



Application Notes for Empirix Hammer On-Call Outbound Load Testing Service with Avaya Proactive Contact with PG230RM – Issue 1.0

Abstract

These Application Notes describe the steps required for the Empirix Hammer On-Call Outbound Load Testing Service to successfully interoperate with Avaya Proactive Contact with PG230RM. The Empirix Hammer On-Call Outbound Load Testing Service was used to emulate real world conditions on the receiving side of outbound calls from Avaya Proactive Contact.

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.

1. Introduction

These Application Notes describe the steps required for the Empirix Hammer On-Call Outbound Load Testing Service to successfully interoperate with Avaya Proactive Contact with PG230RM. The Empirix Hammer On-Call Outbound Load Testing Service was used to emulate real world conditions on the receiving side of outbound calls from Avaya Proactive Contact.

For the compliance testing, Avaya Proactive Contact placed calls over five PSTN numbers to the Empirix Hammer On-Call Outbound Load Testing Service. Each PSTN number was associated with a specific real-world condition, which included busy, ring no answer, special information tone for intercept, answering machine, and human answer.

Performance data from the test was published in real-time by Empirix to a secure web interface, and the reported data was compared with the data from the Avaya Proactive Contact Supervisor Analyst report.

These Application Notes assume the configuration and connectivity between Avaya Proactive Contact and Avaya Communication Manager is already in place and will not be described. Furthermore, the development and deployment of an outbound job on Avaya Proactive Contact to dial out to the five PSTN numbers to reach the Empirix Hammer On-Call Outbound Load Testing Service is outside the scope of this document. The focus of these Application Notes is on the customer deliverables that are required as input to the Hammer On-Call Outbound Load Testing Service, and the navigation of the real-time performance data output provided by Empirix.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and performance testing.

The feature testing focused on verifying the feedbacks emulated by the Empirix Hammer On-Call Outbound Load Testing Service match the call classification by Avaya Proactive Contact. The feedbacks included busy, ring no answer, special information tone for intercept, answering machine, and human answer.

The performance testing included steady traffic for 30 minutes, and the performance data from the Empirix Hammer On-Call Outbound Load Testing Service was compared with the data from the Avaya Proactive Contact Supervisor Analyst report.

1.2. Support

Technical support on Empirix Hammer On-Call Outbound Load Testing Service can be obtained through the following:

- **Phone:** (781) 266-3202
- **Email:** support@empirix.com

2. Reference Configuration

As shown in **Figure 1**, the compliance testing used Avaya Proactive Contact with the PG230RM deployment option to generate the outbound calls to the Empirix Hammer On-Call Outbound Load Testing Service. The results should be applicable to the Avaya Proactive Contact Standalone deployment option.

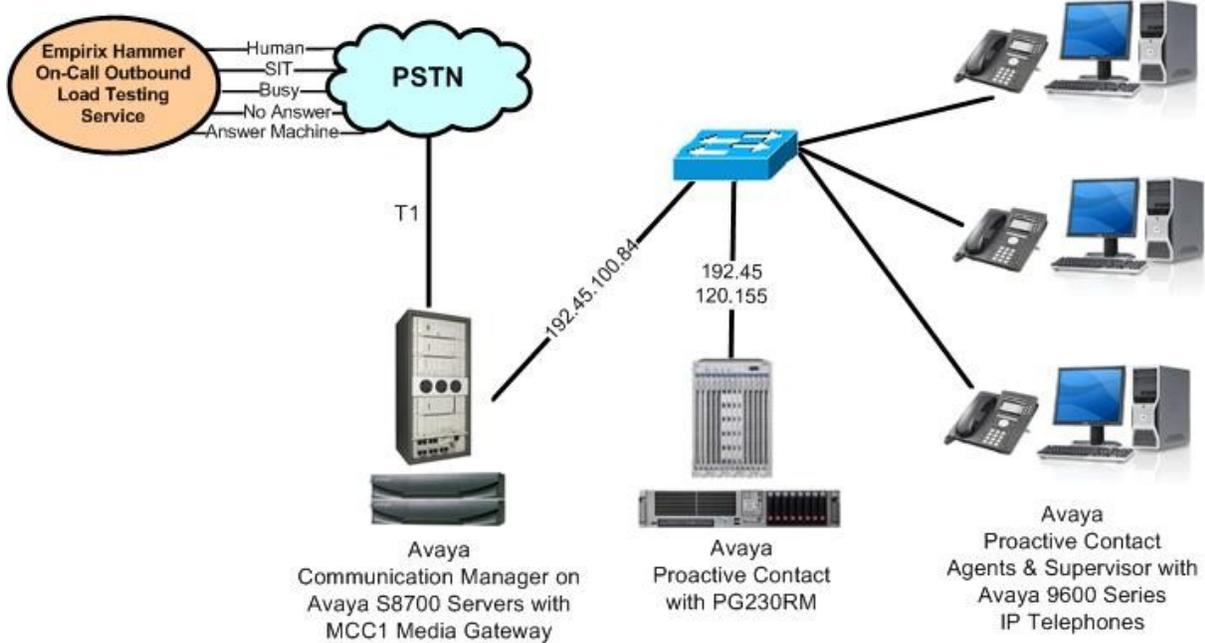


Figure 1: Empirix Hammer On-Call Outbound Load Testing Service with Avaya Proactive Contact with PG230RM

The outbound call flow used for the compliance testing is shown in **Figure 2** below. Note that the actual PSTN numbers are masked in the call flow for privacy.

Avaya Empirix Outbound Contact Center Call Flow

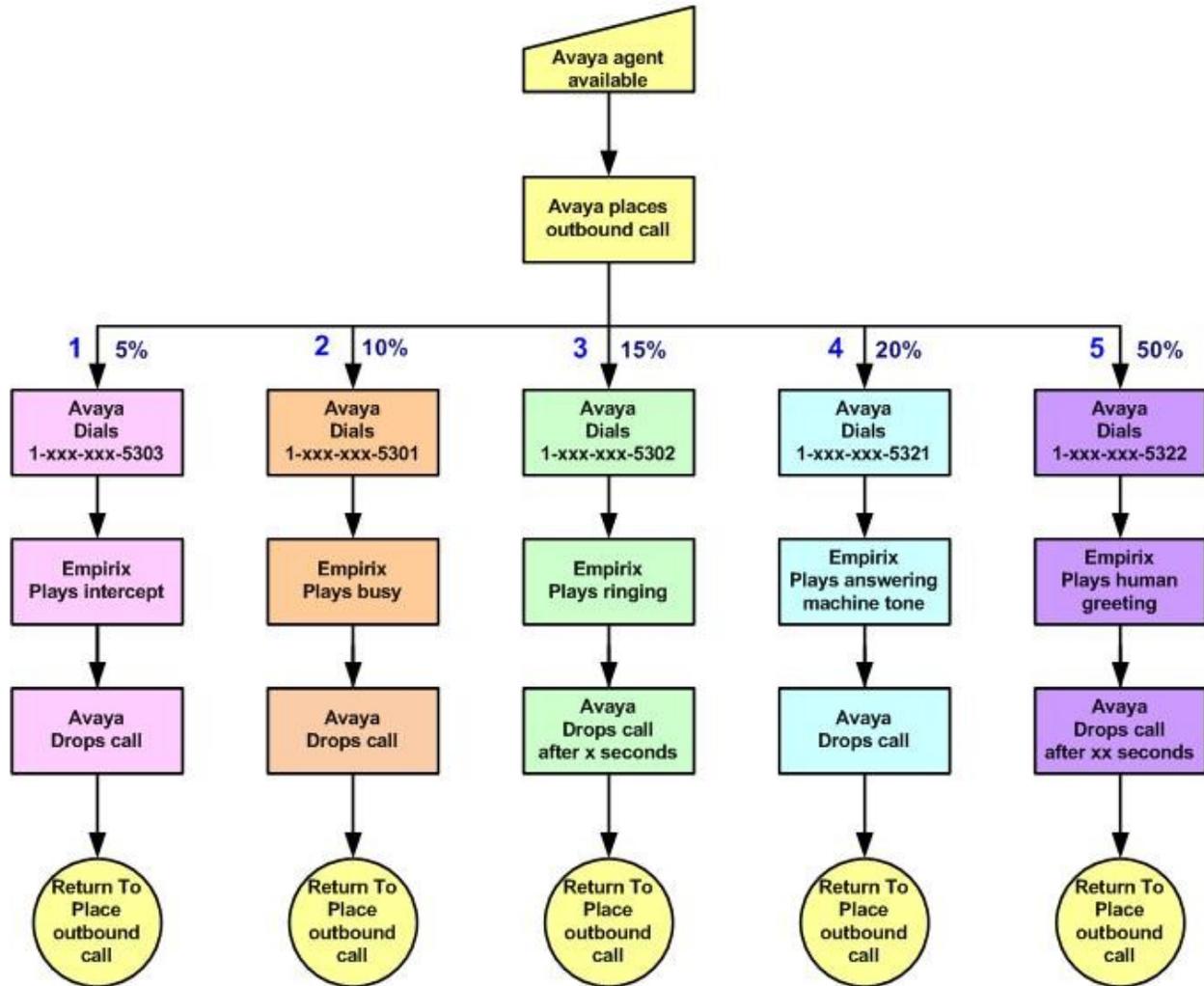


Figure 2: Avaya Empirix Outbound Contact Center Call Flow

3. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya S8700 Servers	Avaya Communication Manager 5.1.2, R015x.01.2.416.4
Avaya MCC1 Media Gateway <ul style="list-style-type: none">• TN799DP C-LAN Circuit Pack• TN2302AP IP Media Processor	HW01 FW024 HW13 FW116
Avaya Proactive Contact with PG230RM	4.1
Avaya Proactive Contact Supervisor	4.1
Avaya Proactive Contact Agent	4.1
Avaya 9600 Series IP Telephones (H.323)	3.0
Empirix Hammer On-Call Outbound	1.0

4. Customer Deliverables

In preparation for the load testing service, Empirix requires the following information to be provided by the customer at least two weeks prior to the actual test:

- Expected call behaviors
- Distribution of test cases
- Customer contact for test
- Customer contact for sign-off

4.1. Expected Call Behaviors

The specific interaction between Avaya Proactive Contact and Empirix Hammer On-Call Outbound Load Testing Service needs to be provided for every call scenario. An example is the call flow diagram shown in **Figure 2**.

4.2. Distribution of Test Cases

The distribution for each call scenario needs to be provided to Empirix, and an example of the distribution is shown in **Figure 2**.

4.3. Customer Contact For Test

A primary customer contact with knowledge of the application is needed to help answer any questions arising from the test planning and the actual test execution. This primary contact needs to be present during the test execution.

4.4. Customer Contact for Sign-Off

A customer contact with sign-off authority needs to be provided to Empirix for the load test.

5. Empirix Real-Time Performance Data

This section provides the procedures for navigating the Empirix Hammer On-Call Outbound real-time performance data from the load test. The procedures include the following areas:

- Access web interface
- Select test
- Review summary information
- Review errors
- Review call information

5.1. Access Web Interface

Access the Hammer On-Call web interface by using the URL <https://hoc.empirix.com> in an Internet browser window. Enter the **Username** and **Password** supplied by Empirix.

The screenshot shows the Empirix Hammer On-Call web interface. At the top left is the "Hammer On-Call®" logo, and at the top right is the text "Services Powered by Empirix". Below the header is a navigation bar with the text "Empirix is the world leader in Voice and Web Performance Testing and Monitoring. Learn more at EMPIRIX.COM". The main content area is titled "Empirix Voice Performance Testing" and contains the following text:

Welcome to the Empirix Voice Performance Testing Portal, your gateway into the premier performance and load testing service for Contact Centers.

The Hammer On-Call Load Testing Service from Empirix provides you with the ability to quickly test and verify the performance and scalability of your contact center applications under real-world conditions. Our testing team will work with you to develop a strategy that matches your business objectives and timeline. Leveraging our industry leading Hammer technology, our test experts will emulate real-world traffic and call volume to pinpoint and help identify errors and performance bottlenecks within DTMF and speech-enabled self-service applications from the switch to the IVR and backend databases. Furthermore, we will test your contact center CTI solution under load for performance as part of an overall strategy that ensures you have the confidence you need to take your center into production.

Once the testing has been completed, feel free to return to this site to review the results or contact one of our test specialists to review your detailed results report.

To get started with your testing, enter your username and password. If you didn't receive your login information, contact us at support@empirix.com and let us know you did not receive your Hammer On-Call login credentials.

Thank you for choosing Hammer On-Call and Empirix as your testing solution.

On the right side of the page, there is a "Empirix Login" form with the following fields:

Username:

Password:

5.2. Select Test

The **Control Panel** screen is displayed, select **Outbound Tests**.

Hammer On-Call[®] Services Powered by Empirix
Avaya DevConnect Outbound - Tai Li Tu
Control Panel Users Logout
ALL TESTS 6/3/2009 1:57:37 PM (ET)

Control Panel

Hammer On-Call Testing Services help you ensure that your telecommunications systems and networks have been properly configured and engineered to meet current and future performance requirements. Our service can generate thousands of test calls that precisely duplicate realistic customer calling conditions. Additionally, our Hammer On-Call Testing Service provides you real-time performance data and fast, easy access to the extensive voice testing expertise of Empirix consultants.

Looking to add users or manage user accounts? [Learn here](#)

[Outbound Tests](#)
[Pretest](#)

The screen is updated with a list of tests along with test result information including duration of test, number of calls that passed/failed, total number of calls, and percent of calls that failed. Under the **Start Time** column, select a test to look into further.

Hammer On-Call[®] Services Powered by Empirix
Avaya DevConnect Outbound - Tai Li Tu
Control Panel Users Logout
ALL TESTS 6/4/2009 2:42:29 PM (ET)

Control Panel

Hammer On-Call Testing Services help you ensure that your telecommunications systems and networks have been properly configured and engineered to meet current and future performance requirements. Our service can generate thousands of test calls that precisely duplicate realistic customer calling conditions. Additionally, our Hammer On-Call Testing Service provides you real-time performance data and fast, easy access to the extensive voice testing expertise of Empirix consultants.

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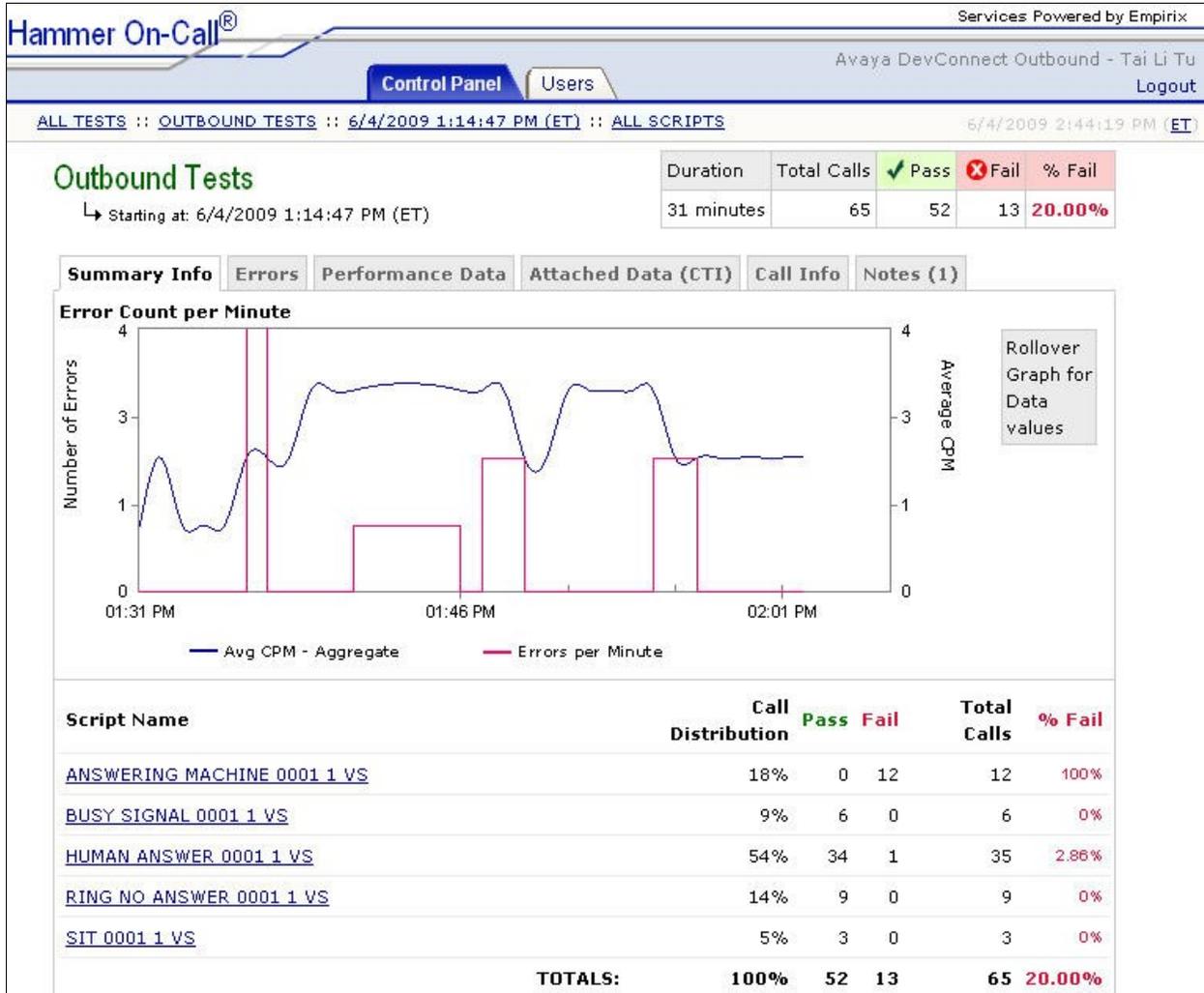
Outbound Tests

Start Time	Duration	Pass	Fail	Total Calls	% Fail
6/4/2009 1:14:47 PM (ET) concurrent	31 Minutes	52	13	65	20.0%
6/2/2009 4:11:54 PM (ET) concurrent	31 Minutes	190	34	224	15.2%
6/2/2009 3:56:43 PM (ET) concurrent	9 Minutes	20	1	21	4.8%
6/2/2009 3:40:39 PM (ET) concurrent	13 Minutes	28	5	33	15.2%

5.3. Review Summary Information

The **Summary Info** screen is displayed next. This screen displays a graphical chart of average calls per minute versus errors per minute. The table below the chart displays the detail scripts that correspond to the call flow branches in **Figure 2**, along with statistical information.

Verify that the **Call Distribution** associated with each script below roughly matches to the distribution specified in **Figure 2**.



5.3.1. Verify Summary Information

From the Avaya Proactive Contact Supervisor PC, select **Start > All Programs > Avaya > Proactive Contact 4.1 > Supervisor > Analyst** to launch the Analyst application, and log in with the proper credentials.

The **Analyst** screen is displayed, as shown below. Expand **Job Reports** in the left pane, and select **Completion Code Summary**. Double click on the **Completion Code Summary – Today** entry in the right pane.

The screenshot shows the Analyst application window with a menu bar (Reports, Tools, Help) and a toolbar. The left pane is expanded to 'Job Reports', showing a tree view with 'Completion Code Summary' selected. The main pane displays a table titled 'Completion Code Summary' with the following data:

Title	Group 1	Group 2	Group 3	Criteria
Completion Code Summary - Today	Job Name	Job Run Date	Job Number	Job Run Date is equal...
Completion Code Summary - Today	System Name	Job Name	Job Run Date	Job Run Date is equal...
Completion Code Summary - Today	System Name	Job Run Date	Job Name	Job Run Date is equal...
Completion Code Summary - Yesterday	Job Name	Job Run Date	System Name	Job Run Date is equal...
Completion Code Summary - Yesterday	System Name	Job Name	Job Run Date	Job Run Date is equal...
Completion Code Summary - Yesterday	System Name	Job Run Date	Job Name	Job Run Date is equal...
Completion Code Summary - WTD	Job Name	Job Run Date	System Name	Job Run Date is from t...
Completion Code Summary - WTD	System Name	Job Name	Job Run Date	Job Run Date is from t...
Completion Code Summary - WTD	System Name	Job Run Date	Job Name	Job Run Date is from t...
Completion Code Summary - MTD	System Name	Job Run Week	Job Name	Job Run Date is from t...
Completion Code Summary - MTD	Job Run Week	Job Name	System Name	Job Run Date is from t...
Completion Code Summary - MTD	Job Name	Job Run Week	System Name	Job Run Date is from t...

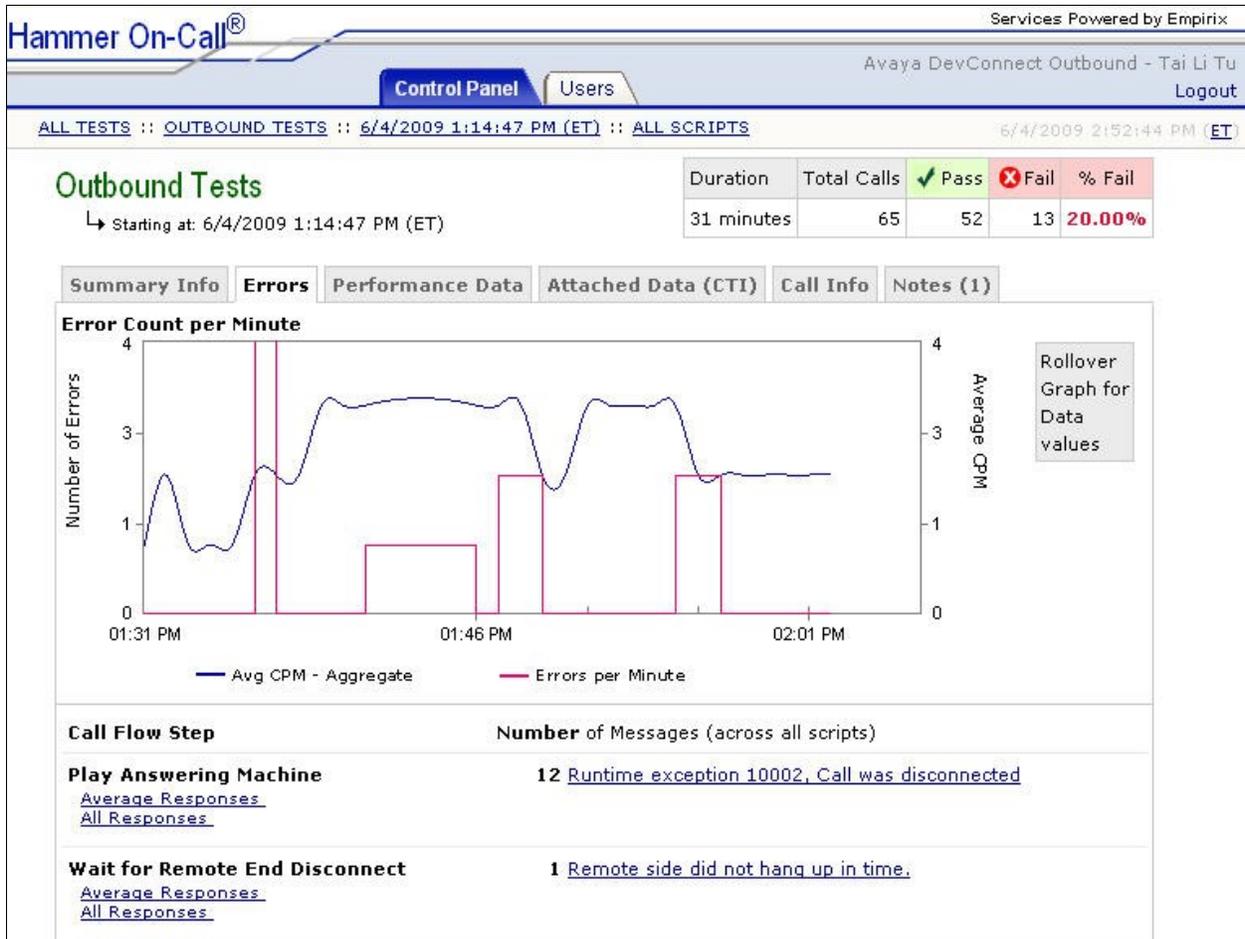
At the bottom of the window, a status bar indicates 'Selected: Completion Code Summary - Today'.

The **Completion Code Summary – Today** report is displayed. Verify that each completion code count below matches to the total calls for the appropriate script in **Section 5.3**. In the compliance testing, the **CUSTHU** and **MANAGEDA** completion codes below were entered by the answering agents.

Analyst						
Completion Code Summary - Today						
Date Range: 6/4/2009 - 6/4/2009						
Custom Use Codes						
Job Name	BUSY	AUTO VO ICE	NO ANS WER	CUSTHU	INTERCE PT	MANAGE DA
Job Run Date						
Job Number						
6/4/2009						
outbnd	6	12	9	8	3	27
Section Summary	6	12	9	8	3	27
Report Summary	6	12	9	8	3	27

5.4. Review Errors

From the Hammer On-Call web interface, select the **Errors** tab to review the reported errors. The table below the chart displays the types of errors and the number of occurrences. The table shows that there were **12** detections of runtime exception with call disconnected for the **Play Answering Machine** script. This was due to Avaya Proactive Contact disconnecting the call before the entire answering machine message can be played. Note that modifications can be made on the Empirix Hammer On-Call Outbound Load Testing Service to enable shorter answering machine messages to avoid these calls being reported as failures.



5.5. Review Call Information

Select the **Call Info** tab to review the detailed call information associated with each call. Select a call of interest from the **All Calls** table, and the screen is updated with the details for the selected call. A **Listen to this call** link appears when the call has been recorded. Click on **Listen to this call** to listen to the recording of the call if desired. For the compliance testing, the majority of the calls were recorded due to the lower traffic volume. For testing with higher traffic volumes, not all calls may be recorded. Consult with Empirix representatives on the recording capacities.

The screenshot displays the Hammer On-Call interface. At the top, it shows the logo and navigation tabs for 'Control Panel' and 'Users'. The main content area is titled 'Outbound Tests' and shows a summary for a test run on 6/4/2009 at 1:14:47 PM (ET). The summary table indicates a duration of 31 minutes, 65 total calls, 52 passes, 13 failures, and a 20.00% failure rate. Below the summary, there are tabs for 'Summary Info', 'Errors', 'Performance Data', 'Attached Data (CTI)', 'Call Info', and 'Notes (1)'. The 'Call Info' tab is selected, showing a table of 'All Calls'. One call is highlighted in green, and a red circle highlights the 'Listen to this call' link next to it. Below the call list, there are sections for 'Attached Data' and 'Call Information'.

Duration	Total Calls	Pass	Fail	% Fail
31 minutes	65	52	13	20.00%

Status	Script	Time	Call Details
Pass	human answer 0001 1 vs	6/4/2009 2:01:51 PM (ET)	Recorded
Pass	human answer 0001 1 vs	6/4/2009 2:01:23 PM (ET)	Recorded

CTI Data	Value	Label	Action	Time	Message
Hammer-Channel	H4254(25)	Inbound	ReceiveCall		
Call Connect Time		Start Call Recording	StartCallRecording		
Call Release Time	6/4/2009 2:01:51 PM	Say Hello	PlayPrompt		
Script Length	27860	Wait for Remote End Disconnect	ReleaseCall		

6. General Test Approach and Test Results

Avaya Proactive Contact initiated outbound calls to the five different PSTN numbers corresponding to the different branches of the call flow. The feedback provided by Empirix for each PSTN number was verified manually to be properly classified by Avaya Proactive Contact.

The performance test cases were executed automatically with Avaya Proactive Contact generating steady traffic to occupy all outgoing trunks, and with two Avaya Proactive Contact Agents handling the human answered calls.

All test cases were executed and passed.

7. Conclusion

These Application Notes describe the configuration steps required for Empirix Hammer On-Call Outbound Load Testing Service to successfully interoperate with Avaya Proactive Contact with PG230RM. All test cases were completed successfully.

8. Additional References

This section references the product documentation relevant to these Application Notes.

1. *Administrator Guide for Avaya Communication Manager*, Document 03-300509, Issue 4.0, Release 5.0, January 2008, available at <http://support.avaya.com>.
2. *Avaya Proactive Contact Release 4.1 Administering Avaya Proactive Contact*, March 2009, available at <http://support.avaya.com>.
3. *Hammer On-Call Outbound Load Testing Service Description*, available upon request from Empirix technical support.

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