the Public Switched Telephone Network (PSTN) over which it can make and receive external calls.
- The Avaya IP Office has an H.323 trunk to the S8710 over which it can make and receive calls. The Avaya S8710 Server is not configured to generate CDR records.
- The Avaya IP Telephones with the designation A-C are registered with Avaya IP Office SOE.

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- The Avaya IP Telephones with the designation E-G are registered with the Avaya S8710 Server.

The following table contains additional information about each of the telephones contained in the above diagram.

Designation	Extension	PSTN Number
A	5113	069 907 xxxxx 5113
B	5114	069 907 xxxxx 5114
C	5126	069 907 xxxxx 5126
D (HG: A & B)	5000	069 907 xxxxx 5000
E	1000121	
F	1000124	
G	1000134	
X		069 7505 6176

Table 1: Extensions Used for Testing

2. Equipment and Software Validated

Software Component	Version
Avaya IP Office	4.1(12)
Avaya 4600 IP Telephones	2.887
MS C++ Runtime	2005
MS .net	3.0
CLARity	1.4.0
MS XP Professional	SP2

Table 2: Version Numbers of Equipment and Software

3. Configuration

3.1. Configure IP Office

The configuration and verification operations illustrated in this section were performed using the Avaya IP Office Manager program.

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3.1.1. Licensing

No extra Avaya IP Office licenses are required to use CLARity.

3.1.2. System

Set the parameters in the "System" tab as shown in the following table.

Item	Parameter	Usage
System	Time Offset	Enter the time offset to GMT in hours/minutes.
	Time Server IP Address	Enter the IP address of a time server.
	Locale	Enter the name of the locale for the region is which the IPO is to be used.
	Local Number Length	Enter the number of digits in the dial plan for local extensions.
LAN1	IP Address	Specify the IP address to be assigned to IP Office.
	IP Mask	Enter the IP mask to be used by the LAN.
CDR	Enable CDRs	Check this box.
	Enable intra-switch CDRs	Check this box to generate CDRs for intra-switch calls. This option should be selected depending on site requirements.
	Record Format	Select "59 Character" from the drop-down menu.
	Record Options	Select "Normal" from the drop-down menu.
	Date Format	Select "Month\Day".
	CDR IP Address	Enter the IP address of the CLARity server.
	CDR IP Port	Enter the port used by CLARity to read CDR records. This should match the parameter which is set in **Figure 19**.

Table 3: System Configuration Parameters

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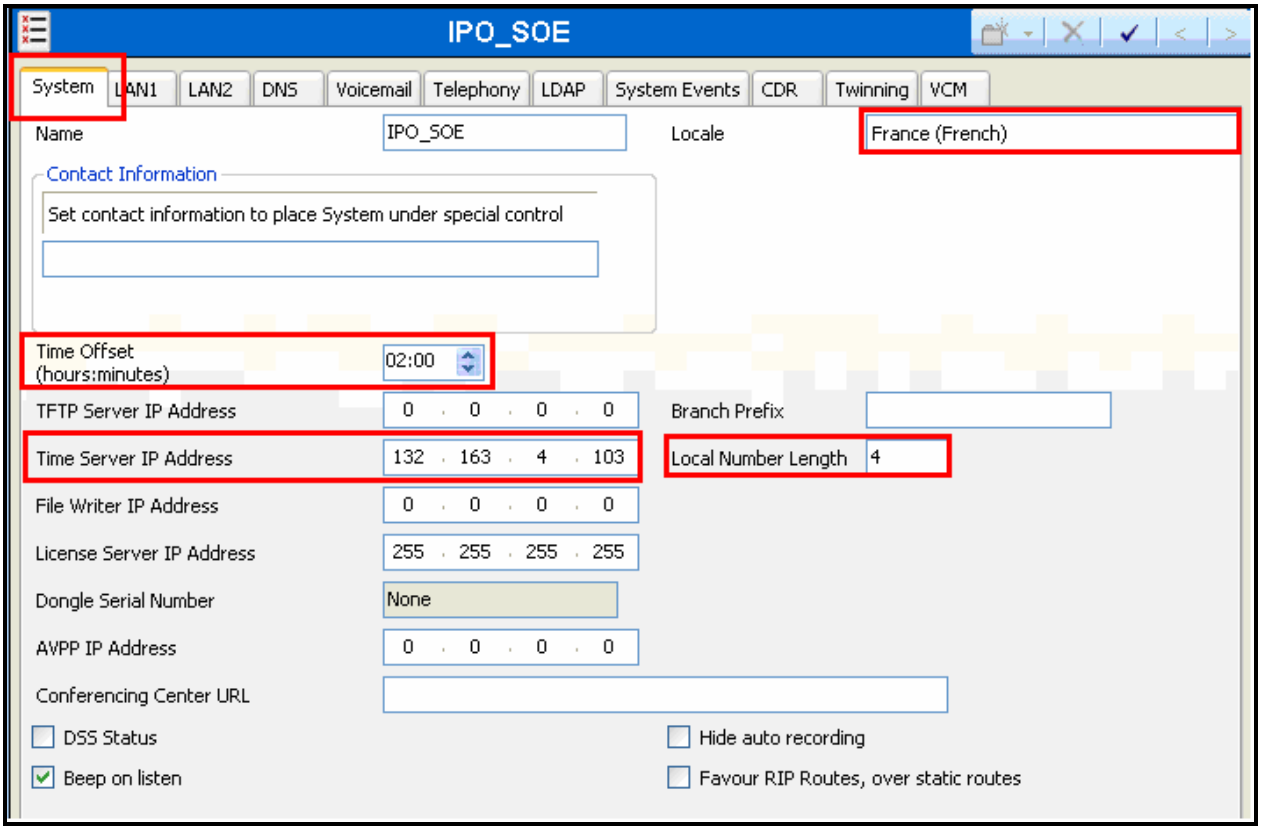

Figure 2: System Parameters

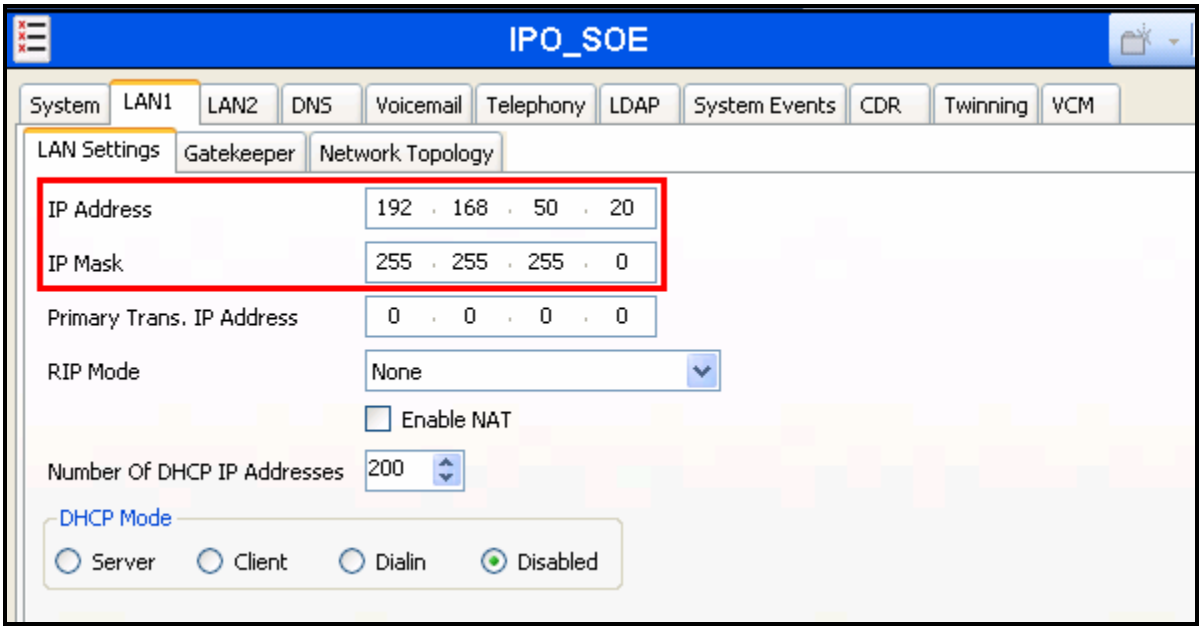

Figure 3: System Parameters: LAN1

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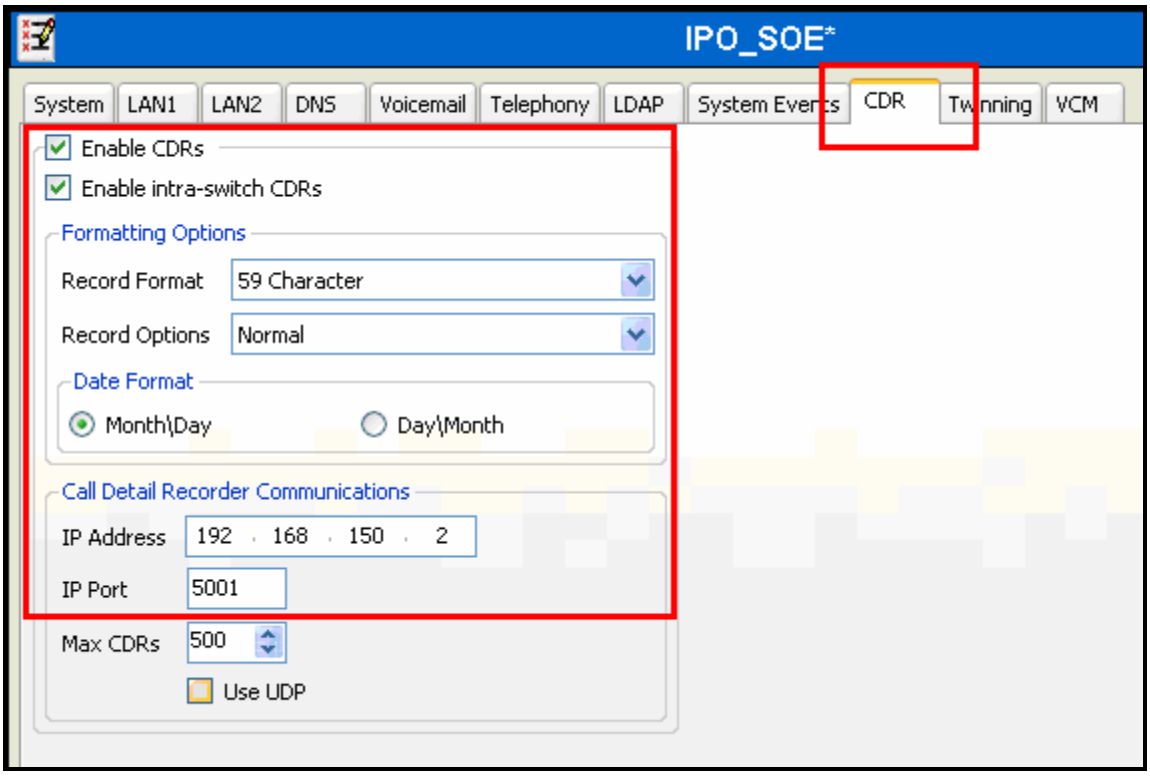

Figure 4: System Parameters: CDR

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3.1.3. Extensions

Create an extension for each of the telephones A-C shown in **Table 1**. Set the "Base Extension" parameter to the extension to be assigned, and accept the defaults values for the remaining parameters.

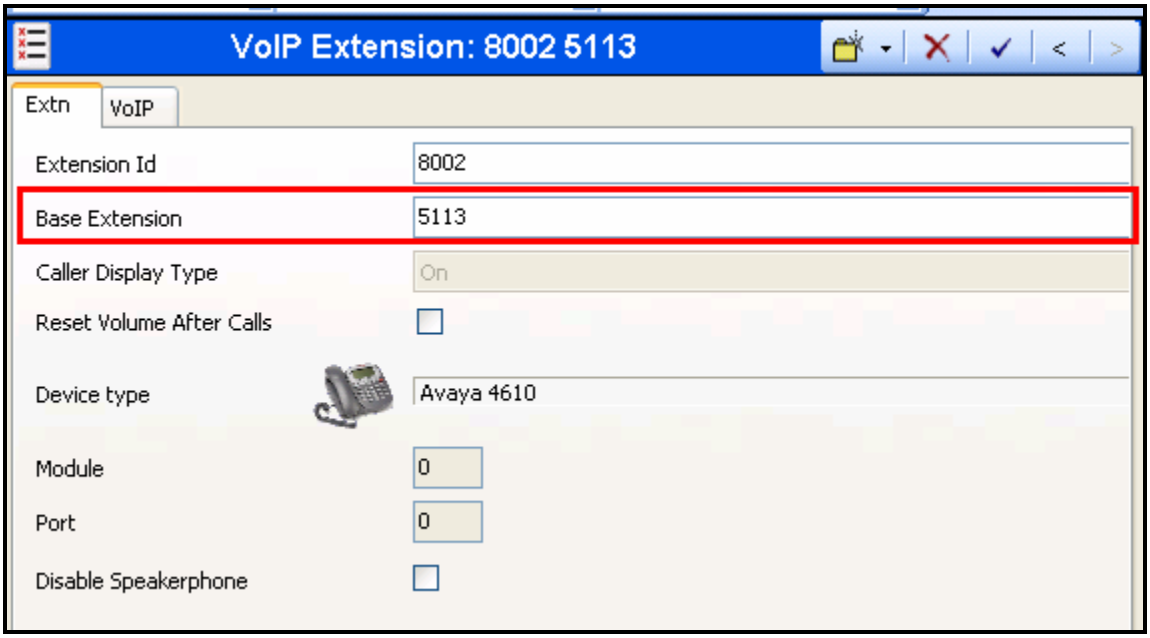

Figure 5: Guest or Administrator Extension

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3.1.4. Create Users

Create a user for each of the telephones A-C shown in **Table 1**. Specify a descriptive name in the "Name" field and the extension (which was allocated in **Figure 5**) in the "Extension" field.

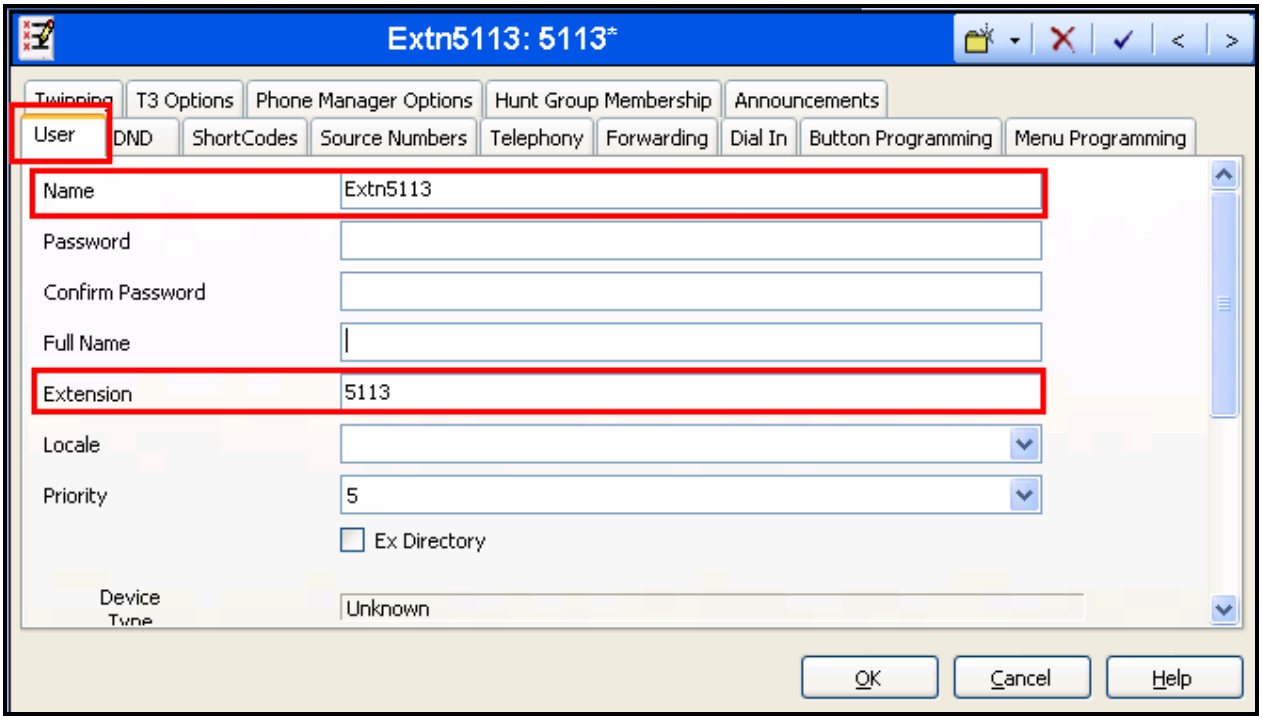

Figure 6: Guest or Administrator User

3.1.5. Shortcodes

Allocate a shortcode to provide access to the PSTN via the BRI interface, as shown in the following table.

Parameter	Usage
Code	Enter **0N**
Feature	Select **Dial** from the drop-down menu.
Telephone Number	Enter **NSi** followed by the telephone number of the PSTN connection (this is the same number which is assigned to the Incoming Call Route in **Figure 10**).
Line Group ID	Enter the group number which was assigned to the PSTN interface in **Figure 9**.

Table 4: Shortcode Configuration Parameters

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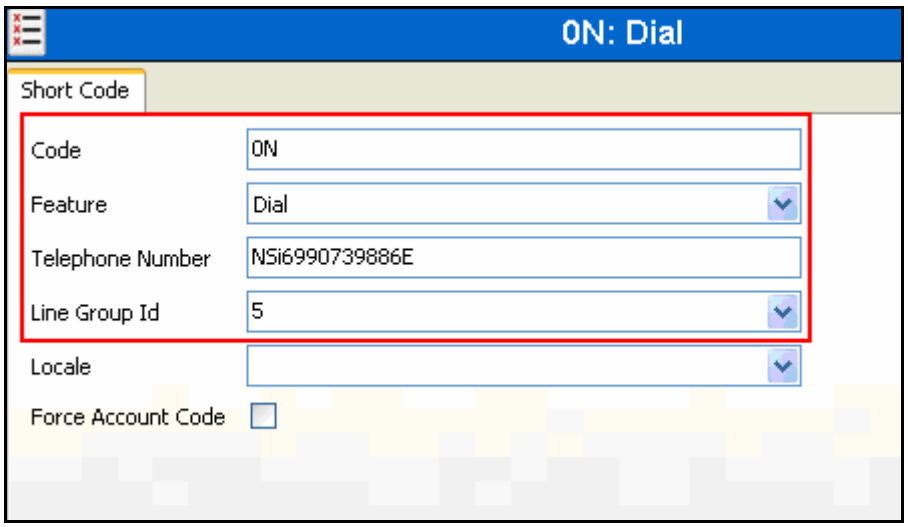

Figure 7: PSTN Access Short Code

3.1.6. Create Hunt Group

Allocate the hunt group "D" containing the extensions "A" and "B", as shown in **Table 1** using the parameters shown in the following table.

Parameter	Usage
Name	Enter an appropriate name to identify the hunt group.
Extension	Enter the extension shown in **Table 1**.
Extension List	Click the "Add" button at the bottom of this control group to add extensions to this hunt group. Add the extensions for extensions "A" and "B" shown in **Table 1**.

Table 5: Hunt Group Parameters

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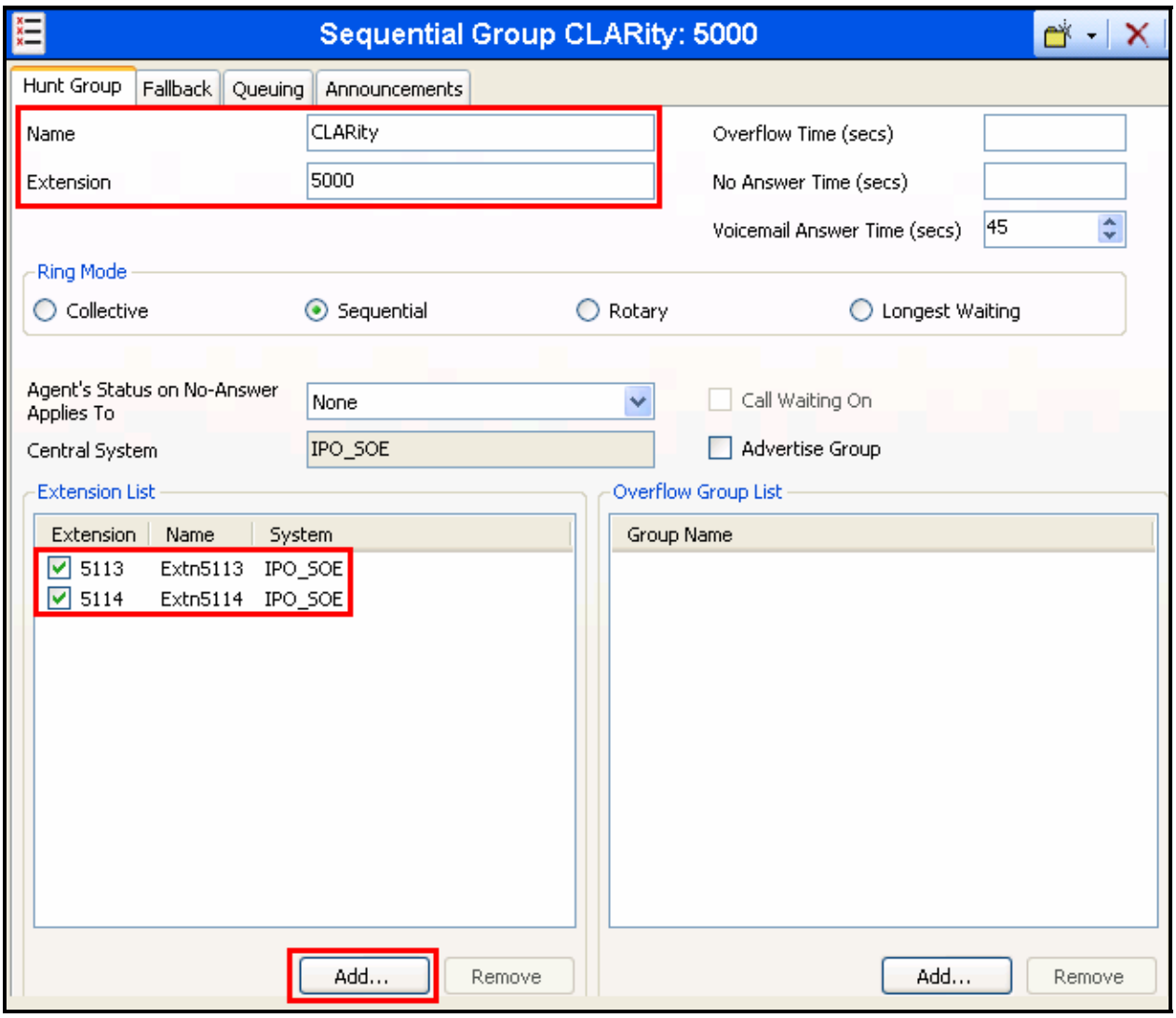

Figure 8: Hunt Group

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3.1.7. Create BRI Line

The following is an illustration of the configuration of the IP Office for use with a BRI interface to the PSTN, which was used for conformance testing. Other types of PSTN trunks can be used as well.

Parameter	Usage
Incoming Group ID	Assign the number of an otherwise unused Incoming Group ID.
Prefix	Enter the prefix which is used to initiate a local external call via the PSTN.
National Prefix	Enter the prefix which is used to initiate a national external call via the PSTN.
International Prefix	Enter the prefix which is used to initiate an international external call via the PSTN.
Line SubType	Select "ETSI" from the drop-down list, as required for access to the PSTN in Europe.
Outgoing Group ID	Assign the number of an otherwise unused Outgoing Group ID.

Table 6: Basic Rate Line Configuration Parameters

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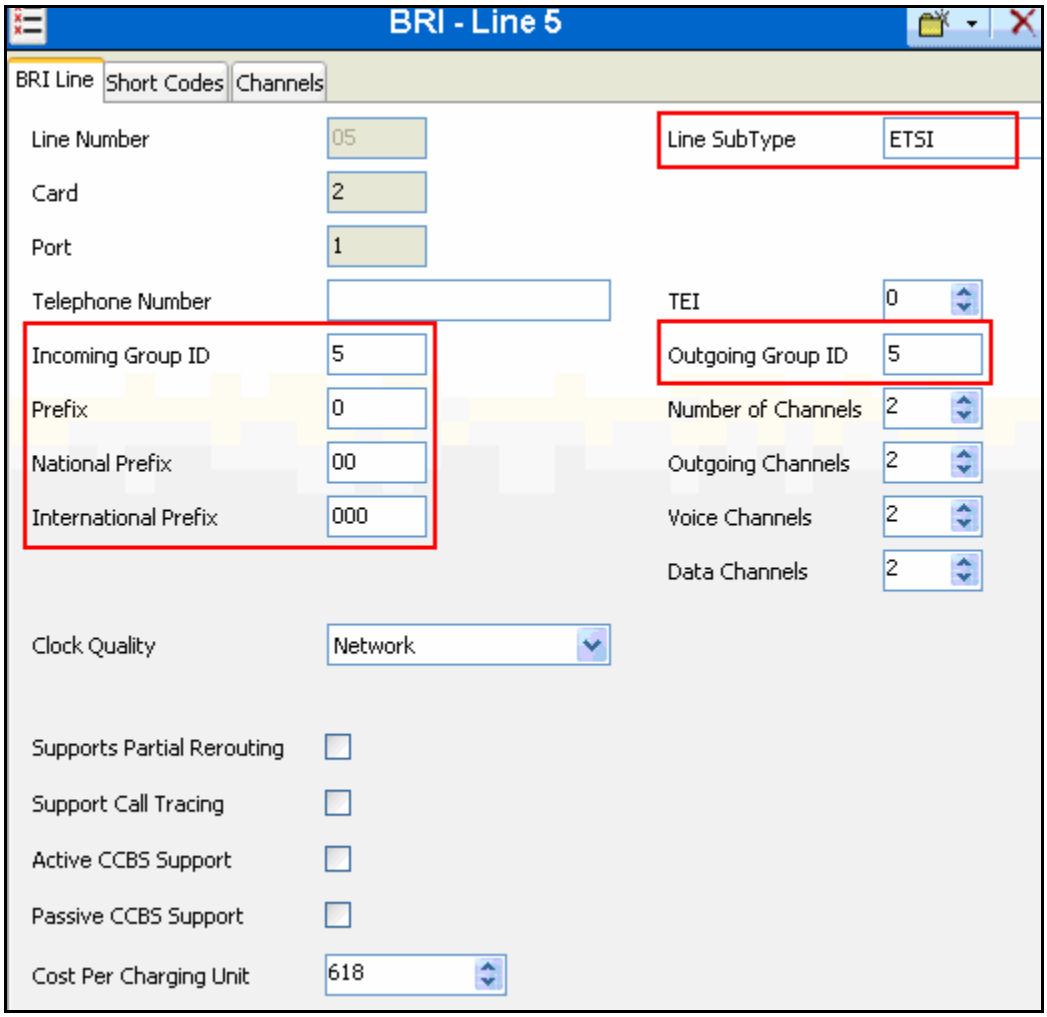

Figure 9: Basic Rate Line Configuration Screen

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3.1.8. Incoming Call Route

Create an Incoming Call Route to route incoming calls from the PSTN to local extensions. Assign parameters to this call route as shown in the following table:

Tab	Parameter	Usage
Standard	Line Group Id	Enter the Group Id of the BRI line, as shown in **Figure 9.**
	Incoming Number	Enter "0" followed by the PSTN number assigned to the BRI interface (the same number that is assigned to the PSTN Access Short Code in **Figure 7**), followed by the string "xxxx".
Destinations	Destination	Configure the destination to use the last four digits of the called party number to route to the local extension.

Table 7: Parameters for Incoming Call Routes

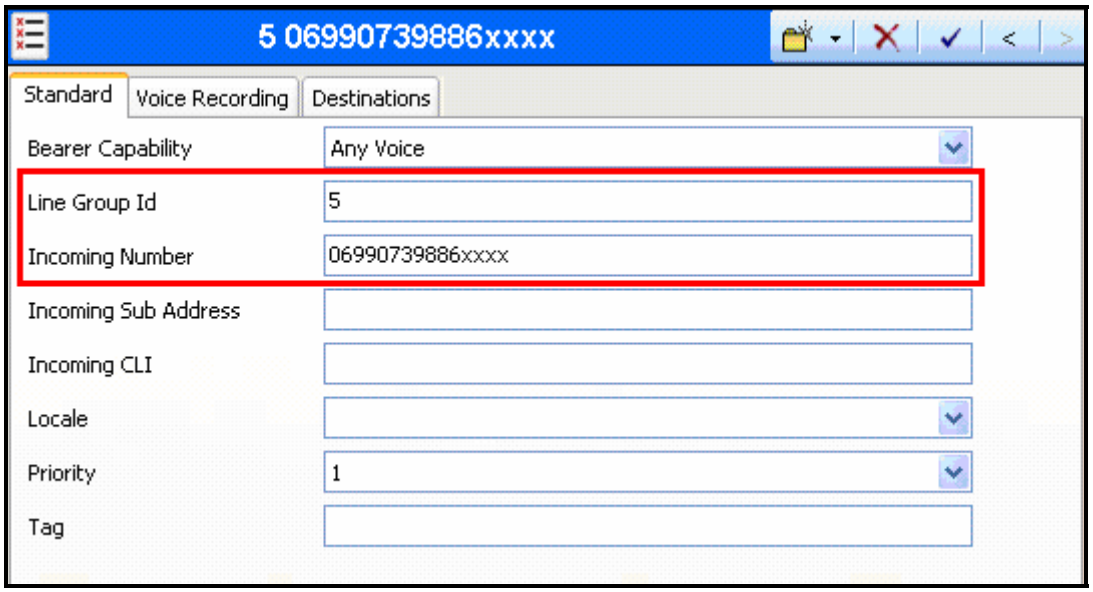

Figure 10: Incoming Call Route - Standard Parameters

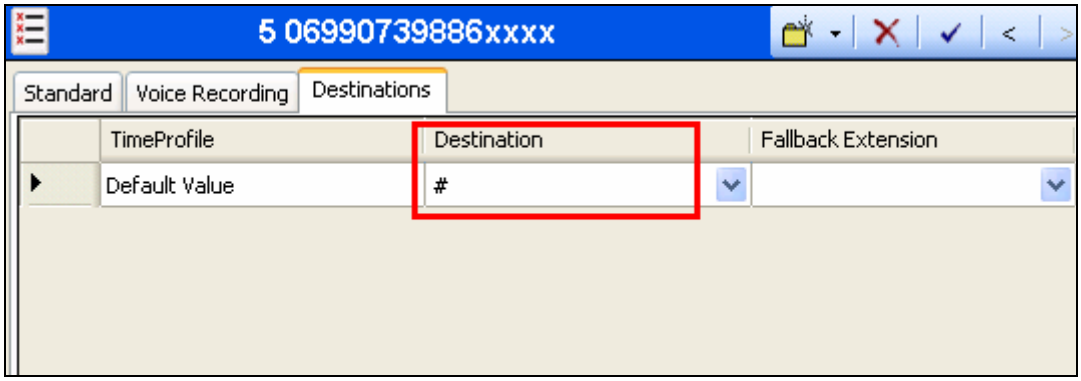

Figure 11: Incoming Call Route - Destinations Screen

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3.2. Configure CLARity

Enter the IP address of the CLARity server in a web browser, enter the appropriate user name and password, and click “Valider”.

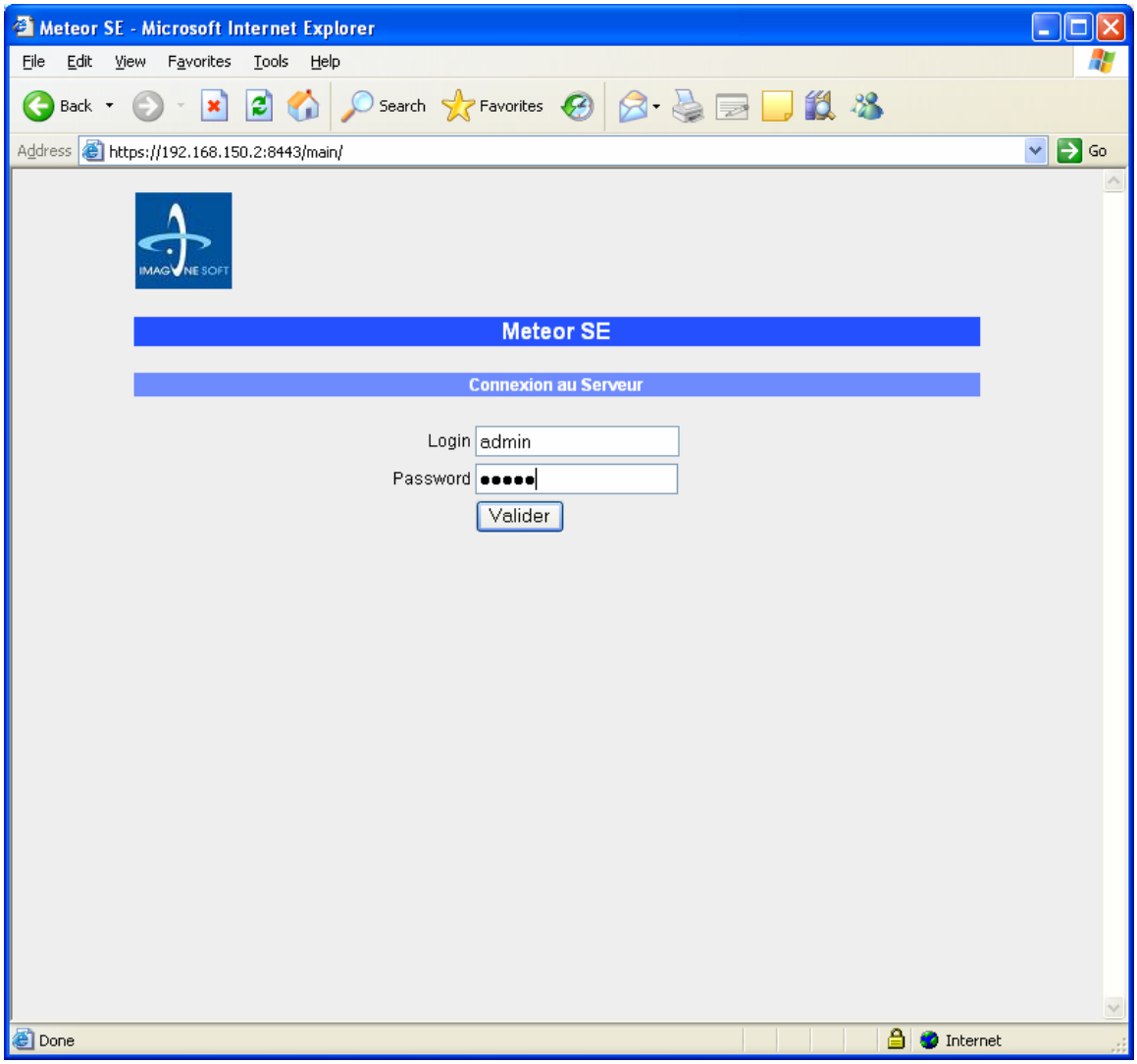

Figure 12: CLARity Login Screen

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Change the language to English by selecting the field shown below.

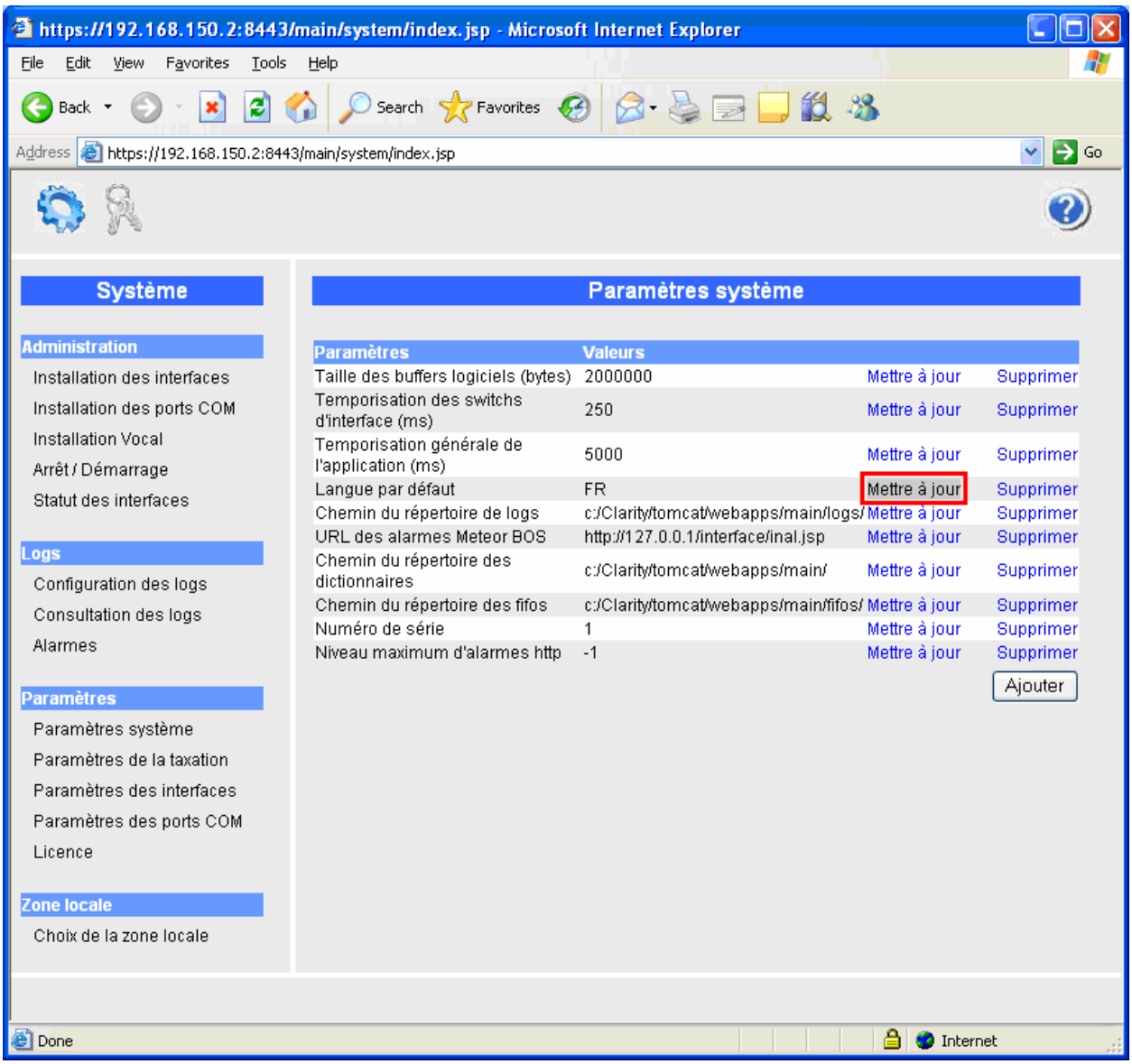

Figure 13: CLARity System Parameters Screen

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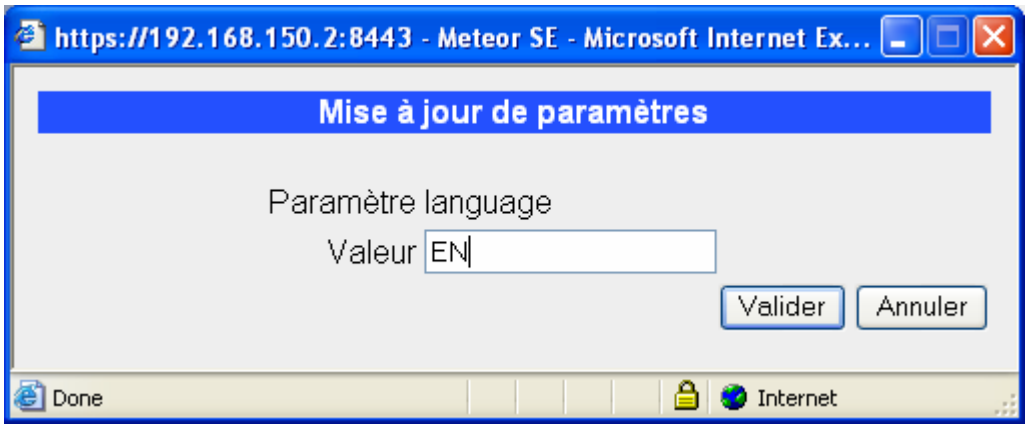

Figure 14: CLARity Language Selection Screen

Click “Interface Installation” and select “Avaya IP Office” from the “PBX” list and click “Install”.

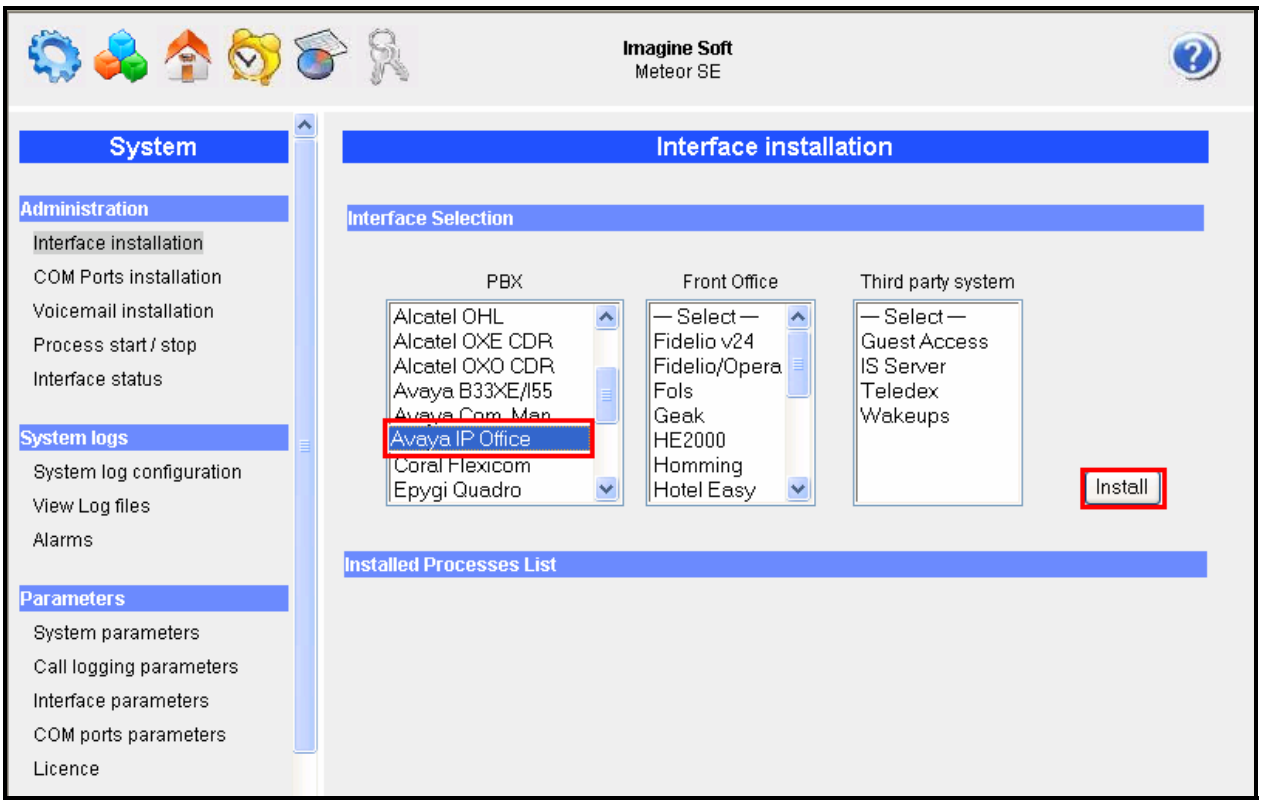

Figure 15: CLARity Interface Installation

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Uninstall the “IF_IPOFFICE_RHM” and “SW_IPOFFICE_RHM” components by clicking the corresponding “Uninstall” control.

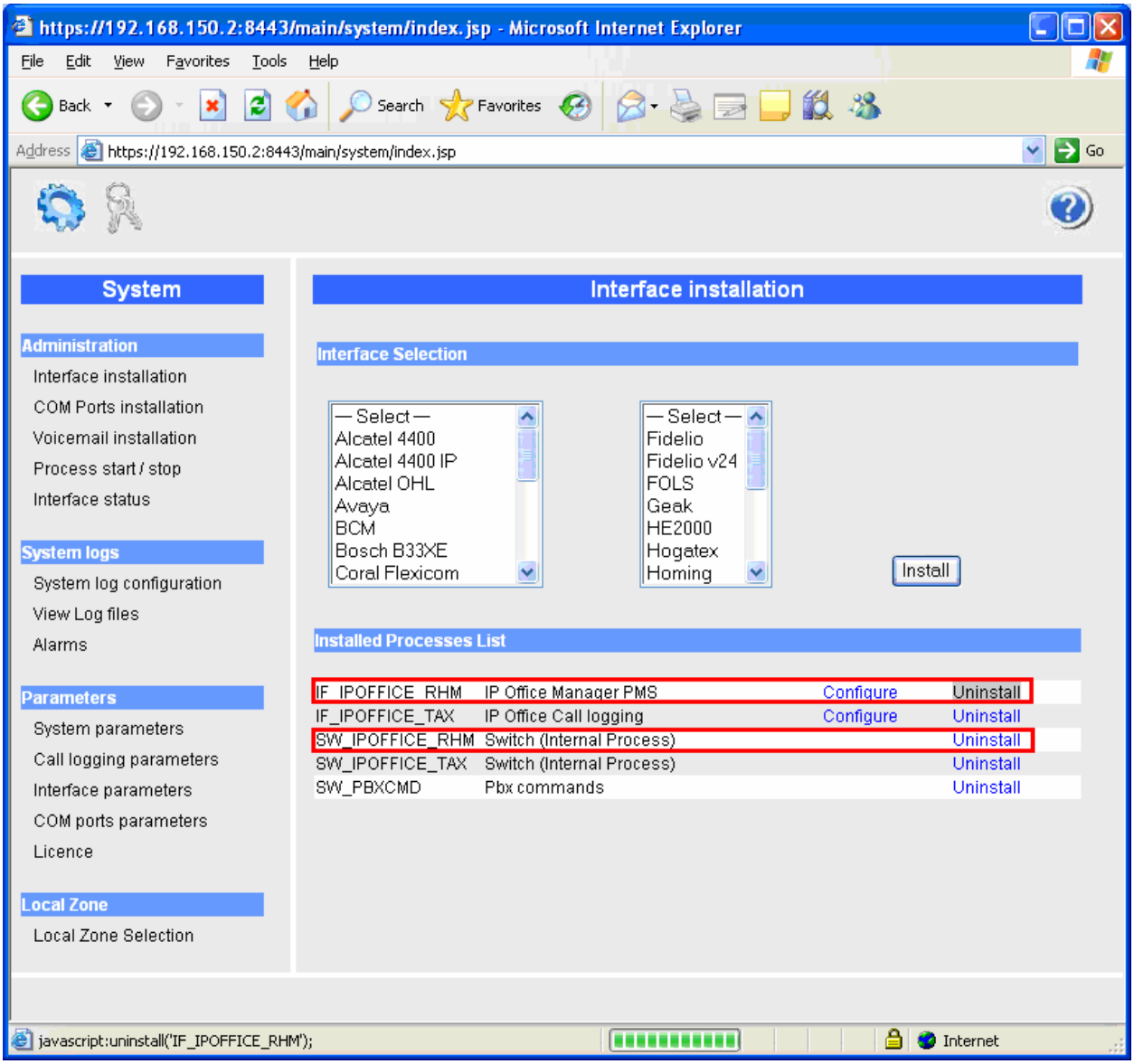

Figure 16: CLARity Installed Processes List

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Click “Interface Parameters”.

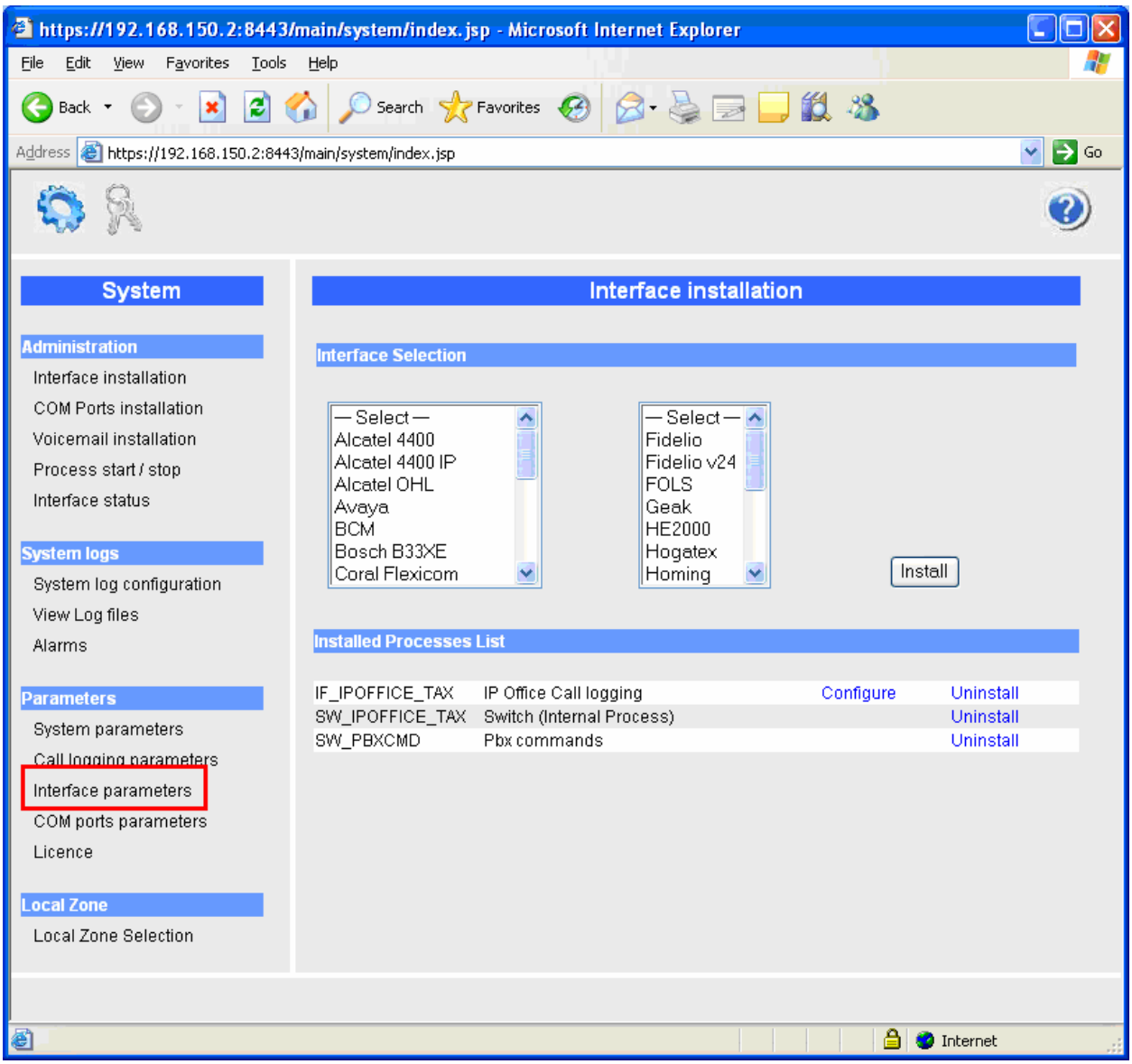

Figure 17: CLARity Installed Processes List for IPO

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Select “IF_IPOFFICE_TAX” and click “Add”.

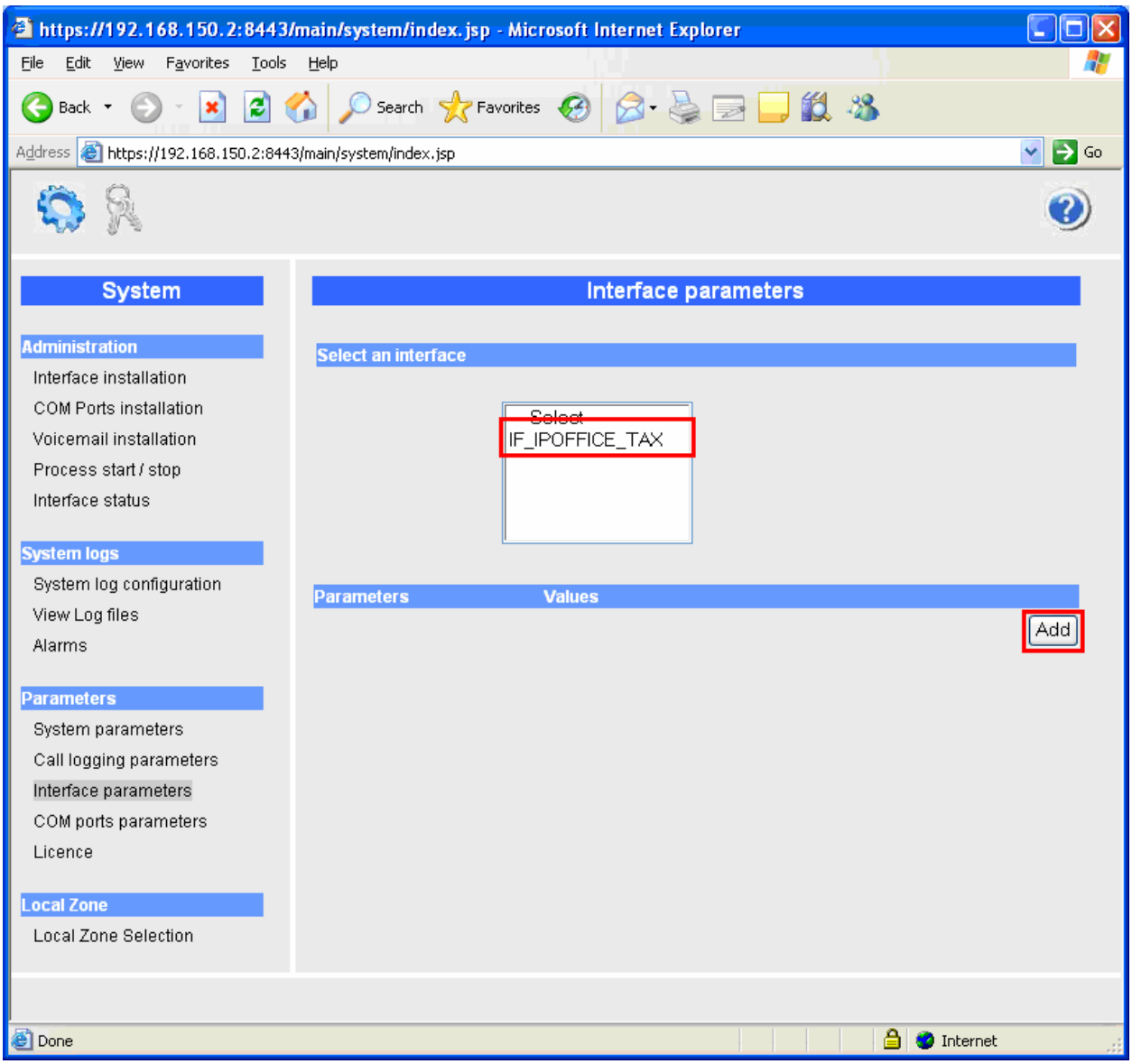

Figure 18: CLARity Interface Parameters

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Set the parameters shown in the following table be selecting each, one at a time, and entering the values indicated in the table. Click "Add" when the parameters have been set.

Parameter	Usage
Port	Set this value to "5001", the port from which will receive CDR messages from the IPO. This must be same as the value in **Figure 4**.
Traffic analysis	Set this value to "1", to enable processing of CDR records.

Table 8: Interface Parameters

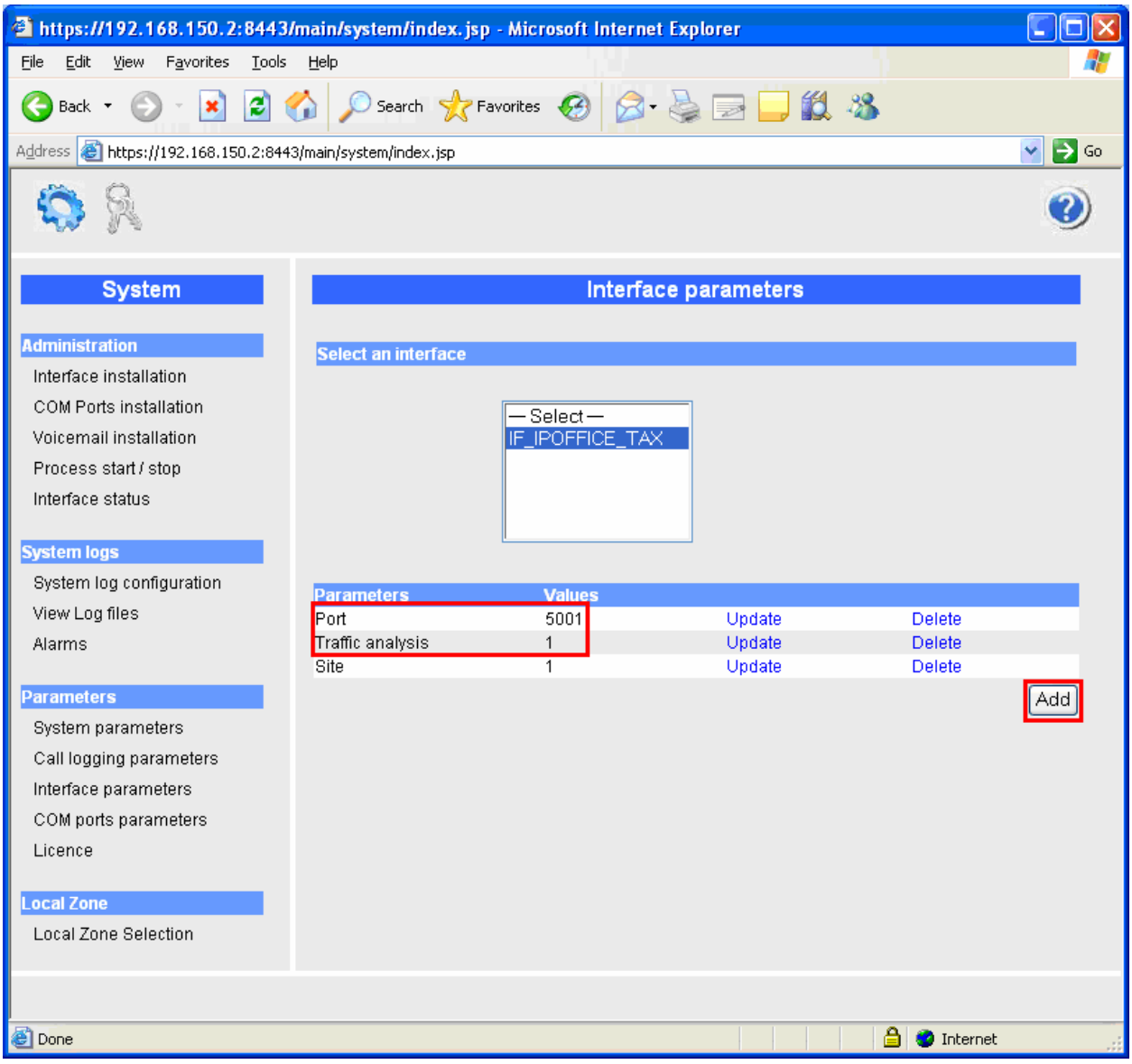

Figure 19: Interface Parameter Screen

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4. Interoperability Compliance Testing

4.1. General Test Approach

The following tests steps were performed during compliance testing:

- Verify the ability of CLARity to process CDR records for intra-switch calls.
- Verify the ability of CLARity to process CDR records for inter-switch calls.
- Verify the ability of CLARity to process CDR records for calls to domestic external (PSTN) telephones.
- Verify the ability of CLARity to process CDR records for calls to international external (PSTN) telephones.
- Verify the ability of CLARity to process CDR records for incoming calls.
- Verify the ability of CLARity to process CDR records for held calls.
- Verify the ability of CLARity to process CDR records for transferred calls.
- Verify the ability of CLARity to process CDR records for conference calls.
- Verify the ability of CLARity to process CDR records for calls made from bridged appearances.
- Verify the ability of CLARity to process CDR records for calls answered from bridged appearances.
- Verify the ability of CLARity to process CDR records for calls made to hunt groups.
- Verify the ability of the CLARity server to recover from interface and power interruptions.

4.2. Test Results

All tests were performed successfully.

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5. Verification Steps

Use the following steps to verify that CLARity and Avaya IP Office are each configured correctly.

- Verify that the "Call Logging" control is green:

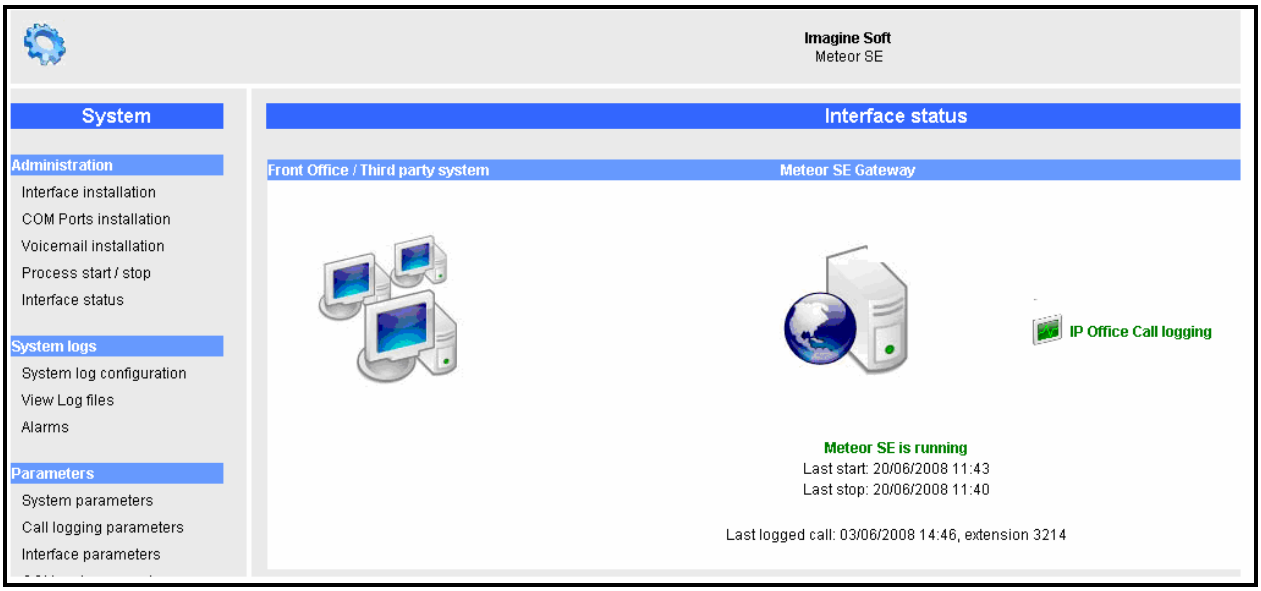

Figure 20: CLARity Interface Status

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- Click on the "Call Logging" icon shown in **Figure 20** and verify that the Avaya IP Office has logged on:

Figure 21: CLARity Confirmation of IP Office Logon

6. Conclusion

These Application Notes describe the compliance testing of the Imagine Soft CLARity Server with Avaya IP Office. The various features of the CLARity Server which involve interaction with telephony were tested. A detailed description of the configuration required for both the Avaya and the Imagine Soft equipment is documented within these Application Notes.

7. Additional References

The CLARity documentation is contained in the following directory after the product has been installed: C:\CLARity\tomcat\webapps\ROOT\docs. This documentation is also available on the installation medium prior to installation or via the following icon from the CLARity console:

[1] *Administrator Guide for Avaya IP Office*, February 2007, Issue 3, Document Number 03-300509
[2] *Feature Description and Implementation for Avaya IP Office*, February 2007, Issue 5, Document Number 555-245-205
[3] *Technical Service Description CLARity 2.0*
[4] *D/4PCI Installation Guide*, 05-1341-002, 1999
[5] *Manuel de Pre-Installation CLARity*, Man 0038-4 (French)
[6] *Manuel de Configuration et d'Utilisation de CLARity*, Man 0036-6 (French)

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