EVALUATING HTTP PERFORMANCE FROM STREAMS

INSTALLATION DOCUMENTATION

- **Team Name:** NAGIOS

- **Team Members:**

  - Atla Prashant
  - Chilukuri, Megh Phani Dutt
  - Garg, Prafull
  - Grandhi, Veera Venkata Santosh S G
  - Kalidindi, Rajeev Varma
  - Kolli, Samuel Sushanth
  - Madala, Sravya
  - Musinada, Suren
  - Naguru, Sriram Prashanth
  - Peddireddy, Divya
  - Rajana, Poojitha

- **Document Type:** Design Document

- **Version Number:** Version 1.3

- **Publication Date:** August 24th, 2015

1. INTRODUCTION:

This Installation Documentation covers all requirements for successful software installation and configuration background for the components required for Evaluating HTTP Performance from Streams.

The document is partitioned into various sections. Section II consists of Glossary and Abbreviations. Section III deals with System Requirements, Section IV deals with Overview of system/product features, Section V deals with Software requirements. Section VI deals with Minimal Quick start configuration. Section VII consists of instructions to successfully install the given tool in a given system. Section VIII describes how to configure the database. Section IX consists of references.

Release v1.2 on 2015-08-24

PUBLICATION DATE	VERSION	DESCRIPTION	CHANGES
2015-08-24	v1.3	Updated Version	➢ Updated the following: • Installation requirements for importing data via a REST API.
2015-06-15	v1.2	Updated Version	➢ Updated the following: • Clear Installation Instructions
2015-06-01	v1.1	Updated Version	➢ Updated the following: • Glossary and Abbreviations are included in the section II. • Configuration steps for our tool are included. • References are Included.
2015-05-20	v1.0	Initial Release	

2. GLOSSARY AND ABBREVIATIONS

HTTP: Hypertext Transfer Protocol

It is a protocol at the application level for communication of data between the network elements such as clients and servers.

GUI: Graphical User Interface

An interface which allows the users to communicate with the electronic devices through visual icons. In some cases, it contains audio feedback as well as voice control.

DPMI: Distributed Passive Measurement Infrastructure

This interface is used to read the data stream at various measuring points.

RESTful: Representational State Transfer

An architectural pattern to improve portability, scalability of the system.

RRD: Round Robin Database

This handles the Time series data like data request-response time, Bit rate, standard deviation.

CPAN: Comprehensive Perl Archive Network

This is used for the collection of internet archives.

3. System Requirements:

a) Ubuntu 14.04 LTS version
b) 1 Gb RAM
c) Hard disk 40Gb or more
d) Processor 32 bit or 64 bit
e) Internet access

4. Overview of System/Product Features:

a) Basic features of the software:

- Monitors HTTP metrics like Request-Response time, Bitrate, Lost requests
- Provides Fault notifications via E-mail
- Assigns Threshold Limits to the servers
- RESTful API

b) Database:

Databases needed are MySQL and RRD.

5. Software requirements:

Backend:

1. Perl
2. Php5
3. RRD Simple
4. CPAN: Perl Modules
5. Tshark
6. Libcaputils
7. Apache2 server

Perl: Perl is used for developing web applications where it is a high level general purpose language.

Php5: Php5 is a server side scripting language which is designed for web development.

RRD Simple: It is a simple interface to create and store the data in RRD files.

CPAN: CPAN is a collection of internet archives which includes the Perl Modules.

T-shark: It is a network protocol analyser which lets us to capture packet data from a live network. Where it is a terminal oriented version of Wireshark designed for capturing and displaying packets.

Apache2 server: It is an open source licence which is a freely available Web server.

Frontend:

1. Web Browser
2. Lamp Server
3. Text Editor (Gedit)
4. Php5
5. RRD

Web browser: It is a software application which is used to locate, retrieve and display contents on the web.

Lamp Server: It uses as open source web development platform.

Gedit: It is a text editor used in the LINUX operating system.

Php5: Php5 is a server side scripting language which is designed for web development.

RRD: Generates graphs for the performance metrics, calculates minimum, maximum, mean and other parameters as required.

MySQL database: It is used to store the values of performance metrics obtained from the log file, storing the user credentials for login, threshold levels-both default and user defined.

PHPMyAdmin: It is a tool written in PHP which is intended to handle the administration of MySQL over the server.

6. Minimal Quick Start Configuration:

Step by step procedure to install the required software for successful running of the tool.

- Update and Upgrade Ubuntu:

  sudo apt-get update

  sudo apt-get upgrade

- Install Lamp Server:

  sudo apt-get install lamp-server^

To check if Apaache2 is installed,
type the URL in the browser:
http://localhost/
The Apache2 webpage is displayed.

- Install PHPMyAdmin:

  sudo apt-get install phpmyadmin
  cd /etc/apache/
  gedit apache2.conf
  Paste "include/etc/phpmyadmin/apache.conf" in apache2.conf(without double quotations)

- Install php5:

  sudo apt-get install php5

  To check if installed:
  In browser, enter the URL:
  http::/localhost/phpmyadmin
  Enter the username and password for the database

  Link apache2 directory with phpmyadmin directory:
  sudo ln –s /usr/share/phpmyadmin /var/www/phpmyadmin

  If needed, change the permissions:
  sudo chmod –R 775 /etc/phpmyadmin

- Install Perl modules from CPAN

  Install CPAN:

  sudo apt-get install CPANMINUS
  sudo apt-get update
  sudo apt-get upgrade

  Install Perl modules:

  sudo perl –MCPAN –e shell

In CPAN shell, enter the following commands:

Install DBI module:

install DBI

Install DBD::mysql

install DBD::mysql

Install Data::Dumper

install Data::Dumper

Install Mail::Sender

install Mail::Sender

Install Net::SSH::Perl

install Net::SSH::Perl

Install Net::SCP::Expect

install Net::SCP::Expect

Install RRD::Simple

install RRD::Simple

- Install SSH

  sudo apt-get install ssh
  sudo apt-get install openssh-server

- Install sshpass:

  sudo apt-get install sshpass

- Install php5-rrd

  sudo apt-get install php5-rrd

- Install php5-curl

  sudo apt-get install php5-curl

- Install Tshark(Optional):

  sudo apt-get install tshark

- Install Libcaputils(Optional):

  sudo apt-get install git

  git clone http://github.com/DPMI/libcap_utils.git

  Run cd libcap_utils in the folder called libcap_utils.

  apt-get install autoconf

  apt-get install build-essential autoconf libtool rrdtool librrd-dev libxml2-dev pkg-config

  libpcap-dev libssl-dev

  autoreconf --install mkdir

  build

  cd build

  ../configure

  make

  make install

  exit

- Change permissions of all the folders and files containing the scripts using chmod 777:

  sudo chmod –R 777 /var/www/html

  sudo chmod –R 777 /var/www/html/manager

  sudo chmod –R 777 /path/to/folder/file

7. Installation of tool:

- The system running the tool needs to be connected to the consumer through a Ethernet cable. The consumer is a part of DPMI.
- DPMI (or consumer) already has Tshark and Libcaputils installed in it.
- The system needs to SSH into the consumer. Thus, SSH is installed.
- The tool is presented in the form of tar.gz file. Unzip it at a desired location.
- The tool consists of folders agent, manager, web and manual.
- Copy "web" folder in "/var/www/html/".
- Modify the file "db.conf" as per required. Refer section VIII.

- Open a web browser and type the URL:
  http://localhost/web/index.php
- The user needs to register himself, enter the stream values and exit the browser.
- Copy all contents of “manager” folder into the web folder in /var/www/html/.
- Run “main2.pl” copied from the manager folder in the terminal as:
  “perl main2.pl”
- The monitoring tool is continuously running. After a few minutes, open the browser & enter URL: http://localhost/web/login.php
- Enter the username and password given during registration.
- The user can now view the performance metrics, assign threshold levels, can receive fault notifications, and provide REST API service to a third party.

8. Database Configuration:

- A database configuration file “db.conf” is provided in which the username and password of the MySQL database must be modified as per the user requirements.
- The database “Nagios” is automatically created in MySQL when the user enters the URL: http://localhost/index.php. All required tables are automatically formed.
- The MySQL database can be accessed by entering the URL in the browser: http::/localhost/phpmyadmin
- The user must enter the username and password he used while configuring the MySQL database during installation.

9. References:

[1] DPMI: Distributed Passive Measurement Infrastructure,

URL: https://github.com/DPMI/libcap_utils

[2] Patrik Arlos, Markus Fiedler, and Arne A.Nilsson, A Distributed Passive Measurement Infrastructure in Passive and Active Measurement Workshop (PAM05), US, 2005