



PIKA WARP Pager Administrator's Guide

Revision 1.0 / Oct-2010

COPYRIGHTS

Copyright © 2010 PIKA Technologies Inc. All rights reserved. No part of this document may be reproduced, stored in a retrieval system, or in any other form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of PIKA Technologies Inc.

TRADEMARKS

PIKA is a registered trademark of PIKA Technologies Inc. WARP is a registered trademark of PIKA Technologies Inc.

All other trademarks, product names and company names and/or logos cited herein, if any, are the property of their respective holders.

DISCLAIMER

This document is provided to you for informational purposes only and is believed to be accurate as of the date of its publication, and is subject to change without notice. PIKA Technologies Inc. assumes no responsibility for any errors or omissions in this document and shall have no obligation to you as a result of having made this document available to you or based upon the information it contains.

Contents

CONTENTS	1
FIGURES	2
ABOUT THIS DOCUMENT	3
CONTACTING PIKA TECHNOLOGIES	3
CHAPTER 1 – INTRODUCTION	4
<i>Features</i>	4
CHAPTER 2 – OVERVIEW	5
<i>System Requirements</i>	5
<i>WARP Pager Architecture</i>	6
<i>Pager Application Description</i>	8
<i>Configuration Overview</i>	8
CHAPTER 3 – SYSTEM SETUP	9
<i>FTP and TFTP Server Discovery</i>	9
CHAPTER 4 – CONFIGURING THE PAGER	11
<i>Pager Application Configuration</i>	11
<i>SIP Phone Configuration</i>	14
<i>Feature Interactions</i>	15
CHAPTER 5 – TROUBLESHOOTING	16
<i>LCD</i>	16
<i>Logging</i>	19
CHAPTER 6 – OTHER ADMINISTRATOR TASKS	21
<i>Remote Access</i>	21
<i>Upgrading the WARP Pager Software</i>	23
CHAPTER 7 – CONFIGURING THE WARP PAGER USING A USB DEVICE	24
<i>Provisioning an FTP User Name and Password</i>	24
<i>Provisioning a Static FTP/TFTP Server</i>	24
<i>Pager Application Configuration</i>	25

Figures

FIGURE 1 - NETWORK VIEW.....	5
FIGURE 2 - FTP/TFTP SERVER DISCOVERY AND PAGER PROVISIONING.....	7
FIGURE 3 – TFTP/FTP SERVER DISCOVERY	9
FIGURE 4 - TOGGLE BUTTON	16
FIGURE 5 - HTTP SERVER HOME PAGE	22

About this Document

This document is for administrators who configure, troubleshoot and manage PIKA WARP™ Pager paging systems. The following related documents are available on the PIKA Technologies Web site at www.pikatechnologies.com/pagerdocs:

- PIKA WARP Pager Quick Start Guide – Describes WARP Pager assembly
- PIKA WARP Pager Quick Start Configuration Guide – Describes basic WARP Pager configuration
- PIKA WARP Pager Release Notes – Describes new and changed features for the release



Contacting PIKA Technologies

Customer Care

For support issues, phone or e-mail our Customer Care department at the following:

Tel: +1-613-591-1555
Fax: +1-613-591-9295
Email: support@pikatech.com

International Headquarters

PIKA Technologies Inc.
535 Legget Drive, Suite 400
Ottawa, Ontario, Canada K2K 3B8
Tel: +1-613-591-1555
Fax: +1-613-591-9295
Email: sales@pikatech.com

Internet

Visit our website at <http://www.pikatechnologies.com> for the latest news, product announcements, downloads, online community, documentation updates, and contact information.

Chapter 1 – Introduction

For hosted PBX service providers, the PIKA WARP Pager provides a dedicated paging device located at the customer premise to complement a hosted PBX solution. Once installed at the customer premise, page announcements are redirected through the WARP Pager to the speakers of each IP phone in the page group. WARP Pager offloads WAN bandwidth demands and provides the local paging function that users of traditional legacy PBX systems are familiar with. Overhead speaker systems can also be connected to the WARP Pager without additional hardware.

The WARP Pager can be installed into new or existing Hosted PBX Systems and operates seamlessly with most common IP phones manufacturers.

Features

- BroadSoft® BroadWorks® Compatible (IOT Pending)
- BroadWorks release independent
- Easily adaptable to other Hosted PBX systems
- Supported IP phones: Polycom® and Cisco®.
- Flexible, simplified configuration and installation procedure
- Minimal, if any, phone set-up required.
- Provides paging function to designated IP phones
- Page capacity:
 - WARP Pager 15: Maximum capacity to page 15 simultaneous endpoints
 - WARP Pager 30SZ: Maximum capacity to page 30 simultaneous endpoints
- Direct connection to connect to an external overhead speaker amplifier system using a standard audio line-out jack
- 40 character/image (2 x 20) LCD backlit display - provides status information such as IP address, registration status, and error codes
- Page From Anywhere (PFA) feature – page from offsite (DID recommended)
- Valuable phone soft keys can be saved for other functions.
- Small form factor
- Surface standalone or wall mountable to accommodate any space requirements
- Isolated from hosted solution: can be installed or removed without disruption to hosted services
- Customizable look so you can promote your brand
- Purpose-built solid-state telephony platform with solid state reliability.

Chapter 2 – Overview

PIKA WARP Pager acts as a local SIP User Agent (SIP UA) registered to the BroadWorks host network. Page requests are handled locally by the WARP Pager instead of sending multiple RTP media streams from the host PBX across the WAN to the customer premise.

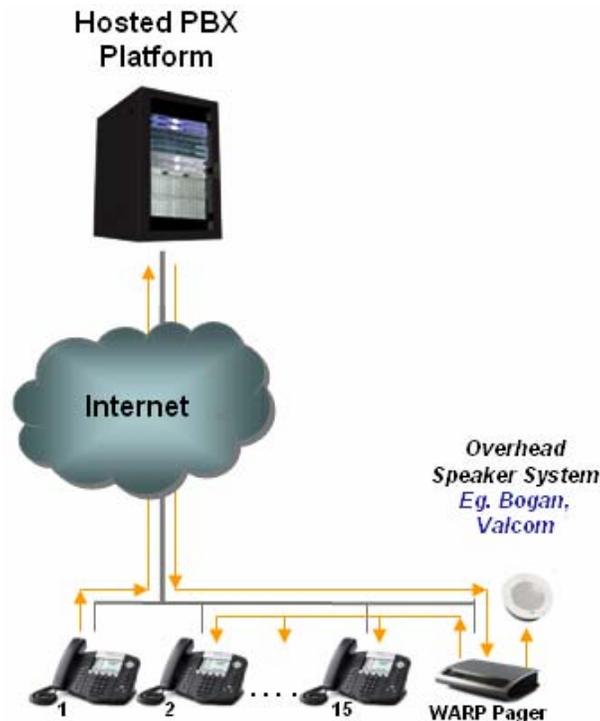


Figure 1 - Network View

The topics in this section describe:

- the pager system requirements
- pager architecture
- overview of the pager application configuration

System Requirements

- Power source: 110V-240V AC (50-60 Hz)
 - Power supply and country specific power cord included in the WARP Pager package.
- Non-VLAN tagged LAN port at the customer premise on the same network as the IP phones in the paging group.
- Standard SIP User Agent (UA) account provided by the hosted PBX service provider
- MAC address & Directory Number (DN) (or user ID) for each IP phone in the paging group
- FTP or TFTP Server with option 66 or 150 or a static FTP/TFTP server
- Optional: USB storage device (required for static FTP/TFTP server configuration)

WARP Pager Architecture

There are two major components of the WARP Pager:

- Pager application software
- Configuration files

The application software performs the following functions:

- FTP/TFTP server discovery and provisioning
 - Locates the configuration files (TFTP/FTP server, USB storage device)
 - Discovers the IP addresses of the phones in each paging group
 - Registers the SIP User Agent (UA) with the host switch
 - Configures and activates the paging group
- Paging Engine
 - Processes paging requests
- Application Upgrades
 - Upgrades application software

The WARP Pager uses configuration files to provision SIP account information used to register with the host switch and to provision a list of phones in the paging group.

The figure below shows the main components and their interaction.

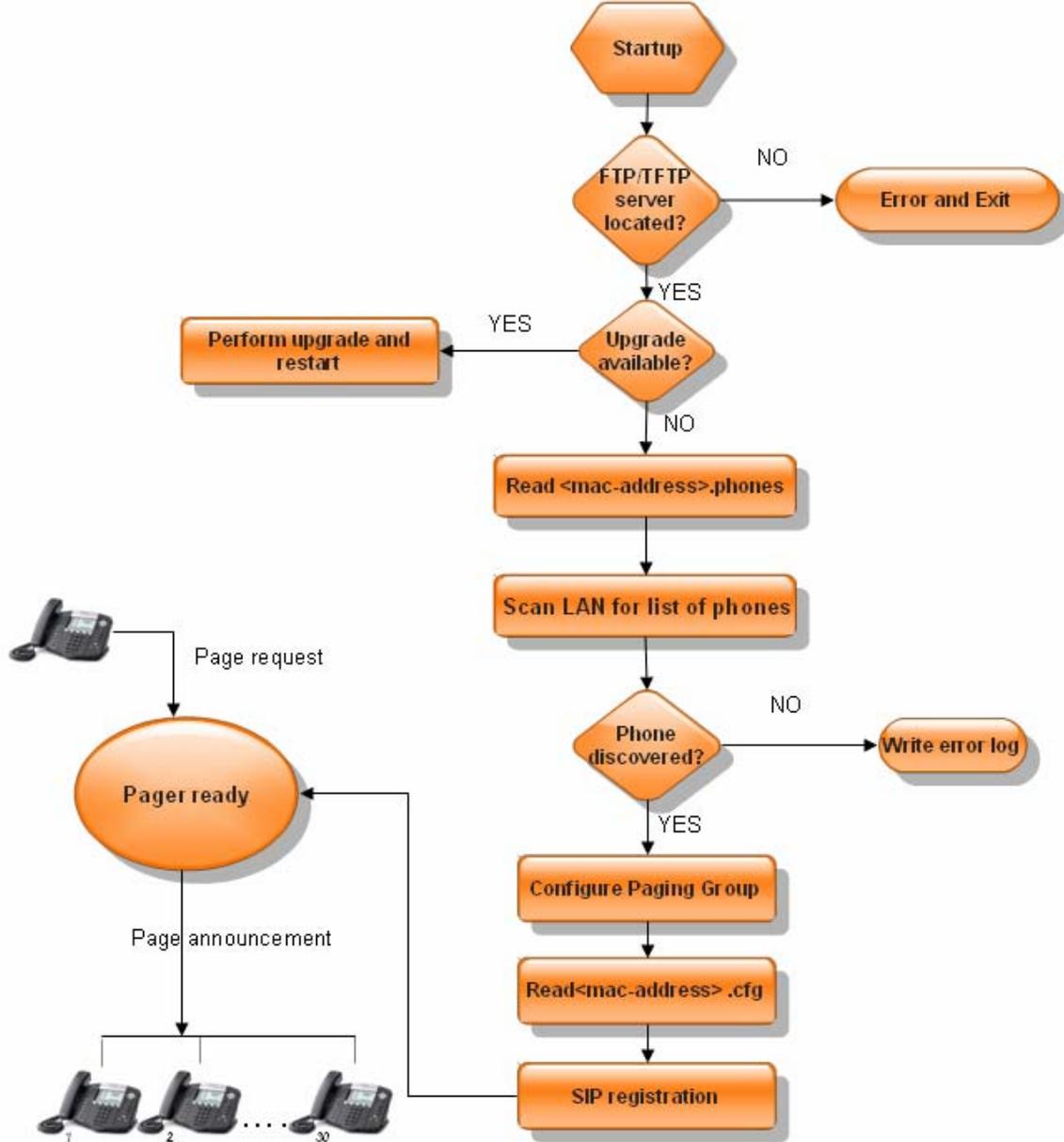


Figure 2 - FTP/TFTP Server Discovery and Pager Provisioning

Pager Application Description

- WARP Pager 15:
 - Maximum capacity to page 15 simultaneous endpoints in a single zone or page group
- Warp Pager 30SZ:
 - Maximum capacity to page 30 simultaneous endpoints
 - Zone paging - 10 zones, 2 including overhead speaker paging
 - Integrated audio line-output jack to drive Overhead Speaker Systems
- Custom SIP Alert-Info header
- Custom Caller ID Name

There is no support for field upgrades from WARP Pager 15 to WARP Pager 30SZ.

Paging uses a SIP Alert-Info header. All phones need to be configured to properly interpret this message and behave accordingly by going off hook (auto-answer) upon receiving the Alert-Info message and playing a page notification tone (ring-answer).

Configuration Overview

The WARP pager uses two configuration files which contain a list of comma separated parameter names and values. Parameters can be listed in any order. The files are retrieved either from a central server accessed by FTP or TFTP or from a USB storage device inserted into the system at the customer premise. We recommend that you use an FTP or TFTP server to store the pager configuration files. Refer to **Chapter 7 – Configuring the WARP Pager Using a USB Device** on page 24 for information about using a USB device to store configuration files.

Using an FTP/TFTP Server

If you use a central FTP or TFTP server, you need the following files to configure the pager:

- The file <mac-address>.phones contains a list of IP Phones and corresponding phone numbers in the paging group where <mac-address> is the MAC address of the WARP Pager unit, for example, 001e840006d9.phones.
- <mac-address>.cfg contains the SIP User Agent (UA) account information assigned to the WARP Pager where <mac-address> is the MAC address of the WARP Pager unit, for example, 001e840006d9.cfg.

The configuration files are uniquely identified using the MAC address of the WARP Pager, which is located on the underside of the unit.

The files are retrieved each time the WARP Pager restarts. When you change any provisioning information, for example, to add a new phone to the list of phones to page, you must restart the WARP Pager. Refer to section **Remote Access** on page 21 for instructions.

Chapter 3 – System Setup

Configuration files for the pager application are typically stored on an FTP or TFTP server. An FTP or TFTP server is required for software upgrades.

If you use a central FTP or TFTP server to store configuration information, you must either configure your network DHCP server to use option 150 or option 66 to automatically discover the server, or you must provision the server IP address using a configuration file on a USB storage device inserted into the WARP Pager at the customer premise. We recommend that you use DHCP.

FTP and TFTP Server Discovery

The server discovery process uses either DHCP or provisioning information in a file on a USB device to locate the FTP/TFTP server.

The figure below shows the discovery sequence.

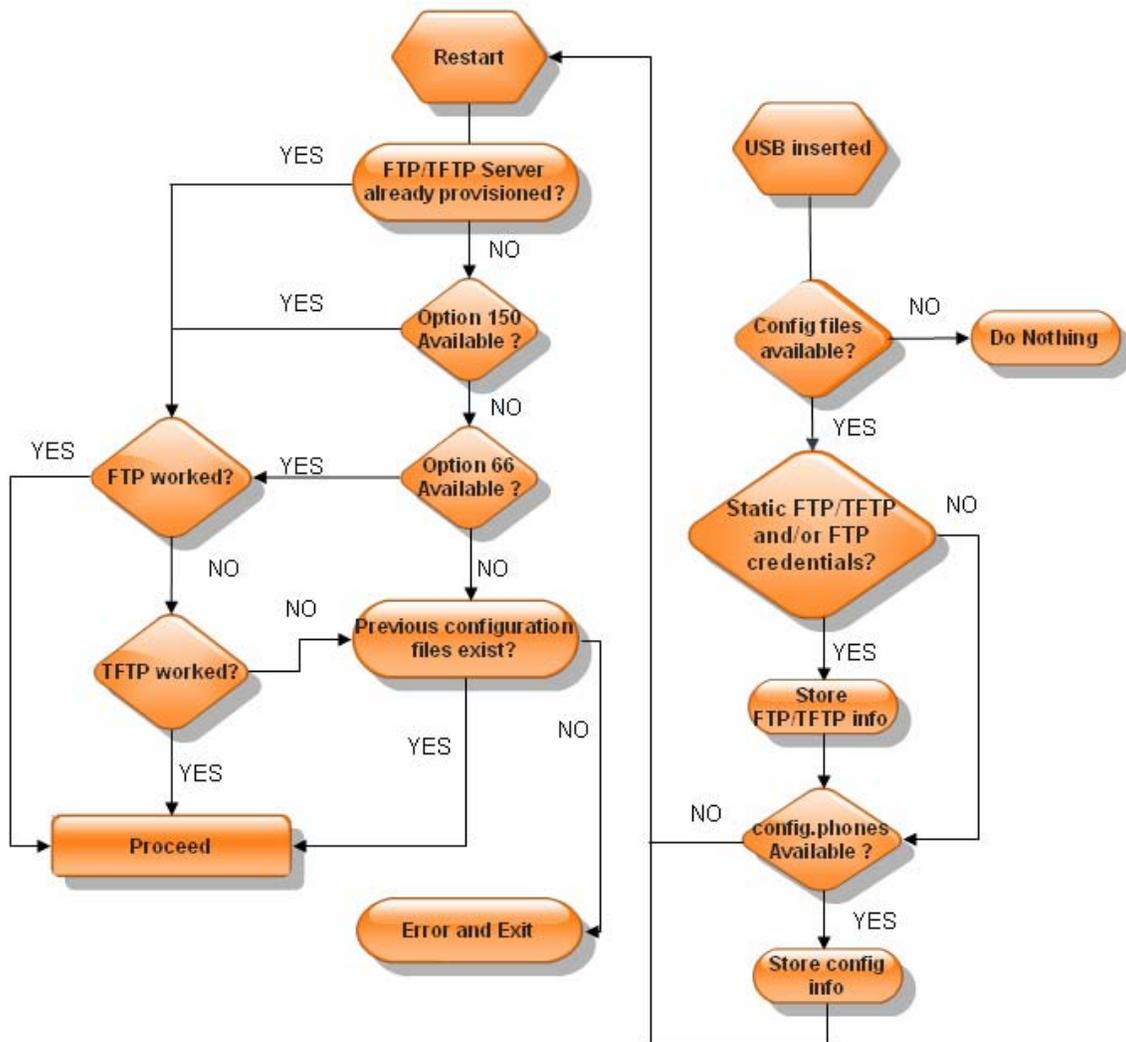


Figure 3 – TFTP/FTP server discovery

DHCP Discovery

The discovery process tries to use DHCP first to locate an FTP or TFTP server. In the DHCP reply message, it checks for the option 150 field and the option 66 field. If the option 150 field is present, it uses the FTP/TFTP server IP address. If the option 150 field is not present, it checks for the option 66 field, and, if present, uses the FTP/TFTP server name. If neither option field is present, the DHCP discovery method fails.

The discovery process only checks the root directory of the FTP/TFTP server for configuration files. While option 150 can optionally support multiple hosts to provide server redundancy, only one host or IP address is supported.

If you use the default FTP user name and password (refer to **Pager Application Configuration** on 11 for more information) or TFTP, discovery is complete, the configuration files are retrieved and the application configuration process continues.

The WARP Pager does not support an FTP user name and password in the DHCP option 66 field. If you have an FTP server that requires a user name and password other than the default values (refer to section **Pager Application Configuration** on page 11), you must provision the values in the file config.cfg on a USB device inserted into the WARP Pager at the customer premise. Refer to **Chapter 7 – Configuring the WARP Pager Using a USB Device** on page 24 for more information.

If the connection to the server fails and there is existing provisioning information available on the WARP Pager, the pager application uses the existing provisioning information.

Chapter 4 – Configuring the Pager

When the FTP/TFTP server discovery procedure finishes, the provisioning information in the configuration files is used to configure the pager application. This chapter describes the parameters in the configuration files.

Pager Application Configuration

The WARP Pager uses two configuration files:

- <mac-address>.cfg (FTP/TFTP server) or config.cfg (USB provisioning) contains parameters for the SIP UA
- <mac-address>.phones (FTP/TFTP server) or config.phones (USB) contains a list of phones, their DN and paging group numbers

Subsequent references refer to file names as <mac-address>.cfg and <mac-address>.phones, however, unless explicitly stated, apply also to the files config.cfg and config.phones, respectively.

The filenames must use lower case and cannot contain colons. Parameters can be listed in any order. When you create the file, ensure that parameters names are spelled correctly in lower case. Any values containing spaces must use '#' as a delimiter, for example, use **Ring#Answer** for the value **Ring Answer**.

SIP Configuration

The parameter values in the file <mac-address>.cfg on the FTP/TFTP server, for example, 001e84005ab.cfg, are used to provision the SIP account for the pager application and, if applicable, the static FTP/TFTP server (USB configuration only). The file format is:

parameter_name, value

The following table describes each parameter and possible values.

Parameter name	Description	Mandatory	Default	Notes
auth_username	Authentication user name provided by the hosted PBX service provider. Used when a Registration Request is challenged.	Yes	None	
auth_password	The password used to authenticate the WARP Pager with the external SIP server.	Yes	None	
username	SIP user agent account name provided by the hosted PBX service provider	Yes	None	
domain	The domain of the external SIP server to register the WARP Pager against.	Yes	None	
domain_proxy	The proxy for the	Yes	None	

Parameter name	Description	Mandatory	Default	Notes
	external SIP server. All SIP packets are sent to the proxy when defined.			
callerid_name	An optional string that overwrites the caller ID name sent by the switch with the value provisioned in this parameter.	No	WARP-PAGER	Ensure that you substitute # for any spaces in the value. If left empty, the default value is used.
answer_string	Defines the payload of the SIP Alert-Info header designated for the phone. This must match what is expected by the phone.	No	Ring#Answer	Consult the user manual for your IP phones for the correct value. Ensure that you substitute # for any spaces in the value. You may need to update the SIP phone configuration. Refer to section SIP Phone Configuration on page 14 for more information. If left empty, the default value is used.
expiration	The time interval used for refresh the registration with the SIP Registrar. This period is typically between 30 and 60 seconds.	No	30	You may need to change this parameter if you use an edge device or SIP proxy that requires a different time interval. If left empty, the default value is used.
dtmfmode	The mode used to receive DTMF digits from the external SIP server. This parameter is used only for the WARP Pager 30SZ.	No	rfc2833	You may need to change this parameter if you are unable to select which group you wish to page by pressing digits on your phone. Valid values for this parameter are: <ul style="list-style-type: none"> • info : Use SIP INFO messages for DTMF digits • rfc2833 : Use RFC2833 • inband : Inband audio (requires 64 kilobit codec -alaw, ulaw) • auto : Use RFC2833 if

Parameter name	Description	Mandatory	Default	Notes
				offered, otherwise, use inband If left empty, the default value is used.
ftp_server	IP address of a static FTP/TFTP server.	No	None	You must use a USB device to provision this value.
ftp_user	The user name used to log on to the FTP server. The FTP server can be provisioned using options 66/150 on your network or with the value of ftp_server in the file config.cfg on a USB device.	No	PlcmSpIp	Mandatory for an FTP server that requires a user name and password. The default value is only used if you are using an FTP server defined by options 66/150 on your network. You must use a USB device to provision this value.
ftp_password	The password used to log on to the FTP server. The FTP server can be provisioned using options 66/150 on your network or using the value of ftp_server in the file config.cfg on a USB device.	No	PlcmSpIp	Mandatory for an FTP server that requires a user name and password. The default value is only used if you are using an FTP server defined by options 66/150 on your network. You must use a USB device to provision this value.

The following shows an example of the file <mac-address>.cfg:

```
username,5551234567
auth_username,55512345678
auth_password,password
domain,yourdomain.com
domain_proxy,proxy.yourdomain.com
callerid_name,WARP-PAGER
answer_string,Ring#Answer
expiration,30
dtmfmode,rfc2833
```

Once SIP registration completes, the LCD shows the SIP registration status. The display shows either **STATUS Registered=YES** or **STATUS Registered=NO**. If any errors occurred during SIP registration, error codes are displayed on the LCD. See **Chapter 5 – Troubleshooting** for details about the LCD display.

Paging Group Configuration

The WARP Pager 15 supports up to 15 phones in a single paging group. The WARP Pager 30SZ supports up to ten paging groups which must be numbered 0 to 9, each of which may contain up to 30 phones. Paging groups 0 and 1 automatically contain the overhead speaker. You can add

additional phones to these groups if you want to page both phones and the overhead speaker with a single call. It is not possible to add the overhead speaker to any other group. If paging group numbers are provisioned in the configuration file for the WARP Pager 15 version, they are ignored.

The list of phones in the paging group is provisioned in the file <mac-address>.phones on the FTP/TFTP server, where <mac-address> is the MAC Address of the WARP Pager, for example, 001e840005ab.phones. Alphabetical characters in the MAC address must be lower case. Do not use colons in the file name. Do not include the WARP Pager extension in the list. The file format is a comma separated list of MAC Address, directory number and paging zone number (WARP Pager 30SZ version only). The file format is:

MAC address, directory number, zone number

MAC address – The MAC address of the phone in lower case

Directory number – The number to dial to call the phone

List of paging groups (WARP Pager 30SZ only) – numeric list of paging groups, values 0 to 9

The following shows a sample <mac-address>.phones file for WARP Pager 15:

```
00:16:d3:2a:c5:78,6135551035
00:e0:18:99:88:77,6135551100
00:00:24:c7:31:68,6135551200
```

The following shows a sample <mac-address>.phones file for WARP Pager 30SZ:

```
00:16:d3:2a:c5:78,6135551035,1,3,6
00:e0:18:99:88:77,6135551100,0,2,4
00:00:24:c7:31:68,6135551200,3,4
```

If any errors occur during pager configuration, error codes are displayed on the LCD. See **Chapter 5 – Troubleshooting** for details about the LCD display.

SIP Phone Configuration

When the phones in the paging group receive the SIP Alert Info message, the auto-answer feature causes the phone to automatically answer the paging call and provide a brief page notification tone. SIP phones in a paging group need the auto-answer feature enabled.

Polycom Phones

For Polycom phones, the recommended definition (tag value pair) for **Ring Answer** is shown below. Add this information to the SIP configuration file (for example, sip.cfg on the TFTP server used by Polycom phones). Ensure that the phone configuration is updated prior to installing the WARP Pager.

```
<alertInfo voIpProt.SIP.alertInfo.1.value="Ring Answer"
voIpProt.SIP.alertInfo.1.class="4" />
<RING_ANSWER se.rt.4.name="Ring Answer" se.rt.4.type="ring-
answer" se.rt.4.timeout="2000" se.rt.4.ringer="2"
se.rt.4.callWait="6" se.rt.4.mod="1"/>
```

The alertInfo.1.class in this example is set to 4 corresponding to the se.rt.4 ring type. The value 4 may be replaced with another number to use a different ring type.

Adding these configuration entries does not impact any other phone features. You can find a sample sip.cfg at <ftp://ftp.pikatech.com/outgoing/Polycom-Sip-Cfg/> .

Refer to the Polycom manual for more details about the available options.

Cisco Phones

Cisco phones do not require any configuration changes to enable auto-answer.

Feature Interactions

The user that initiates the paging announcement should be aware of the following:

- With Polycom phones, if the user's phone is included in the paging group, the user will hear a call waiting tone indicating an incoming call from the WARP Pager. Refer to <http://forum.pikatechnologies.com/showthread.php?611-How-to-prevent-a-Polycom-user-from-receiving-Call-Waiting-Tones-for-there-own-Page> for information about preventing this behaviour.
- With Cisco phones, if the user is a member of the paging group, all the paging calls are put on hold. To avoid this behavior, dial *70 before dialing the paging extension. Refer to <http://forum.pikatechnologies.com/showthread.php?616-Cisco-SPA5XX-Series-Phones-Bargin-in-feature-disrupts-Paging> for more information.
- After dialing the extension for the WARP Pager 15, the user hears a tone to prompt the user to begin speaking into the handset.
- After dialing the extension for the WARP Pager 30SZ, the user first hears an announcement prompting the user to dial a digit corresponding to the group number to page and then hears a tone to indicate that the user should begin speaking.
- If multiple users attempt to page simultaneously, the second user receives a busy tone.

Users receiving paging announcements should be aware of the following:

- Phones with Do Not Disturb (DND) enabled do not receive page announcements.
- If call forward is enabled on a phone, page announcements are not forwarded.
- With Polycom phones, if the user has a call in progress and receives an incoming call from the WARP Pager, they hear a call waiting tone and the caller ID of the WARP Pager is shown on the phone display.
- With Cisco phones, if the user has a call in progress and receives an incoming call from the WARP Pager, the existing call is placed on hold and the user is connected to the paging user. This is a known issue with the “barge-in” function that cannot be turned off on some Cisco phones (models SPA5xx). Cisco acknowledges the issue and has opened feature request CSCti53461 to resolve this. Refer to <http://forum.pikatechnologies.com/showthread.php?616-Cisco-SPA5XX-Series-Phones-Bargin-in-feature-disrupts-Paging> for more information.

Chapter 5 – Troubleshooting

This chapter describes the information available to troubleshoot configuration, registration, network, and upgrade problems.

LCD

Status and error information is displayed on the LCD. During the WARP Pager startup sequence, the display shows the message **Please Wait Loading...**

As part of the startup sequence, the upgrade software checks for new software. If new software is available on the FTP/TFTP server, the display shows messages to indicate the progress of the upgrade.

When the WARP Pager is ready to use, there are four screen displays and you can switch between the displays using the touch sensitive toggle button next to the LCD.



Figure 4 - Toggle Button

The four screens are:

- Title – the main screen, shows either **WARP PAGER 15** or **WARP PAGER 30SZ**. Underneath, **VERSION** *version* shows the version of the software running on the WARP Pager.
- IP Address of the WARP Pager
- SIP registration status - when SIP registration completes, the display shows either **STATUS Registered=YES** or **STATUS Registered=NO**
- Error screen – displays codes for any errors that occur during configuration or upgrade

The following table describes the list of error codes that may be displayed and possible solutions to problems.

Error Code	Description	Diagnosis
1	Could not retrieve configuration files from FTP/TFTP server	Confirm the following: <ul style="list-style-type: none"> • Option 66 or 150 is set on your DHCP server. • If you use an FTP server that requires a user name and password, confirm the values of the parameters in the

Error Code	Description	Diagnosis
		<p>file config.cfg on your USB device:</p> <ul style="list-style-type: none"> ○ ftp_password ○ ftp_user <ul style="list-style-type: none"> ● There is no firewall blocking access to the FTP/TFTP server. ● The FTP/TFTP server is running <p>Consult the file pager.log on the WARP Pager for additional details.</p>
2	Could not retrieve configuration files from static FTP/TFTP server	<p>Confirm the following:</p> <ul style="list-style-type: none"> ● The static FTP/TFTP server information provisioned in the file config.cfg file on your USB device has the correct values for the parameters: <ul style="list-style-type: none"> ○ ftp_server ○ ftp_password (if applicable) ○ ftp_user (if applicable) ● There is no firewall blocking access to the FTP/TFTP server ● The FTP/TFTP server is running <p>Consult the file pager.log on the WARP Pager for additional details.</p>
3	Could not determine the IP address of all the phones listed in the file config.phones or the file <mac-address>.phones	<p>Confirm the following:</p> <ul style="list-style-type: none"> ● All phones are currently turned on ● All phones are connected to the network ● All phones are on the same LAN as the WARP Pager appliance ● MAC addresses of the phones are correct in the file config.phones or <mac-address>.phones ● Phone extensions are correct in the file config.phones or <mac-address>.phones ● The MAC address, extension, and group number (if applicable) must be separated by a comma
4	WARP Pager could not register as a SIP extension using values defined in the file <mac-address>.cfg or the file config.cfg	<p>This error appears if the registration attempt failed or did not complete within the expected time. Touch the toggle button to switch to the STATUS screen to check if the WARP Pager has successfully registered on a subsequent attempt. If it is now successfully registered, you can ignore this error.</p> <p>Confirm the following if the WARP Pager remains unregistered:</p> <ul style="list-style-type: none"> ● Ensure that the registration server information provisioned in the file config.cfg or <mac-address>.cfg has the correct values for the parameters: <ul style="list-style-type: none"> ○ username ○ auth_password ○ auth_username ○ domain or domain_proxy ● There is no firewall blocking access to the registration server.

Error Code	Description	Diagnosis
5	The file config.phones cannot be found.	If you use a USB device to configure the WARP Pager, the file config.phones cannot be found. Ensure that the file exists on the USB device. If you configure a TFTP/FTP server, this error may appear in addition to error codes 1 and 2. Refer to the description of those error codes for more information.
6	The file config.cfg cannot be found.	If you use a USB device to configure the WARP Pager, the file config.cfg file cannot be found. Ensure that the file exists on the USB device. If you configure a TFTP/FTP server, this error may be seen in addition to error codes 1 and 2. Refer to the description of those error codes for more information.
7	The parameter username is missing from the file config.cfg or the file <mac-address>.cfg.	You must provision the parameter username in the file config.cfg or the file <mac-address>.cfg. Ensure that the parameter exists in the file and is spelled correctly.
8	The parameter auth_username is missing from the file config.cfg or the file <mac-address>.cfg file.	You must provision the parameter auth_username in the file config.cfg or the file <mac-address>.cfg. Ensure that the parameter exists in the file and is spelled correctly.
9	The parameter auth_password is missing from the file config.cfg or the file <mac-address> file.	You must provision the parameter auth_password in the file config.cfg or the file <mac-address>.cfg. Ensure that the parameter exists in the file and is spelled correctly.
10	The parameters domain and domain_proxy are both missing from the file config.cfg or the file <mac-address>.cfg.	You must provision the parameter domain or the parameter domain_proxy in the file config.cfg or the file <mac-address>.cfg. Check that one of the parameters exists in the file and is spelled correctly.
11	There is an invalid parameter in the file config.cfg or the file <mac-address>.cfg.	One or more of the parameters in the file config.cfg or <mac-address>.cfg has an invalid name. Ensure that the only the required parameters exist in the file and that all parameters are spelled correctly in lower case. Consult the file pager.log on the WARP Pager for additional details.
12	An upgrade attempt failed.	<p>Confirm the following:</p> <ul style="list-style-type: none"> • The TFTP/FTP server information is correct. <ul style="list-style-type: none"> ○ If you use DHCP, ensure that option 66 or 150 is set on your DHCP server. ○ If you use a static TFTP/FTP server, ensure that the values for the following parameters in the file config.cfg are correct:: <ul style="list-style-type: none"> ▪ ftp_server ▪ ftp_password (if applicable) ▪ ftp_user (if applicable) • There is no firewall blocking access to the FTP/TFTP server. • The FTP/TFTP server is running. • All required files for update are on the FTP/TFTP

Error Code	Description	Diagnosis
		server Consult the file upgrade.log on the WARP Pager for additional details.
13	One or more phones in the file config.phones or the file <mac-address>.phone do not have a group provisioned.	If you use the WARP Pager 30SZ, each phone must have one or more groups provisioned in the file config.phones or the file <mac-address>.phones file. Ensure that all the phones provisioned in the file have at least one group provisioned. Any phone without a group cannot be paged. Consult the file pager.log on the WARP Pager for a list of phones that do not have a group provisioned.
14	One or more phones in the file config.phones or the file <mac-address>.phones have one or more invalid groups provisioned.	The WARP Pager 30SZ supports groups numbered 0 to 9. One or more phones have an invalid group number provisioned in the file config.phones or the file <mac-address>.phones file. Ensure that all phones have valid group numbers in the range 0-9. Consult the pager.log file on the WARP Pager for a list of phones that the error applies to.
15	There are more than 15 phones provisioned in the file config.phones or the file <mac-address>.phones.	The WARP Pager 15 supports a single paging group contain up to 15 phones. Any additional phones provisioned in the config.phones or <mac-address>.phones file are ignored. Consult the pager.log file on the WARP Pager for the list of phones that are ignored.
16	An optional parameter in the file config.cfg or the file <mac-address>.cfg file has an invalid value.	This error applies to the parameters expiration and dtmfmode . The WARP Pager uses the default value for the parameter. Consult the pager.log file on the WARP Pager for a list of parameters that have an invalid value.
17	A parameter in the file config.cfg or the file <mac-address>.cfg was provisioned more than once.	One or more of the parameters in the file config.cfg or the file <mac-address>.cfg has a duplicate. The first instance of the parameter is used and all subsequent instances are ignored. Consult the pager.log file on the WARP Pager for the list of parameters that caused the error.

Logging

The pager application writes status and error messages to log files. Log files are stored on the WARP Pager in the directory /persistent1/pager/logs/current. Instructions to retrieve log files are described below. The following files may be present:

- pager.log – server discovery and pager application configuration messages
- upgrade.log – upgrade status and error messages
- pager.pcap – network packet data for troubleshooting SIP registration issues
- messages – call processing error messages

Log files are rotated to limit the amount of space used. The five most recent sets of logs are available in the directories:

- /persistent1/pager/logs/current
- /persistent1/pager/logs/current1
- /persistent1/pager/logs/current2
- /persistent1/pager/logs/current3
- /persistent1/pager/logs/current4.

Older logs are discarded when the system restarts.

Diagnostic information for server discovery and configuration, (pager.log) upgrades (upgrade.log), and call processing (messages) is always stored. There are no commands to enable and disable these logs.

You can use the application **pcaplogs** to collect network packet data. The syntax is as follows:

```
pcaplogs {on | off} [-h] [-n packets]
```

Argument	Description
-h	Displays help and exits.
on	Enables the pcap logging when the system starts.
off	Disables the pcap logging when the system starts and stops any current pcap logging.
-n <i>packets</i>	The number of packets to capture before logging stops. The default value is 1000.

You must restart the WARP Pager to enable or disable pcap logs. Logging stops automatically either when the requested number of packets has been collected or the next time the WARP Pager restarts.

To enable logging, you must log on to the WARP Pager using an SSH client. The WARP Pager has a **pager** user account and the corresponding default password is **pikapika**.

To enable pcap log, type **sudo pcaplogs on** at the Linux command prompt and then type **sudo reboot** to restart the WARP Pager.

To enable pcap logs and change the number of packets to collect, type **sudo pcaplogs on -n** *packets* at the Linux command prompt and then type **sudo reboot** to restart the WARP pager.

You can set the number of packets to collect before or while logs are enabled. Changes take effect on the next restart.

To stop logging, restart the WARP Pager.

Chapter 6 – Other Administrator Tasks

This chapter describes how to:

- Log on to the WARP Pager from another computer
- Perform administrative tasks on the WARP Pager
- Upgrade the WARP Pager software.

Remote Access

You need to log on to the WARP Pager to perform the following tasks:

- Change the password for the **pager** user account
- Restart the WARP Pager
- Enable or disable pcap logs (refer to the previous chapter)
- Retrieve logs
- Enable or disable the HTTP server or change the access credentials
- Change the time zone

To log on to the WARP Pager from another computer, you need to use an SSH client to open a session to the WARP Pager. The WARP Pager has a **pager** user account and the corresponding password is **pikapika**.

Changing the Password for the pager User Account

To change the password for the **pager** user type **passwd** at the Linux command prompt on the WARP Pager. Follow the prompts to enter a new password.

Restarting the WARP Pager

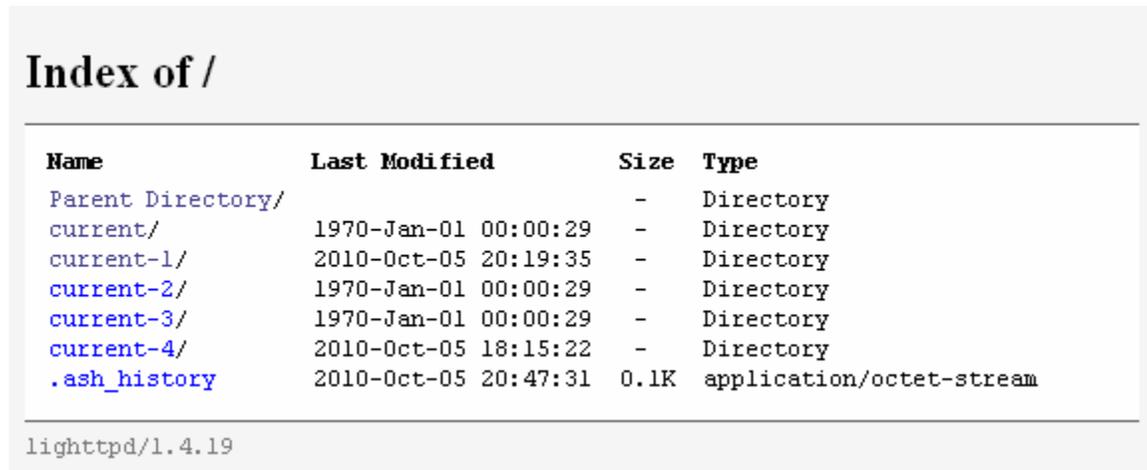
After performing certain tasks, you may need to restart the WARP Pager. To restart the WARP Pager, type **sudo reboot** at the Linux command prompt.

Retrieving Logs

When you log on, the home directory for the **pager** user is `/persistent1/pager/logs`. There are two methods you can use to copy the logs from this directory to another computer:

- Run an SCP client, such as WinSCP, on another computer and copy the logs from the WARP Pager to the computer.
- Type the IP address of the WARP Pager into the address bar of any standard Web browser. The default user name is **pager** and the password is the same as the pager user account (the default password is **pikapika**). The Home page displays the list of directories that contain log files. Click the hyperlinks to navigate the directory structure or to view files. To save a file, right-click on the hyperlink for the file.
 - In Firefox, click **Save Link As...** The **Save As** dialog box appears. Click **Save** to save the file to your computer.
 - In Internet Explorer, click **Save Target As...** The **Save As** dialog box appears. Click **Save** to save the file to your computer.

The following shows a sample Home page.



The screenshot shows a web browser displaying the home page of an HTTP server. The page title is "Index of /". Below the title is a table listing files and directories. The table has four columns: Name, Last Modified, Size, and Type. The entries are: Parent Directory/ (Directory), current/ (Directory), current-1/ (Directory), current-2/ (Directory), current-3/ (Directory), current-4/ (Directory), and .ash_history (application/octet-stream). At the bottom of the page, the text "lighttpd/1.4.19" is visible.

Name	Last Modified	Size	Type
Parent Directory/		-	Directory
current/	1970-Jan-01 00:00:29	-	Directory
current-1/	2010-Oct-05 20:19:35	-	Directory
current-2/	1970-Jan-01 00:00:29	-	Directory
current-3/	1970-Jan-01 00:00:29	-	Directory
current-4/	2010-Oct-05 18:15:22	-	Directory
.ash_history	2010-Oct-05 20:47:31	0.1K	application/octet-stream

lighttpd/1.4.19

Figure 5 - HTTP Server Home Page

Configuring the HTTP Server

You can use the application **http-config** to configure the HTTP server. The syntax is as follows:

```
http-config [on] [off] [-h] [-u username] [-p password]
```

Argument	Description
-h	Displays help and exits
on	Enables the http server when the WARP Pager starts
off	Disables the http server when the WARP Pager starts
-u <i>username</i>	The user name used to access the http server.
-p <i>password</i>	The password used to access the http server

To change the configuration, at the Linux command prompt, type **sudo http-config** and include the parameters you want to change. For example:

```
sudo http-config on -p n3wPassword
```

To activate the changes, you must restart the WARP Pager by typing **sudo reboot** at the Linux command prompt.

Setting the Time Zone

The time on the WARP Pager is automatically set to the UTC time zone the first time the system starts. To change the WARP Pager to use your time zone, on the WARP Pager, type **sudo timezone** at the Linux command prompt. Use the menus to select your time zone.

Upgrading the WARP Pager Software

When PIKA Technologies releases new versions of the pager software, a Windows zip file and Linux tarball are available from the PIKA Technologies Web site. Note that there is no support for field upgrades from WARP Pager 15 to WARP Pager 30SZ.

The upgrade package contains the following:

- Image files required for the upgrade. Only the files needed for the new software version are included in the package.
- The file `pager.update` which the upgrade process uses to determine what software to upgrade. Do not modify the contents of this file.

If you want to upgrade only a single WARP Pager on your network, you need to rename the file to `<mac-address>.update`, where `<mac-address>` is the MAC address of the WARP Pager you want to upgrade. Alphabetical characters in the MAC address must be lower case. If the file name remains `pager.update`, all pager systems on the network are upgraded. Note that you cannot upgrade the WARP Pager using a USB device.

The upgrade process runs each time the WARP Pager starts. It checks for the upgrade files on the FTP/TFTP server and, if the files are present, performs the upgrade only if the software running on the WARP Pager is different from the software in the upgrade package.

To upgrade the software, perform the following steps:

1. Download the upgrade package from the PIKA Technologies Web site to the computer or server that runs the TFTP/FTP server used for WARP Pager configuration files.
2. Unpack the files using the appropriate program, for example, WinZIP for Windows or tar for Linux. You must put the files into the same directory as the pager configuration files.
3. Rename the file to `<mac-address>.update` if you want to upgrade a single WARP Pager.
4. Log on to the WARP Pager and restart it. Refer to section **Remote Access** on page 21 for instructions.

During the upgrade sequence, the LCD shows progress messages. If you are present at the customer premise during the upgrade, do not interrupt the upgrade sequence in any way (press the reset button, disconnect the power).

The upgrade process restarts the WARP Pager automatically to activate the new software. After approximately 10 minutes, the upgrade finishes and the WARP Pager is ready to use. To check if the upgrade was successful, you can now use an SSH client to connect to the WARP Pager. The file `/persistent1/pager/logs/current1/upgrade.log` contains status and error information about the upgrade. Error codes for the upgrade are shown on the LCD ERRORS screen.



If you configure the WARP Pager from a USB device and do not specify a TFTP/FTP server in the file `config.cfg`, you cannot upgrade the Pager software.

Chapter 7 – Configuring the WARP Pager Using a USB Device

You can use a USB storage device to:

- Provision an FTP server user name and password
- Provision a static FTP/TFTP server, with or without a user name and password
- Provision the WARP Pager application

You need the following files:

- config.cfg (used instead of <mac-address>.cfg)
- config.phones (used instead of <mac-address>.phones)

Store the configuration files on the USB device and insert the USB device into the WARP Pager at the customer premise, either before you start the WARP Pager, or while it is running.

Once information has been read from the file on the USB device, a message on the LCD prompts you to remove the USB device and restart the pager system. Use a pen or other pointed object to press the reset button on the back of the unit. After the system restarts, the pager application configuration proceeds.

Information from the files on the USB device is stored on the WARP Pager and used after any subsequent system restarts. If at any point you need to change information in any of the configuration files, you need to repeat the procedure described above. Do not insert the USB device into the WARP Pager unless you need to change any provisioning information.

If configuration files are present on the FTP/TFTP server, files on the USB storage device are ignored. To avoid confusion, we recommend that you store configuration files only on a central server or only on a USB device.

Provisioning an FTP User Name and Password

If you want to use a user name and password other than the default for an FTP server (discovered by DHCP or provisioned in the file config.cfg), you need to provision the values in the file config.cfg using the following file format:

parameter_name, value

Set the value of the parameter **ftp_user** to the FTP server user name and the value of the parameter **ftp_password** to the FTP server password in the file config.cfg. For example:

```
ftp_user,user_name  
ftp_password,your_ftp_password
```

If you use the USB storage device only to provide FTP credentials, it is not necessary to provision any additional information in the file config.cfg.

Provisioning a Static FTP/TFTP Server

To use a static FTP or TFTP server, you need to provision the information in the file config.cfg using the following file format:

parameter_name, value

In the file `config.cfg`, set the parameter **ftp_server** to the IP address or domain name of the server. For example:

```
ftp_server, ip_address
```

If you want to use a user name and password for the FTP server other than the default, in the file `config.cfg`, set the value of the parameter **ftp_user** to the FTP server user name and set the value of the parameter **ftp_password** to the FTP server password. For example:

```
ftp_user, user_name  
ftp_password, your_ftp_password
```

The values for **ftp_user** and **ftp_password** are used only if an FTP server is used (static or discovered using DHCP). These fields are optional if your FTP server uses the default credentials for Polycom phones.

If you use the USB storage device only to provide TFTP/FTP information, it is not necessary to include any other parameters in the file `config.cfg`. See **Chapter 4 – Configuring the Pager** on page 11 for information about configuration files.

If a TFTP/FTP server is provisioned in the file `config.cfg`, in addition to the SIP UA configuration information, it is used only during software upgrades. If no FTP or TFTP server information is provisioned, it is not possible to upgrade the application software.

Pager Application Configuration

If you use a USB storage device to configure the pager application:

- The file `config.phones` contains a list of IP Phones and corresponding phone numbers in the paging group.
- The file `config.cfg` contains the SIP User Agent (UA) account information assigned to the WARP Pager and FTP or TFTP server information.

To change any provisioning information, for example, to add a new phone to the list of phones to page, you need to repeat the procedure described at the beginning of this chapter to use a USB device.