



VNDA01 - 4PSA VoipNow Deployment and Administration

**Building Knowledge Together
For 4PSA Customers and Partners**

<http://www.4psa.com/>

Copyrights 2007 Rack-Soft. 4PSA is a Registered Trademark of Rack-Soft.

Overview

Title: 4PSA VoipNow Deployment and Administration (VNDA01)

Course duration: 3 days (24 training hours): 10 hours theoretical, 10 hours lab activity, 4 hours hands-on evaluation

Target audience: system administrators

Difficulty level: intermediate

Price: 2000USD

Pre-requirements:

- Basic Linux administration skills

- Principles of networking technologies

- Principles of VoIP telephony (SIP protocol)

Introduction

4PSA VoipNow is the hosted PBX software solution designed for Linux operating systems, which allows service providers and enterprises to take advantage of new communication methods. The product implements the telephony functions using Asterisk, and it is based on a wide range of Open Source software and technologies, as well as on proprietary technology. With 4PSA VoipNow, providers can cope with requirements from their clients without having to invest in customized solutions. A software PBX can easily accept new communication interfaces and protocols without having to replace the PBX equipment, phones or wiring.

It is foreseen that the "hosted VoIP" services business will grow with an accelerated rate in the near future.

Description and Objectives

The 4PSA VoipNow deployment and administration training program aims at creating a theoretic background doubled by the development of the practical abilities in installation and administration of the 4PSA VoipNow software solution. The training program is divided into five sections: 4PSA VoipNow architecture, 4PSA VoipNow system planning, connecting 4PSA VoipNow to SIP carriers, 4PSA VoipNow extension types, and troubleshooting a 4PSA VoipNow server.

All workstations have installed the software packages required by the training program and they are connected to the Internet and to the lab infrastructure. In order to consolidate information, the training program features a wide range of real life applications that allow students to use the network and telephony equipment, servers, and other devices.

Students graduating this call will have a good understanding of:

- 4PSA VoipNow architecture and components
- 4PSA VoipNow server installation
- 4PSA VoipNow server upgrade
- 4PSA VoipNow system planning, hierarchical account levels, inheritance of permissions and limits
- 4PSA VoipNow billing plans
- Client account setup process, provisioning tools
- SIP protocol architecture and security
- Transport protocol architecture and security
- SIP channel setting (parameters, codecs)
- 4PSA VoipNow advanced call routing
- Outbound and inbound communication testing methodologies
- Phone terminal extension setup and features
- Queue extension setup and features
- IVR extension setup and features
- Conference extension setup and features

- Callback services deployment
- Calling card services deployment
- 4PSA VoipNow server troubleshooting, common configuration issues
- Debugging Asterisk CLI messages
- Submitting support and bug tickets to Rack-Soft

Course Curriculum

1. 4PSA VoipNow architecture (2 hours)

- 1.1 Introduction to PBX systems
 - 1.1.1 What is a hardware PBX
 - 1.1.2 What is a software PBX
 - 1.1.3 Differences between hardware and software PBX systems
 - 1.1.4 Implementing software PBX
- 1.2 4PSA VoipNow Open Source foundation
 - 1.2.1 Supported operating systems
 - 1.2.2 Asterisk - the Open Source PBX layer
 - 1.2.3 MySQL - relational database layer
 - 1.2.4 Apache control interface
- 1.3 Deploying 4PSA VoipNow
 - 1.3.1 Selecting the correct operating system and hardware
 - 1.3.2 Installing using the ISO image
 - 1.3.3 Installing using the command line installer
 - 1.3.4 Updating a 4PSA VoipNow server (OS and interface)

2. 4PSA VoipNow system planning (2 hours)

- 2.1 4PSA VoipNow account levels
 - 2.1.1 Hierarchical account levels
 - 2.1.2 Hosted services reselling model
- 2.2 4PSA VoipNow permissions and limits
 - 2.2.1 Permissions and limits explained
 - 2.2.2 Inheritance of permissions and limits

- 2.3 4PSA VoipNow billing plans
 - 2.3.1 What is a billing plan
 - 2.3.2 Defining a billing plan
 - 2.3.3 Prepaid and postpaid billing plans
 - 2.3.4 Cost inheritance
- 2.4 4PSA VoipNow account creation templates
 - 2.4.1 What is an account creation template
 - 2.4.2 Defining creation templates
- 2.5 4PSA VoipNow email templates
 - 2.5.1 What is an email template
 - 2.5.2 Automatically sending emails on system events

3. Connecting 4PSA VoipNow to SIP carriers (3 hours)

- 3.1 An overview on the SIP protocol
 - 3.1.1 Protocol architecture
 - 3.1.2 Protocol security
 - 3.1.3 Protocol requests/answers - a brief comparison with HTTP
- 3.2 Transport protocols
 - 3.2.1 Protocol architecture
 - 3.2.2 Protocol security
- 3.3 Setting up a SIP channel
 - 3.3.1 What is a SIP channel in 4PSA VoipNow
 - 3.3.2 Defining channel parameters
 - 3.3.3 Codecs overview
 - 3.3.4 Defining DID's per channel
- 3.4 Call routing
 - 3.4.1 4PSA VoipNow routing engine
 - 3.4.2 Defining channel costs
 - 3.4.3 Defining routing rules
- 3.5 Testing communication through SIP carriers
 - 3.5.1 Testing outbound communication
 - 3.5.2 Testing inbound communication
 - 3.5.3 Monitoring channels

4. 4PSA VoipNow extension types (2 hours)

- 4.1 Phone terminal extension
 - 4.1.1 Setup the extension
 - 4.1.2 Configuring the phone in order to connect to the system
 - 4.1.3 Common configuration issues (bypassing firewalls, registration intervals, etc)
 - 4.1.4 Testing the registered phone
 - 4.1.5 Using the provisioning system
- 4.2 Queue extension
 - 4.2.1 Setup de extension
 - 4.2.2 Checking queue statistics
 - 4.2.3 Monitoring agents
- 4.3 IVR extension
 - 4.3.1 Designing a basic IVR
 - 4.3.2 Understanding common IVR applications
 - 4.3.3 Visualizing an existing IVR
 - 4.3.4 Deploying the IVR
- 4.4 Conference extension
 - 4.4.1 Starting a conference
 - 4.4.2 Joining a conference
 - 4.4.3 Monitoring a conference
- 4.5 Callback extension
 - 4.5.1 Understanding the extension parameters
 - 4.5.2 Adding authorized callback numbers
 - 4.5.3 Checking credits on callback numbers
- 4.6 Calling card extension
 - 4.6.1 Setting up a calling card business
 - 4.6.2 Adding and modifying calling cards
 - 4.6.3 Checking credits on calling cards

5. Troubleshooting a 4PSA VoipNow server (1 hour)

- 5.1 Common administration tasks

- 5.1.1 No outgoing calls using the SIP channel
- 5.1.2 No incoming calls using the SIP channel
- 5.1.3 An extension cannot dial out
- 5.1.4 An extension cannot be called
- 5.1.5 Improve server security
- 5.1.6 Track system abuse
- 5.2 Debugging Asterisk CLI messages
 - 5.2.1 Asterisk console explained
 - 5.2.2 Checking log files
 - 5.2.3 Checking and logging the call flow
- 5.3 Submitting support and bug tickets
 - 5.3.1 How to run the system in debugging mode
 - 5.3.2 What to include in a support ticket

Lab Activity

1. **4PSA VoipNow architecture (1 hour).** Physical servers are available for 4PSA VoipNow installation and upgrades. Common issues are addressed. Standard paths and configuration files are presented to trainees.
2. **4PSA VoipNow system planning (2 hours).**
 - 2.1. Connect on the server as administrator, Administrator level facilities.
 - 2.1.1. Overview of the Administrator level
 - 2.1.2. Add a reseller account
 - 2.1.3. View the reseller list
 - 2.1.4. Search the reseller list
 - 2.1.5. Edit reseller's information
 - 2.2. Connect as reseller, Reseller level facilities.
 - 2.2.1. Overview of the reseller level
 - 2.2.2. Add a new client
 - 2.2.3. View the client list

- 2.2.4. Search the client list
- 2.2.5. Edit client's information
- 2.3. 4PSA VoipNow permissions and limits
 - 2.3.1. Overview of permissions and limits
 - 2.3.2. Set permissions and limits on client chain
 - 2.3.3. Check inheritance of permissions and limits
- 2.4. 4PSA VoipNow billing plans
 - 2.4.1. Billing concepts (prepaid and postpaid)
 - 2.4.2. Create a billing plan
 - 2.4.3. Manage time intervals
 - 2.4.4. Search the billing plan list
 - 2.4.5. Apply billing plans on existing clients
- 2.5. 4PSA VoipNow account templates
 - 2.5.1. Templates basic features
 - 2.5.2. Add a new extension template
- 2.6. 4PSA VoipNow email templates
 - 2.6.1. Manage the events that can trigger an email notification

3. Connecting 4PSA VoipNow to SIP carriers (3 hours)

- 3.1. SIP protocol
 - 3.1.1. SIP protocol architecture
 - 3.1.2. SIP signaling
 - 3.1.3. SIP test tool traffic generator
- 3.2. Setting up a SIP channel
 - 3.2.1. Add a new SIP channel
 - 3.2.2. Defining a SIP channel's parameters
 - 3.2.3. Manage channel public phone numbers (DIDs)
- 3.3. Call routing
 - 3.3.1. Defining channel costs
 - 3.3.2. Manage channel routing rules
- 3.4. Test the communication through SIP carriers
 - 3.4.1. Testing outbound communication with the SIP channel setup at 3.2
 - 3.4.2. Testing inbound communication with the SIP channel setup at 3.2

4. 4PSA VoipNow extension types (2 hours)

- 4.1. Phone terminal extension
 - 4.1.1. General overview
 - 4.1.2. Configuring a phone extension
 - 4.1.3. Provision a phone
 - 4.1.4. Test the new extension
 - 4.1.5. Manage extension features
- 4.2. Queue extension
 - 4.2.1. Business basics
 - 4.2.2. Queue extension features
 - 4.2.3. Setup a new queue extension
 - 4.2.4. Manage queue members and agents
 - 4.2.5. Supervisor agent
 - 4.2.6. View queue statistics
- 4.3. IVR extension
 - 4.3.1. Business basics
 - 4.3.2. Understand contexts, options, and actions
 - 4.3.3. Add a new context
 - 4.3.4. Add options and actions
 - 4.3.5. Generate IVR
 - 4.3.6. View the IVR schema
 - 4.3.7. Using the IVR report
- 4.4. Conference extension
 - 4.4.1. General overview
 - 4.4.2. Add a new conference extension
 - 4.4.3. Create conferences over the phone
 - 4.4.4. Monitor a conference
- 4.5. Callback extension
 - 4.5.1. Business basics
 - 4.5.2. Features and deployment options
 - 4.5.3. Create a callback extension
 - 4.5.4. Add an authorized CallerID

- 4.5.5. Test callback service
- 4.5.6. Manage account recharges
- 4.6. Calling card extension
 - 4.6.1. Business basics
 - 4.6.2. Features and deployment options
 - 4.6.3. Create a calling card extension
 - 4.6.4. Add a calling card number
 - 4.6.5. Test the calling card service
 - 4.6.6. Manage calling card recharges

5. Troubleshooting a 4PSA VoipNow Server (2 hours)

- 5.1. 4PSA VoipNow troubleshooting
 - 5.1.1. Debug the most frequent ten issues
- 5.2. Debugging Asterisk
 - 5.2.1. Use the Asterisk console
 - 5.2.2. Use the log file information
- 5.3. Support and bug tickets
 - 5.3.1. Run the system in debugging mode
 - 5.3.2. Open a support ticket

Certification

VNDA01 students can get certified after an evaluation exam (4 hours).

The certification exam is conducted in the last day of training and is included in the training price. The certification exam is a hands-on lab session where students face real life situations.

The maxim score is 100 points. A student will receive the certification if he scores at least 60 points.

Students who score more than 90 points will receive a 5% voucher that can be used to pay for any other 4PSA Training Program class.

The certification exam can be rescheduled for students that do not meet the 4PSA Certification Exam examination criteria. The reevaluation price is 350USD and can be rescheduled within 6 months interval after the first evaluation.