Test Plan For IPv6 Performance Analyzer

IPv6 Readiness of servers

Authored by
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Version History

Version	Implemented By	Revision Date	Reason
1.0	Leslie Vundu	17/09/2015	Produced the document
1.1	Abdul Sami	30/09/2015	Formatted the document
1.5	Leslie Vundu	05/10/2015	Addition to Tests
2.0	Man Fu Lei	10/10/2015	Addition to tests, Formatting.
2.1	Abdul Sami	17/10/2015	Addition to Tests
2.2	Bilawal Mushtaq, Robert Smart	20/10/2015	Addition to Tests
2.3	Man Fu Lei	21/10/2015	Formatting and Additions to Test
2.5	Abdul Sami	22/10/2015	Final review, paraphrasing and check for errors.

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Executive summary

This document will address the different standards of testing used on the “IPv6 performance analyzer” in order to ensure the software works as required by the client. A number of tests were conducted to verify whether the “IPv6 performance analyzer” meets all the requirements. Emphasis was put mainly on the functional requirements as they are the basis of the requirements and provide the much needed results. Once the functions were known a unit test was done in order tests each individual component (often a program) to ensure it is as defect-free as possible. **Integration testing:**-was done to test the functionally of grouped components. **System testing-** tests the entire system as one entity and **User acceptance testing:** was performed by end users prior to accepting the delivered system. A List of the overall flows of the testing processes was conducted and was as follows:

- Identification of functional requirements to be tested
- Actual results obtained, whether they met the requirements or they did not meet the requirements
- Expected results obtained
- Document the test
- Perform the test
- Unit test done to ensure bug free
- Integration test done to ensure the software interacts with another software
- User testing is done by the client to verify if the requirements are met

A test pass/fail criteria was conducted and if the “IPv6 performance analyzer” does not meet certain requirements provided to us by the client then it fails, but if it produces the required results it passes. Training will be provided to the other members of the IT08 team and the client on how:

- To actually install and set up the software.
- The basic operation of the “IPv6 performance analyzer” interface
- How to search for data on the database

1. Introduction

The “IPv6 performance analyzer” prototype was developed to probe servers across the internet, process the raw data, and store the data into a database. The prototype will be user friendly and would provide diagnosis toward IPV6 unavailable networks. The “IPv6 performance analyzer” prototype was created using open-source products. The software has been able to meet all the requirements that were provided by the client. The testing of IPV6 readiness was done to estimate how the scripts developed performed against IPv4 and the information gathered was used to show what percentage of countries are IPv6 ready and how they draw in comparison. Documents referenced in this document include:

- Requirement and Analysis Document
- Design Document
- Project Plan

1.1 Scope

The scope of the document is to provide an overview of the testing done on IPv6 readiness developed by IT08 LTD. Its main focus is to provide the results from testing or probing of servers.

1.2 Test objectives

The objective of the test is to verify that the functionality of “IPv6 performance analyzer” works according to the requirements in the R&A document. The tests that will be done will report on the challenges that the “IPv6 performance analyzer” encountered so as to produce working software.

The final product of the test is twofold:

- A ready software;
- An IPv6 test scripts that can be used on Microsoft windows products

1.3 Audience

- **Project team members**: perform tasks, and provide input and recommendations on this document.
- **Project Manager**: Plans for the testing activities, reviews the document, tracks the presentation of the test according to the task provided by the client, approves the document and is accountable for the results.
- **The stakeholder** may take part in the UAT test to ensure the results of the test meet the requirements.

2. Description of the test setup

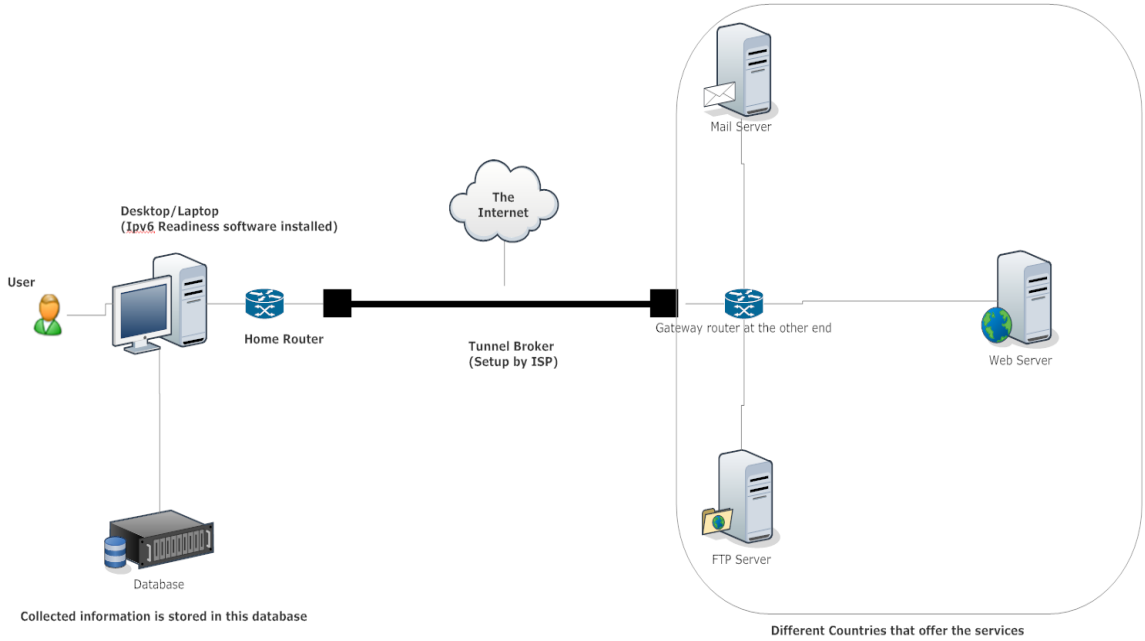


Figure1. Infrastructure Design

The test setup was constructed using desktop, Cisco routers a tunnel broker and remote servers. The scripts based on the C# algorithm and a python package was used to create the “IPv6 performance analyzer” which was set up on the desktop machine. The user uses the software to analyse the performance of the Internet servers that are of different types including web server, mail server and so on. The tunnel is setup from the computer to an Internet tunnel broker's server to provide IPv6 connectivity to local machine. The measurement results are then stored on to the local database server.

3. Process Overview

Listed below are the overall flows of the testing processes:

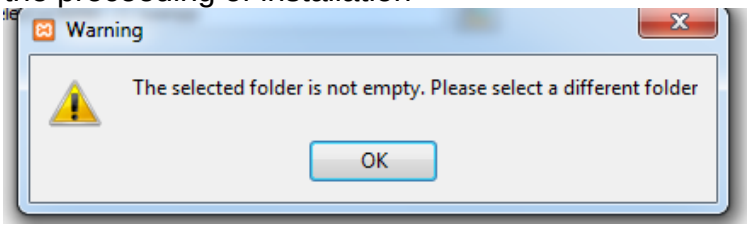
- Identification of functional requirements to be tested
- Actual results obtained, whether they met the requirements or they did not meet the requirements
- Expected results obtained
- Document the test
- Perform the test

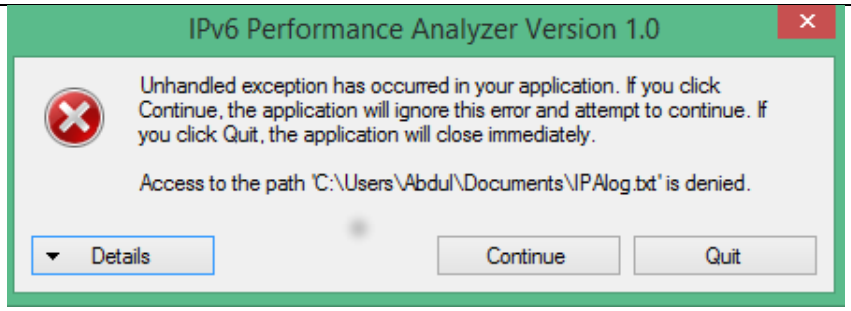
- Unit test done to ensure bug free
- Integration test done to ensure the software interacts with another software
- User testing is done by the client to verify if the requirements are met.

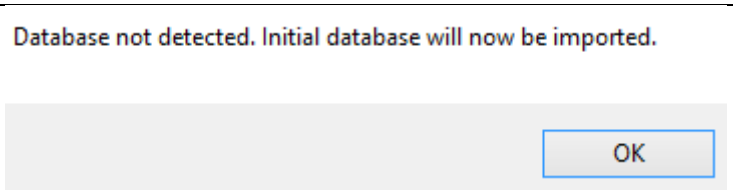
4. Items tested/ not tested

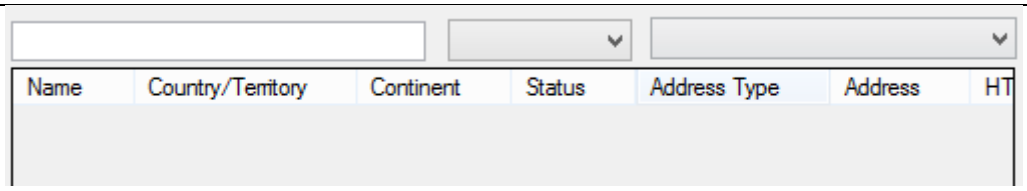
The following table lists the items tested and those not tested (items not in scope):

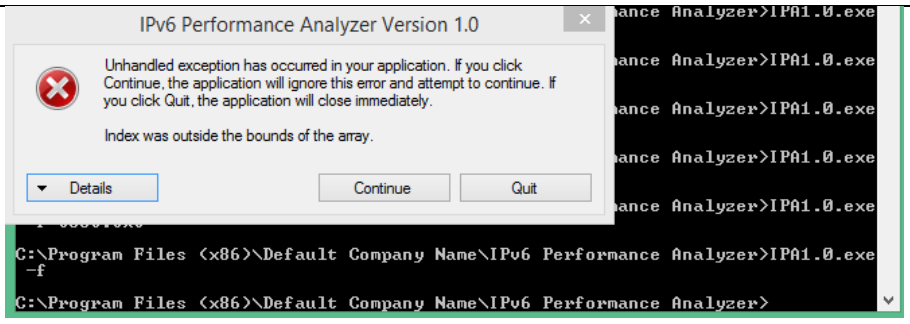
Item	Tested (Y/N)	Date	Persons testing
Installation of complete software suite (inclusive of XAMPP server and .Net Framework 4.6) and setup	Yes	2/10/2015	Abdul & Leslie
Search database	Yes	2/10/2015	Abdul & Leslie
Automatic IPV6 probing of servers	Yes	4/10/2015	Robert & Bilawal
Data storage in database	Yes	8/10/2015	Robert & Bilawal
Data collection to be automatic	Yes	8/10/2015	Robert & Bilawal
Graph to show number of servers probed	Yes	8/10/2015	Robert & Bilawal
Error Handling	Yes	9/10/2015	Abdul & Leslie
Probing (Automatic and Individual)	Yes	9/10/2015	Abdul & Leslie
Export Function(Data, Table and Chart export)	Yes	9/10/2015	Abdul & Leslie

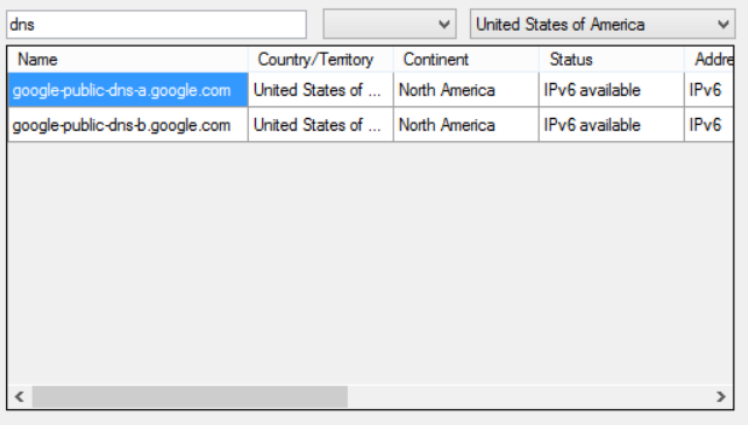
Test case function	Installation and setup
Test Case Description	The XAMMP was installed because of the components that it has, which can be used for developing and testing applications in PHP and MYSQL. Since XAMPP is a free package, it can be downloaded (http://www.apachefriends.org/) The installation has pictures and outlines how to install the XAMPP • After downloading, run and extract the contents into the root path of a hard drive • Click the xampp-control.exe to launch the XAMPP Control Panel v3.2.1. • Start MySQL service by selecting the Start button under Action as a pre-requisite to launch the software • Then you are ready to test
Expected results	The installation guidelines would ensure that the installation of the “IPv6 performance analyzer” would be smooth into the machine and be ready to be used.
Actual Results	The XAMPP software was installed in the machine and in the process of installation and set up this error message popped up. This meant that the XAMPP software that had been installed earlier had to be first deleted before I continued with the proceeding of installation 
Conclusion	The XAMPP software was deleted and a new one was installed and the installation was successful.

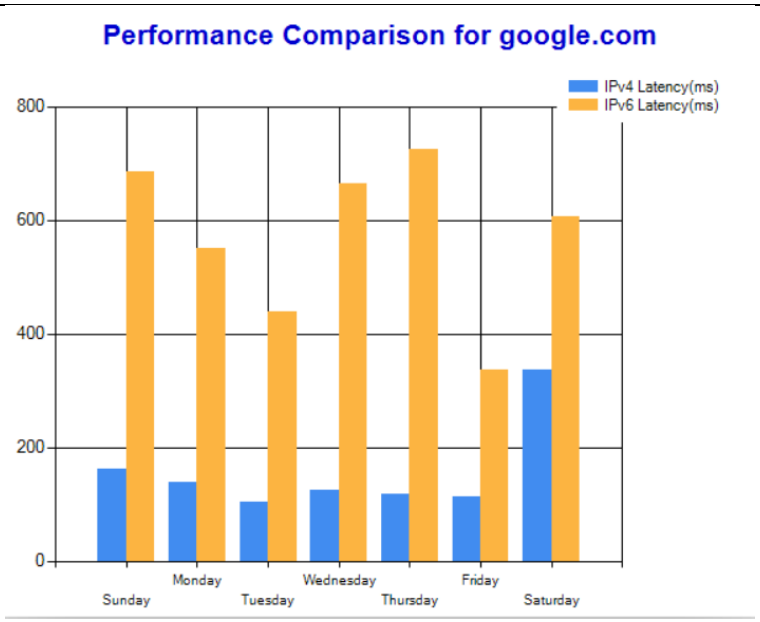
Test case function	Log file for probing
Test Case Description	The probing function plays a very important role in that it's a design strategy that helps the user obtain data. The text field is used to enter The fully qualified domain name (www.google.com) and a button is used to trigger the probe. Steps involved are: 1. Enter the fully qualified domain name 2. Probe 3. Verify the results in the log file
Expected results	The test was supposed to probe any of The fully qualified domain name and produce data that informs the user whether they is IPV6 connectivity or not where the results will be stored into the log file.
Actual Results	Due to Antivirus software (Bit defender Total Security the whole process failed due to being blocked and the software managed to give an error message that the IPAlog.txt was blocked.
	
Conclusion	After noticing this problem, the Bit defender Total Security was switched off in order for the tests to continue and prove that we can probe what has been searched.

Test case function	Initial database
Test Case Description	Open the software without the initial database or XAMPP running. When it prompts for selecting the xampp_start.exe file, try selecting other irrelevant files. After it is started, test if it is working properly.
Expected results	Software is expected to run without user manually connecting to the database beforehand.
Actual Results	File dialogue continues popping up until the user chooses the right xampp_start.exe file. The software functions normally.
Screenshot	
Conclusion	The software connects to the database automatically and initial database is imported for basic functions.

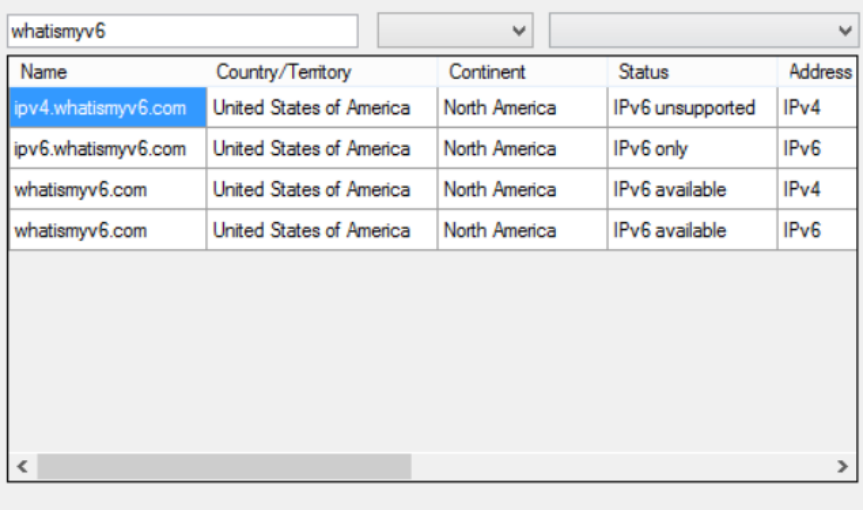
Test case function	Importing and exporting database
Test Case Description	The Importing and exporting database functions plays a major role in the “IPv6 performance analyzer” , as this is where all the data that has been probed for IPv6 connectivity is kept. This data will determine the number of servers in different countries or continents are IPv6 ready. Data can be presented in table and chart form to showcase the percentage of servers that can connect to IPv6. So the database needs to be imported first for the process of probing to begin. Following is the steps: • Starting from the first time installation, select export database. • The first time choose an existing file; The second time type in a file that doesn’t have an extension of .sql; The third time type in a file that has an extension of .sql • Select import database • The first time choose the Oct20.sql file; the second time choose the .sql file just exported. • Verify the results by comparing if data is actually imported/exported.
Expected results	The database file should not be saved with extension other than .sql; Search result should show nothing after importing the .sql file exported and show a full database after importing the Oct20.sql. All display functions should work as expected.
Actual Results	When choosing an existing file in exporting database, the file is overwritten. When using a file that doesn’t have .sql extension, an error pops up and nothing is exported. When typing a .sql file, the database is exported to that file. After importing the Oct20.sql file, the search results display a full list of servers. The charts display normally. After importing the .sql file just exported, the search results display nothing denoting the initial database is successfully exported. The charts display normally.
	
Conclusion	All data and the required procedures have been imported and exported successfully.

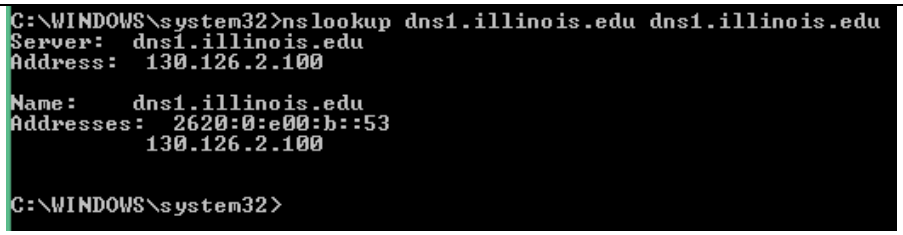
Test case function	Command line probing
Test Case Description	Automatic probing was one of the functional requirements and the “IPv6 performance analyzer” was designed to offer automatic probing through the use of command line. The steps in which the user can take in order to use the command line are: • Navigate to the application’s folder, by default it is: C:\Program Files\Default Company Name\”IPv6 performance analyzer” For 32-bit systems or C:\Program Files (x86)\Default Company Name\”IPv6 performance analyzer” For 64-bit systems. • Type IPA1.0.exe -f test.txt -l log.txt -t 3 to probe normally • Type IPA1.0.exe -f “D:\test.txt” -l “D:\IPAlog.txt” -t 3 to probe normally • Type IPA1.0.exe to try starting without auto-probing • Type IPA1.0.exe -f abc to test for invalid file name • Type IPA1.0.exe -f test.txt -l log.txt -t a to test for invalid timeout value • Type IPA1.0.exe -f to test for error handling • Type IPA1.0.exe -l to test for error handling • Type IPA1.0.exe -t to test for error handling • Type IPA1.0.exe test.txt to test for invalid parameter • Verify the log file displays correctly
Expected results	The software should handle errors in case the user types error parameters. The log file should display the correct probing results.
Actual Results	All errors are handled correctly except when typing IPA1.0.exe -f and IPA1.0.exe -l the program crashes. The log file shows the results correctly once the probing starts.
	
Conclusion	After using error handling in this case, the problem is solved.

Test case function	Search the database and export the table
Test Case Description	Type server names and choose from the dropdown lists to narrow down the search range. Steps are: • Import the Oct20.sql database file. • Type google.com in the textbox and click Search. • Type google.com in the textbox while choosing the continent to be North America and click Search. • Type google.com in the textbox while choosing the continent to be South America and click Search. • Type google.com in the textbox while choosing the continent to be North America, country to be United State of America and click Search. • Type google.com in the textbox while choosing the country to be United State of America and click Search. • While the result table is still there, type “au” in the textbox. • While the result table is still there, delete “au” in the textbox. • While the result table is still there, type “www” in the textbox. • While the result table is still there, type “dns-a” in the textbox. • While “dns-a” is still there, click on “Export table” and verify the content of the exported file.
Expected results	The software is expected to show the data correctly if the server is within that country and continent. If any of these field doesn’t match, the result should be nothing. When typing in the textbox, the results should display only those with the keywords in the server names correctly. Even if the filtering keywords are there, the original table that is generated by clicking on the Search button should be exported completely.
Actual Results	All results conform to the expected results.
	
Conclusion	The keyword filtering, country range and continent range functions alongside with the table export functions work smoothly.

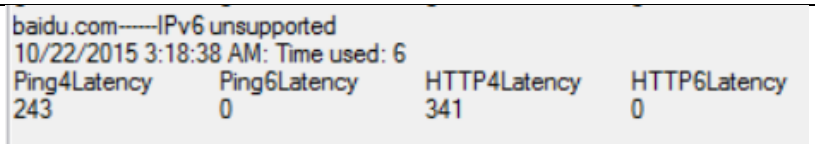
Test case function	Representation functions and export the charts
Test Case Description	Click on the representation buttons and verify if the charts and the tables reflect the true results. Steps are: • Import the Oct20.sql database file. • Type asdf in the textbox and click Compare this server. • Type google.com in the textbox and click Compare this server. • While google.com is still in the textbox, select the following countries: Australia, China, America and England. Click Compare countries. • Select HTTP/ICMP/DNS/SMTP from the dropdown list next to the Export table button and click on Compare countries. • Repeat the above step but click on Compare continents this time. • Type google.com in the textbox and click on Compare this server. • Export the chart to a .png file. • Verify the result.
Expected results	The software is expected to show the data correctly if different kinds of buttons are clicked. If it doesn't have the record it will show nothing when comparing that server. If the service from the dropdown list is chosen, the results should only display the servers that can be reached using that service. When comparing the same server the Export table function should not be available. When exporting the chart, it should always show the content from last action of clicking any representation button.
Actual Results	All results conform to the expected results.
	

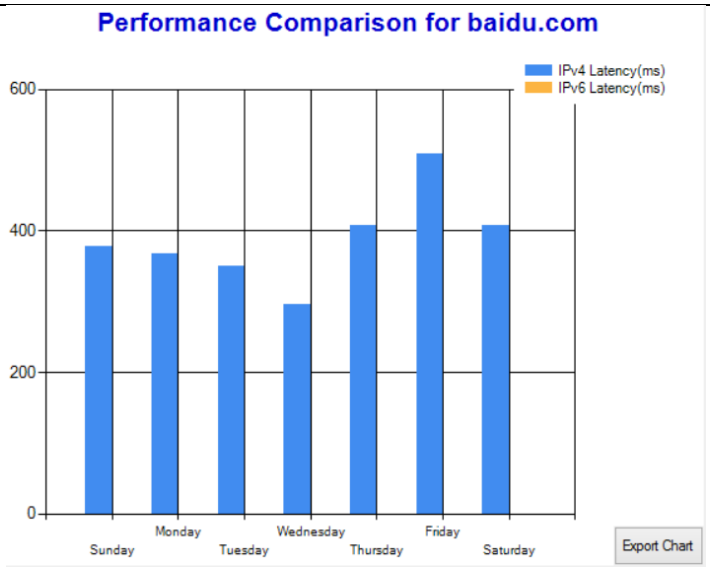
Conclusion	The representation, service filtering functions alongside with the chart export functions work smoothly.

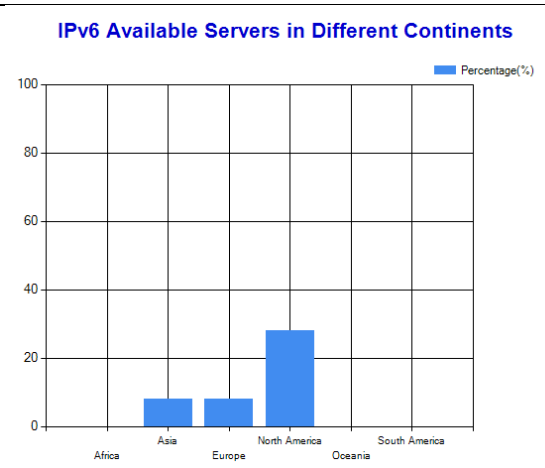
Test case function	Displaying the search result from the database
Test Case Description	Search for following servers in the software after they have been probed: Ipv4.whatismyv6.com IPv6.whatismyv6.com Whatismyv6.com
Expected results	All three servers should have their associated data displayed on the screen.
Actual Results	Entry for whatismyv6.com is missing from the table. Only the first two servers' results are being displayed.
Screenshot	
Conclusion	After fixing the MySQL statement, the results displayed correctly.

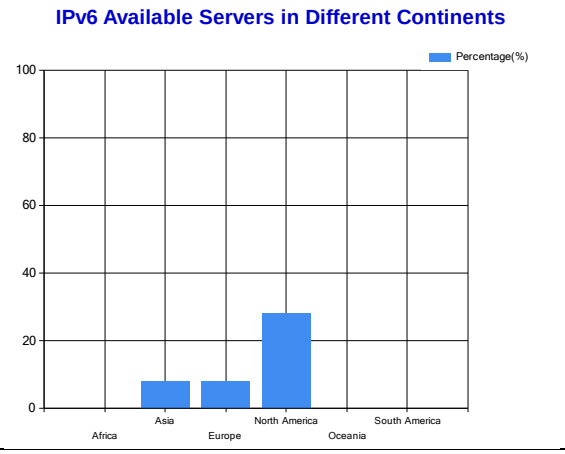
Test case function	Server status after probing
Test Case Description	Probe the server: dns1.illinois.edu and verify the result.
Expected results	The server should be displayed as IPv6 available by verification from the “nslookup” command.
Actual Results	The software displays the server is IPv6 only.
Screenshot	
Conclusion	After fixing the logic of probing by querying the name of the server itself rather than another public server, the problem is solved.

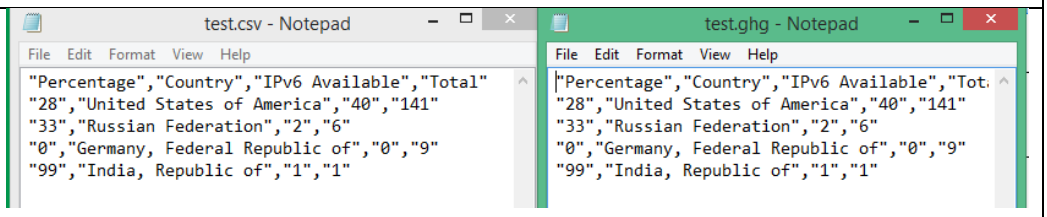
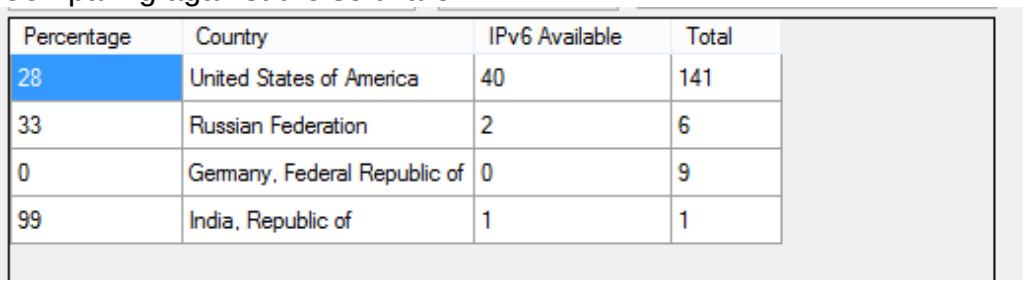
Test case function	Update probing records
Test Case Description	Probe the server baidu.com. It is unreachable via IPv4 or IPv6. A manual record was inserted before when Oct20.sql is imported. Now it is probed again to test if server is out of service during the test will the software upgrade the related records?
Expected results	The software is expected to upgrade both the status and the latency records in the database so that when a server becomes non-reachable related data can reflect this fact.
Actual Results	The software upgrades the status but the record is not upgraded. If it happens to a server that used to be reachable but became non-reachable recently, the database will still keep the reachable records without refreshing the latency values.
Screenshot	N/A
Conclusion	After fixing the logic of inserting records, the database records can be upgraded.

Test case function	Server's reachability
Test Case Description	Baidu.com is a famous website in China which is the biggest search engine there. The software should be able to reach this name using at least IPv4 address with HTTP method. Probe this server and verify the result using the browser to access it and ping it.
Expected results	The software is expected to be able to ping it and access it using HTTPv4 method.
Actual Results	The software can't reach it at all. Testing for three times and the results remain.
Screenshot	
Conclusion	After changing the host name resolution logic, the server can be reached using HTTPv4 and ICMP which can be verified by the browser and ping.

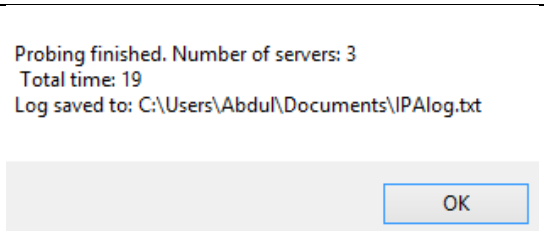
Test case function	Displaying single server's performance
Test Case Description	If the server was previously reachable but now is not, will the total calculation of the latency be affected by the manual latency? Because user doesn't have any permission to delete the data record, the manual record will possibly affects the latency calculation. By previous conclusion, baidu.com can be reached using DNS lookup or not when using Ping to resolve to an IP address. Observe the change to the performance chart.
Expected results	The software is expected to display only the latency that has been measured. The manual record is only for database connection and should not be displayed.
Actual Results	The software calculates the latency using the 4000 manual latency which affects a server when it becomes reachable its latency will become unreasonably high.
Screenshot	
Conclusion	After removing the manual record from the calculation, the latency is normal as measured.

Test case function	Export Chart
Test Case Description	Comparison of countries in different continents was performed by using the drop-down lists alongside with the Compare continents button. Choose the countries from the drop down list 1. United States 2. China 3. American Samoa 4. Germany Press Compare continents button. Export the chart to see if the file is saved correctly. Steps include: Saving the file to .png/.gif/.bmp/.jpeg/.jpg/.emf format and check if the exported file displays correctly. Save the file with random extensions to see if it can still be opened by Paint.
Expected results	The results as displayed can be saved into PNG or EMF format as show in the below section. When the chart is saved as .EMF format, the contrast should be better comparing to other formats. Random formats are expected to be recognized by picture editor software.
Actual Results	It is able to export and save the chart into PNG and EMF format and the resolution of the EMF file doesn't change even if enlarged greatly. Paint opens files with random formats using png format.
Screenshot	 PNG

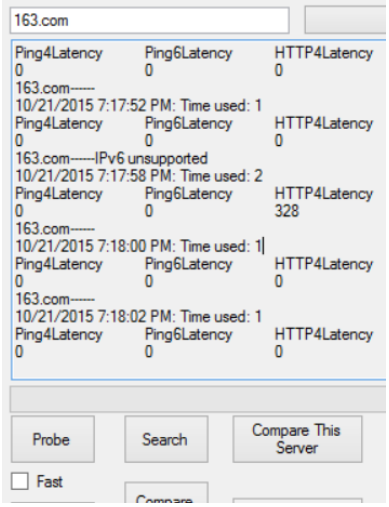
	 EMF
Conclusion	Exporting chart function is fully functional

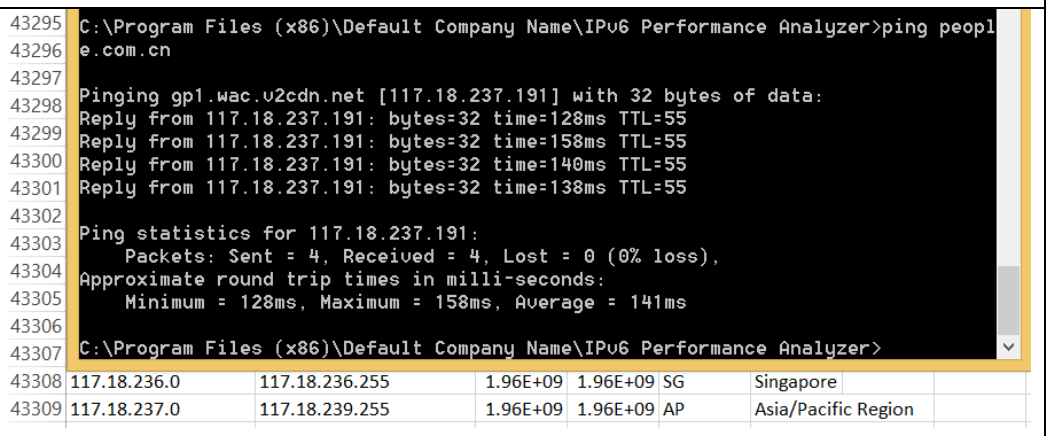
Test case function	Export Table
Test Case Description	Select countries from drop down lists 1. United states of America 2. Russia 3. Germany 4. India Click on the compare countries button.
Expected results	The results displayed by the actual software when exported using the Export table function are displayed correctly even though they were saved in a random format.
Actual Results	If saved with .csv format the results were the same as software displays
Screenshot	 Different formats and .csv format used Comparing against the software  results
Conclusion	Exporting Table function is fully functional

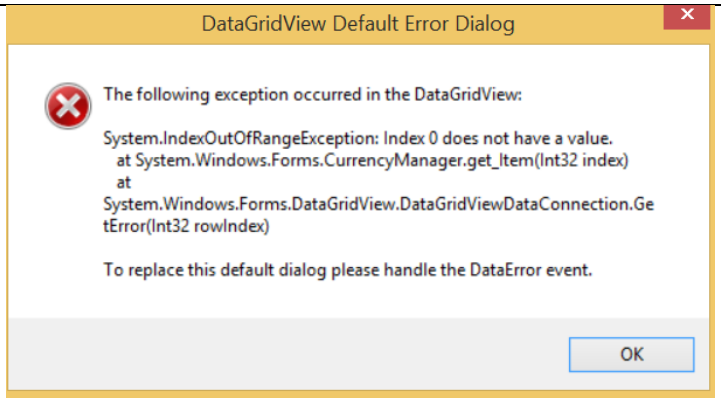
Percentage	Country	IPv6 Available	Total
28	United States of America	40	141
33	Russian Federation	2	6
0	Germany, Federal Republic of	0	9
99	India, Republic of	1	1

Test case function	Time for list probing
Test Case Description	Probe the list of servers: www.yahoo.com www.google.com www.baidu.com And see how long does it take.
Expected results	The total time for probing three servers should not exceed 30 seconds which has been stated in the requirement.
Actual Results	The software used 50 seconds to probe these servers.
Screenshot	
Conclusion	After changing the method of multi-thread processing, the speed has increased significantly without wrong measurements.

Test case function	Probing results
Test Case Description	Probe the server: cjv6.net for 10 times continuously and see the result of the probing.
Expected results	The server should display as “IPv6 available” and all tests should have an associated latency value.
Actual Results	The software displayed the server as unreachable by SMTP which shows 0 as latency however the search result shows correctly that it can be reached via SMTP.
Screenshot	cjv6.net------IPv6 available 21/10/2015 1:05:09 PM: Time used: 6 Ping4Latency Ping6Latency HTTP4Latency HTTP6Latency SMTP4Latency SMTP6Latency DNS4Latency DNS6Latency 102 23 101 453 101 54 89 755
Conclusion	After adding a checkbox to enable fast probing and changing the timeout to be long enough, the test results show correctly without fast probing.

Test case function	Fast probing
Test Case Description	Probe the server: 163.com for 10 times continuously and see the result of the probing by checking and unchecking the “Fast” checkbox in turn.
Expected results	The time used when unchecking the checkbox should be significantly longer than when the checkbox is checked.
Actual Results	At the first time when it is unchecked, the timeout is 10 seconds; the second time when it is checked, the timeout is 1 second; the third time when it is unchecked the timeout is 1 second; from the 4th to 10th tests it all shows 1 second for timeout.
Screenshot	
Conclusion	The value of the timeout is not changed once it is set by checking the checkbox. After checking the condition of the checkbox again in every probing, the problem is solved.

Test case function	Special probing
Test Case Description	Import the initial.sql and probe the list.txt. When it comes to this server: people.com.cn Database error pops up.
Expected results	The list of servers should be probed completely without any error.
Actual Results	The server record can't be inserted because of database error: foreign key constraint.
Screenshot	
Conclusion	It happens because there is no entry for country code "AP" in the database and the program relies on the GeoIPCountryWhois.csv to look up the country code. After correcting this problem and verifying if there is similar problem, it is solved.

Test case function	Overall performance
Test Case Description	Click on buttons without any order to test if the software has any untested bug.
Expected results	The software should run smoothly without any error.
Actual Results	Click “Compare this server”/”Compare countries”/”Compare continents”/”Compare server types” and then click “Probe list” without actually probing any text file. The software runs well. However when actually selecting text file to probe, following error occurs. But the software is still probing the list of servers.
Screenshot	
Conclusion	The software didn’t handle well when switching the area for displaying the tables to that for displaying the probing results. After adding the statement of hiding the dataGridView, the problem solved.

5. Risks

The Project will encounter several things that are not within the control of the IPV6 performance enhancer but actually have a direct impact on the process and these must be looked into as well.

The risks for the testing process considered are shown in the following table:

No	Risk	Risk Description	Probability (L,M,H)	Impact (L,M,H)	Mitigation strategies
1	Testing schedule is tight	Delay in testing	h	h	Project manager can prepare tasks in advance for testing to take place
2	defects	Defects found at late stage	H	H	
3	Computer failure	The system crash	L	H	Ensure the computers are checked for performance and backed up
4	Scripts failing to perform	Scripts not performing the desired functions	H	H	Ensure correct coding is done and also perform debugging techniques to ensure no errors
5	Power failure	Power Fault at the power station	L	H	Always have Uninterrupted Power Supply as backup
6	Test staff falling sick	Staff members may fall sick	M	H	Get other staff members involved so that they can replace the sick members in testing
5	Natural disasters	Storm, cyclone or heavy flooding	L	H	Have Backup

6. Approach

Testing Levels

The testing of the “IPv6 performance analyzer” will consist of Unit, Integration, and System and User Acceptance test. The majority of the testing will be done by the programmer with the IT08 teams participating.

6.1 Unit testing

This involves testing the “IPv6 performance analyzer” prototype to examine the several different programming units that were used in creating the software, can actually function properly. Unit testing was done by the programmer and testing was done at every stage to ensure that all the separate units’ codes are error free. Whilst testing the software, he took into account three things:

Maintainability

- The code is easy to implement
- It can be used for future use on Microsoft windows products.
- Runs fast
- Has control over the pieces of codes being run

Readability

- The “IPv6 performance analyzer” prototype was created to be automated and is able to be run at the push of a button
- The IPV6 can be probed through the use of command lines.
- The software is user-friendly

Correctness

- The code is working according to the requirements given by the client
- Constantly returns the same result

XUnit which is a testing framework was used in testing the functions or statements of the programs, whether they are working properly or not. Since XUnit supports python and C# it was beneficial in that it allowed automated unit testing.

6.1.1 Tests performed during Unit testing

A number of tests were performed during the unit test and these are:

- Error handling – the software was tested to ensure that errors are handled properly and fixed.
- Failure – incorrect behaviour of the programmer
- Automatic probing
- Table/chart export
- Individual probing
- Search functions
- Database export and import
- All representation buttons
- GUI list probing

6.2 Integration testing

This is where the software is tested between components, its interactions with other parts of the system such as operating system, file system and interfaces. The programmer used incremental testing whereby a test was carried out after each step. This had an advantage of finding out defects earlier in a small assembly when it's still easy. Although its time consuming it allowed the IT08 team of programmers to quickly solve any defects. One of the tests that where done where performance test

Tests performed during Unit testing

- clicking the "Compare ..." button and then export the table as well as the chart and verify the contents are right, emf chart is scalable in word;
- Do automatic probing after shutting down the MySQL server and perform a full database connection + auto probing using test.txt; Search the database and then try exporting the table etc

6.3 System testing

In the system test, tests are done to verify whether the specified requirements given to IT08 by the client are met. It's also meant to ensure that both functional and non-functional requirements are complete and satisfactory to the design requirements. The tests were based on risks, and requirement specifications, use cases, interactions with the windows operating system and the system behaviour. This was the final test as it's meant to deliver or meet the requirements before it's delivered to the client.

6.4 User acceptance testing

Purpose: the test allows end users to complete the final review of the software prior to deployment

Testers: This will be done by the end users.

After all the critical and major defects have been corrected the program will be put into Acceptance testing. User acceptance testing was done to authenticate that the "IPv6 performance analyzer" works for the user. This testing was done by different individuals within the group to make sure that the software meets the required scenarios according to the requirements of the client. This test was meant to ensure that the software has no defects and it gave users a chance to interact with the software and find out if everything works. The main goal of the user Acceptance testing is to make sure the IPv6 performance enhancer can support the day to day operations

6.5 Meetings

The project manager scheduled meetings every Wednesday and Thursday to evaluate the progress of the "IPv6 performance analyzer" and if they are problems that need to be rectified.

6.6 Test Measures and metrics

As the testing progressed the following information was collected by the IT08 team during the testing phases

- Test preparation – the Project manager ensured that the programmer made available the program created by the programmer for testing.
- Defect – the program encountered a number of defects (1) the database file which could not be exported, but was later fixed (2) the installation file needed to be corrected as it was not probing the country code request.
- Time spent on defect investigation – the programmer took the whole day in investigating and finding solutions to rectify the problems
- Number of times a program submitted to test team - the program was submitted to the test team on 3 occasions.

7. Test Pass/Fail Criteria

The IPV6 performance enhancer was submitted to the client for review. The pass or fail of the “IPv6 performance analyzer” will depend on it not providing the required functions that it is supposed to. The “IPv6 performance analyzer” after testing by team members met majority of the requirements and only the saving of pictures to png and eml functions need to be rectified. Once that has been rectified the “IPv6 performance analyzer” will be tested by the client to see if it meets his requirements. The final test of the “IPv6 performance analyzer” is to start it without XAMPP running and do all the functions at the time and verify every result is displayed correctly. If they do then it passes the overall test.

8. Test deliverables

Below is the test deliverables:

No	Deliverable Name
1.	Test Plan
2.	Unit Test
3.	Integration test
4	System test
5	User acceptance test
6	Daily/weekly status report
7	Test Closure report

9. Staffing and Training Needs

The project manager assigned a team member to help the programmer in testing of the software at every phase of the project. This helps in that the member can present the “IPv6 performance analyzer” in case the programmer falls sick. Training will be provided to the other members of the IT08 team and the client on how:

- To actually install and set up the software.
- The basic operation of the “IPv6 performance analyzer” interface
- How to search for data on the database

10. Responsbilities

	Project manager	Programmer	Team Member	Client
Unit testing		X	X	
Integration testing		X	X	
System testing	X	X	X	
Acceptance testing	X	X	X	X
Daily/weekly reviews	X	X	X	X
Test Closure	X	X	X	X

The Project manager is responsible for the creation of the test plan and documentation. The programmer with the help of the team members will ensure that the IPV6 performance software meets the requirements of the client and ensures that testing is done at every phase of the project, thereby eliminating any bugs that may cause problems with the software. The client will be briefed on the performance of the project and a prototype will be provided to the client for reviews so that the client can test and verify whether his requirements have been met.

11. Schedule

The project plan provides the time frame that was allocated and the people responsible for such activities. The project manager will coordinate all the required tasks for each team member and some of the things that would be addressed are

- Review of the Requirement and Analysis document which will be done by team members
- Development of a Test plan usually done by the Project manager
- Review of the design document done by the team members will provide an understanding of the program structure
- Unit test time in the stages of development
- Allocation of time for integration , system and user Acceptance testing

12. Approvals

The below table is a form of sign off from the client/supervisor and the team members.

Client / Supervisor Dr.Sebastian Zander	Approved
Leslie Vundu	Approved
Man fu Lei	Approved
Abdul Sammi	Approved
Robert Smart	Approved
Bilawal Mushtaq	Approved

13. Conclusion

This document provided an overview of the testing process done to verify whether the IPV6 performance enhancer was working. A test setup was constructed to test the IPv6 readiness of different servers across different continents. The items to be tested were listed along with a list of risks to the testing process which included power failures and natural disasters to malfunctioning of devices. A methodological approach was followed in the testing and as issues or bugs were encountered, measures were taken to resolve them until the software was working as intended. Thus finally, all scripts were found to work as intended and the output from the testing was provided