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BOOTP Client

Software Requirement Specification (SRS)

Version 0.5

20-10-2006

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Revision History

Name	Date	Reason For Changes	Version
Vignesh	16-10-2006	1. Title, Version not proper, Description Was Repetitive. 2. Product Perspective and User Interface not clear. 3.Use Cases were not satisfied	0.1
Vignesh	17-10-2006	1. Software Interface Requirement not satisfying 2. Memory not mentioned 3.Operation of tool not clear 4.Specific Requirements not mentioned	0.2
Vignesh	18-10-2006	1. Communication Interface needed modifications 2. Memory needed modification 3. Operations required modification 4.Failure Cases Added under topic HELP CENTER	0.3
Vignesh	19- 10 -2006	1.Failure Cases Added under topic HELP CENTER need modification	0.4
Vignesh	20.-10.-2006	1. Deliverables Added	0.5

1 INTRODUCTION

1.1 Purpose

The purpose of this document is to describe the software requirement specification of BOOTP Client (BootStrap Protocol Client).

The intended audience for this documents are the developer and the client.

1.2 Scope

The BOOTP client is a portable command line tool for Linux platform to request IP address for the host and default file from the BOOTP server which is on the same network as that of the BOOTP client and sets the IP address as the BOOTP Client's address.

Comment [t1]: Added that Host Set the IP Address

1.3 Definitions, acronyms, and abbreviations

BOOTP – Boot Strap Protocol
ARP – Address Resolution Protocol
IPv4 – Internet Protocol version 4
UDP – User Datagram Protocol
GCC – GNU Compiler Collection

1.4 References

- RFC 951 – Bootstrap Protocol

1.5 Overview

This document describes the software requirement specification of the BOOTP Client. Sub-section 2 describes the overall product perspective, requirements related with the Software interfaces between user and system. Sub section 3 describes about the various software blocks with their, requirements and dependencies. Sub section 4 describes the features of the BOOTP Client application.

2 OVERALL DESCRIPTION

BOOTP Client can be used for a variety of devices, one of the prime motives behind its creation was to provide a way to automatically configure “dumb” devices that have no storage. Most of these devices are relatively limited in their capabilities, and so requiring them to support a fancy boot protocol would not make sense.

2.1.1 Product perspective

BOOTP Client protocol when a host is freshly booted system queries BOOTP server on the network for IP address and filename through which it accomplishes host configuration.

2.1.2 User interfaces

A BOOTP client will be a text interface between the software product and its users.

2.1.3 Communication Interface

BOOTP Client is a IPv4 Based Protocol that uses ports 67 and 68 for server and client respectively and is based on UDP Datagram (Connection less).

2.1.4 Software Interface

BOOTP client will be developed and tested on Linux Kernel 2.6.x. Since it is not specific to operating system it is considered to be backward compactable with previous kernel versions.

2.1.5 Memory

The memory used by the BOOTP Client is negligible.

2.1.6 Operations

The user has to call BOOTP client command, following the syntax. The syntax of BOOTP Client and examples are given below.

bootpc [options -dlh] [Broadcast Address <optional>]

-d → Debug Flag
-l → Log Flag
-h → Help Flag

Examples

1. bootpc 192.168.4.255
2. bootpc –d 192.165.4.255
3. bootpc –ld 192.165.4.255
4. bootpc –l 192.165.4.255
5. bootpc
6. bootpc -h

2.2 Product functions

The three major functions of BOOTP Client are as follows:

1. Client transmission
2. Client retransmission strategy
3. Client reception

2.3 User characteristics

This can be used by beginners and requires basic networking skills, he/she does not require any experience or technical expertise.

2.4 Constraints

The limitations that limit developer's options are as follows

a) Hardware limitations :
BOOTP Client works when the BOOTP Server is on the same subnet.
b) Reliability requirements:
When a request/response is lost or damaged, there is a need for error control. As BOOTP uses UDP which does not provide error control. Hence BOOTP must provide Error Control.

3 SPECIFIC REQUIREMENTS

a. BOOTP Client is designed to work on a Linux Platform
b. It requires GCC for compilation and any editor.
c. We assume that the system is a single homed system using eth0 as the default interface.

3.1 Use Case 1

bootpc 192.168.4.255

3.1.1 Use case Description

When a client wants to acquire IP address it creates a BOOTP Request message addressed to port 67 and is broadcasted using the broadcast address specified. By default the log flag is enabled which logs the operations performed by the BOOTP client.

3.2 Use Case 2

bootpc –d 192.165.4.255

3.2.1 Use case Description

When the BOOTP client sets the debug flag it allows the user to debug the operation. By default the log flag is enabled which logs the operations performed by the BOOTP client.

3.3 Use Case 3

bootpc –l 192.165.4.255

3.3.1 Use case Description

When the BOOTP client sets the log flag logs the operations performed by the BOOTP client.

3.4 Use Case 4

bootpc –ld 192.165.4.255

3.4.1 Use case Description

When the BOOTP client sets the debug and log flag it allows the user to debug the operation as well as logs the operations performed by BOOTP client.

3.5 Use Case 5

bootpc

3.5.1 Use case Description

When the BOOTP client uses the default broadcast address 255.255.255.255.

3.6 Use Case 6

bootpc -h

3.6.1 Use case Description

BOOTP client display the usage and options associated with it.

4 HELP CENTER

The possible errors that may occur during execution of BOOTP Client is classified as follows

a. Invalid Options
b. Invalid Address
c. System Failure
d. Network Failure

4.1 Invalid Options

Here the BOOTP Client displays the usage of the BOOTP Client.

4.2 Invalid Address

Here the BOOTP Client informs that the Broadcast address specified is invalid

4.3 System Failure

Here you the BOOTP Client informs that there is no sufficient right to perform the requested operation or no space to write the logs.

4.4 Network Failures

Here the BOOTP Client informs that the Server is not found on the network or Request timed out.

5 LIST OF DELIVERABLES

Comment [t2]: Deliverables Added

The following are the deliverable be delivered to the CUSTOMER.

5.1 Documents:

a. SRS – Software Requirement Specification
b. SATP – Software Acceptance Test Plan
c. SDD – Software Design Document
d. Test Report

5.2 Software:

a. BOOTP Client Source (BOOTP_1.0_src.tar.gz)
b. BOOTP Client Binary for the above source. (BOOTP_1.0_bin.tar.gz)
c. BOOTP Help – README file