NetServer 5.4.0 Administrator Guide

iPass NetServer is designed to receive access request packets from a Network Access Server using the RADIUS protocol, and route them through the iPass network. The NetServer 5.4.0 Administrator's Guide provides instructions for installation, configuration and operation of NetServer at an iPass network provider site.

Main Topics

- Architecture
- Installation
- Configuration
- ipassNS. properties
- Running NetServer
- Sample iPassNS.properties File
- Third Party RADIUS Configurations

NetServer 5.4.0 Release Notes

Previous NetServer Documentation

NetServer Printable Administrator's Guide

The NetServer Printable Administrator's Guide is not an interactive PDF. Its function is strictly for printing.

- NetServer Administrator's Guide

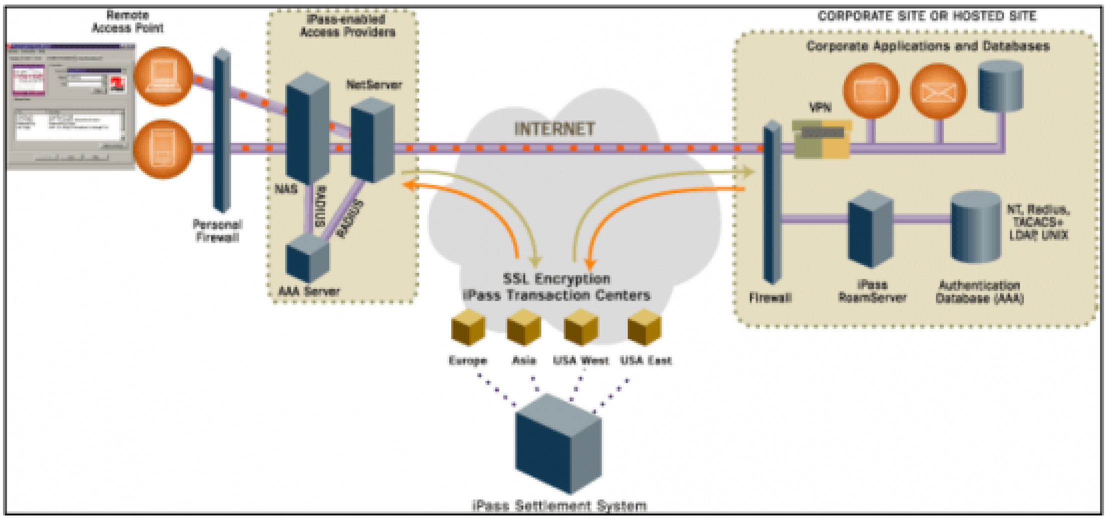
Go to: Other Product Documents

netserver

NetServer Architecture

The Authentication Cycle

Access requests sent over the iPass network travel a complete cycle from remote endpoint to corporate sites. The complete cycle, illustrated here, works as follows:


Remote Access Point
iPass-enabled Access Providers
NetServer
NAS
RADIUS
RADIUS
AAA Server
Personal Firewall
INTERNET
SSL Encryption
iPass Transaction Centers
Europe
Asia
USA West
USA East
iPass Settlement System
CORPORATE SITE OR HOSTED SITE
Corporate Applications and Databases
VPN
NT, Radius, TACACS+ LDAP, UNIX
Firewall
iPass RoamServer
Authentication Database (AAA)

1. A remote user connects to an iPass-enabled network provider with the iPassConnect client software.
2. The request is sent using the RADIUS protocol to a Network Access Server (NAS) at the provider site, where it is authenticated against the local AAA server and determined to belong to an iPass customer.
3. Depending on the configuration, either the NAS or the AAA forwards this information through RADIUS (UDP) to the NetSErver, which sorts the requests and identifies valid iPass users. These packets are translated into the iPass protocol using Secure Sockets Layer (SSL) encryption before the NetServer transmits the m to one of the iPass Transaction Centers.
4. The iPass Transaction Center verifies if the NetServer from which it received the request is configures as a valid source IP address in its database. If not, it rejects the request.
5. The Transaction Center records the user's authentication request and examines the realm to determine whether it is registered to an iPass customer account. If the realm is valid, the user's credentials are forwarded to an iPass RoamServer at the associated provider or corporation for authentication.
6. At the corporate or provider site, the RoamServer receives each user authentication or accounting request, decrypts and translates the packet to the native authentication protocol (RADIUS, TACACS+, LDAP, etc), and forwards it to the local AAA server for authentication and authorization.
7. After the AAA server has authenticated the user, the response packet is sent back to the RoamServer to be re-encrypted, before it is returned through SSL to the iPass Transaction Center and back to the NAS at the iPass provider site where the request was initiated.
8. If the session is authorized, the provider's NAS establishes a PPP session, assigning the user an IP address, default gateway, and a DNS server address, granting access to the Internet.
9. To access resources behind the company's firewall, the remote user initiates a virtual private network (VPN) client and enters a second password to obtain authorization for access to the

corporate network. Once authorized, the VPN creates a tunnel between the user and the corporate network to allow encrypted data to travel securely over the Internet.

Go to: Other Product Documents > NetServer Admin Guide

Installation

This section contains instructions on how to install or upgrade NetServer.

Preparation

Before installing NetServer, you should have already installed your RADIUS AAA server or NAS, and configured and tested the appropriate databases to authenticate your own local users.

You should have the following information:

- The IP address of the host on which you plan to install NetServer (this should be the local IP address). Your certificate cannot be validated until iPass places this IP address into our database.
- The IP address and port numbers of your RADIUS server.
- Your iPass Code, given to your company when it signed up with iPass. If you do not have this code, please contact your iPass NetServer Installation Engineer.
- Your username and password for the iPass FTP site where you will download the software. If you do not have these credentials, please contact your iPass NetServer Installation Engineer.

In addition, you should make sure that you have access to the following:

- A Mail Transfer Agent (such as Sendmail) installed and configured to allow you to send the certificate request.
- Root access on the NetServer host.

System Requirements

Host Requirements

A host running NetServer 5.4.0 must meet these requirements:

- Pentium II processor (or equivalent RISC processor)
- 512 MB RAM
- 128 MB free RAM, 256 MB recommended
- 256 MB permanent disk space, 500 MB recommended

Installation Requirements

The NetServer installation process requires these system resources:

- 60 MB temporary disk space
- SMTP services for transmitting the certificate request
- This request can be sent using FTP if SMTP services are not available.

Supported Platforms

NetServer 5.4.0 is supported on Linux CentOS 5.7.

Interoperable RADIUS Servers

The list of RADIUS servers with which NetServer is interoperable includes, but is not limited to:

- FreeRADIUS (recommended)
- RADIATOR (recommended)
- Cistron RADIUS
- DTC RADIUS, v2.02 and later
- Interlink Networks Advanced Server (AAA)
- FUNK Steel-Belted RADIUS v3.0 and later
- Ascend Access Control (Extended RADIUS)
- Ascend RADIUS 960112, 970224
- Vircom RADIUS
- Navis RADIUS
- Merit (Enterprise Editions only)

Additional Operational Requirements

Additional operational requirements include: Connectivity to a primary RADIUS capable of proxying authentication and accounting packets.

Domain Name Server (DNS) installed and configured to work with the NetServer host.

Connectivity to the iPass Transaction Servers. The TCP/IP protocol is required to support the SSL-encrypted connection between the NetServer and the iPass Transaction Centers.

Other processes, such as a firewall or authentication server, can be run on the platform concurrently with NetServer.

Firewall Rules

If NetServer 5.4.0 is installed behind a firewall or other network address translation device, you must enable the firewall rules shown in the following table. Notes at the end of the table give more information.

Purpose	Inbound	Source IP(s)	Destination IP(s)	IP	Port	Protocol
iPass Transaction Center Auth4(Sydney,AU)		x		216.239.98.126	9101	TCP/IP
iPass Transaction Center Auth5(Sunnyvale,CA)		x		216.239.99.126	9101	TCP/IP
iPass Transaction Center Auth7(Atlanta,US)		x		216.239.11.126	9101	TCP/IP
iPass Transaction Center Auth8(London,UK)		x		216.239.105.126	9101	TCP/IP
iPass Transaction Center (TBD)		x		216.239.101.126	9101	TCP/IP
iPass Transaction Center (TBD)		x		216.239.102.126	9101	TCP/IP
iPass Transaction Center (TBD)		x		216.239.103.126	9101	TCP/IP
iPass Transaction Center (TBD)		x		216.239.104.126	9101	TCP/IP
iPass Transaction Center (TBD)		x		216.239.107.126	9101	TCP/IP
iPass Transaction Center (TBD)		x		216.239.108.126	9101	TCP/IP

Purpose	Inbound	Outbound	Source IP(s)	Destination	Port	Protocol	Notes
iPass Transaction Center (TBD)		x		216.239.109.126	9101	TCP/IP	
iPass Transaction Center (TBD)		x		216.239.110.126	9101	TCP/IP	
Monitoring		x		216.239.99.200	1984	TCP/IP	
Monitoring	x		216.239.99.200		1984	ICMP(ping)	
Monitoring		x		216.239.100.200	1984	TCP/IP	
Monitoring	x		216.239.100.200		1984	ICMP(ping)	
Configuration Upload Server		x		216.239.111.209 216.239.111.200	9101	TCP/IP	NetServer sends its configuration file on a regular basis to the Configuration Upload Servers.
Software Update Server		x		216.239.99.209 216.239.99.200	9101	TCP/IP	NetServer periodically checks for software updates on Update Server.

SSH access for troubleshooting and routine maintenance.	x		216.239.97.227		22	TCP/IP	SSH access from the iPass Operations Center should be allowed for troubleshooting and routine maintenance.

Supported RADIUS Attributes

NetServer 5.4.0 supports the following RADIUS attributes:

- All attributes form RFC 2865 and 2866
- From RFC 2869: EAP-Message, Message-Authenticator, NAS-Port-Id
- From RFC 4372: Chargeable-User-Identity (CUI)

Graceful Forwarding: NetServer authentication and accounting will drop attributes that are not listed in RFC 2865 and 2866, but packets are still forwarded.

NetServer Default Ports

- SSL port=11811
- Authorization port=11812(NetServer uses a different port than RADIUS)
- Accounting port=11813
- Proxy authorization port=11817
- Proxy sccounting port=11818

The Installation Process

The installation process consists of downloading the installation file and then installing the software.

Downloading

You will need to download NetServer installation file from our secure FTP site. Contact your iPass installation engineer for your FTP username and password.

To download the NetServer installation file:

1. At a command line, type: ftp ftp.ipass.com

2. At the username prompt, type your FTP username.

3. At the password prompt, type your FTP password.

4. Type: cd NS/5.4.0

5. Type: bin

6. Type: get <correct version for your OS>

7. When the download is complete, type: bye.

Directory names and filenames are case-sensitive.

Installing the Software

This Guide uses the term <NS_Home> for the NetServer 5.4.0 installation directory. The default is /usr/ipass/netserver/5.4.0.

To install the NetServer 5.4.0 directories:

1. Type chmod +x nssetup_<version>_<platform>.bin, where <version> and <platform> are the version number and platform of your NetServer.

2. Type ./nssetup_<version>_<platform>.bin to run the installation program

3. Review and approve the End User License Agreement.

4. Enter the information requested by the installation program. By default, this will create a hierarchy in /usr/ipass/netserver with all the necessary directories and files. In order for NetServer to run correctly, you must keep the file hierarchy as it is installed. However, NetServer can be installed in any location.

The Migration Tool

Migrating from NetServer 3.9.x to NetServer 5.4.0

If you are upgrading to NetServer 5.4.0 from version 3.9.x, the Migration Tool will run automatically as part of the installation process. In NetServer 5.4.0, the multiple configuration files formerly used in NetServer 3.9.x (ipass.conf, proxy, clients, and authsites.conf) have been combined into a single configuration file called ipassNS.properties. The Migration Tool will convert your old configuration files into the new ipassNS.properties, and copy certificates and keys from the old installation.

The migration should be completed automatically. However, if any of these files are missing, the Migration Tool can be run manually.

Manual Migration

If migrating from NetServer 3.9.x to 5.4.0: run ns_migration_tool.csh 1 <old install directory>

<new NS_Home>

For example, ns_migration_tool.csh 1 /usr/iPass /usr/ipass/netserver/5.4.0

If migrating from NetServer 5.x to 5.y, run ns_migration_tool.csh 2 <old install directory> <new NS_Home>

For example, ns_migration_tool.csh 2 /usr/ipass/netserver/5.2.0 /usr/ipass/netserver/5.4.0

The NetServerd Script

The script NetServerd is not included in the Migration Tool process, so command line options it contains will not be carried over to the new version of NetServer. This may trigger the following issues:

- Non-Default Ports: The NetServer 5.x Migration Tool assumes that your NetServer runs on the default port of 11811. If this is not the case, after you run the Migration Tool, you will need to edit the following attributes in the ipassNS.properties file:

- Listener1=Type=RADIUS,Port=<port number>
- Listener2=Type=RADIUSProxy,Port=<port number>
- **Dual-Homed Hosts**: If NetServer 3.9x runs on a dual-homed host, the Migration Tool may not bind NetServer to the correct IP address. You will need to check that the ipassNS.properties file reflects your correct IP address.
- **Port Settings**: The migration tool will automatically migrate your previous port settings from NetServer 5.01 or 5.1.1 to 5.4.0. However, for NetServer 3.9, port settings must be configured manually.

Converted Properties

This table lists the properties converted by the Migration Tool, and the new 5.4.0 properties that each maps to in ipassNS.properties.

3.9.x Property	Converted 5.4.0 Property
add_ascend_from_config (and all ascend_data_filterN	AscendDataFilterN, where N is a number starting from one
append_nas_port_type	AppendNasPortType
auth_cache_days	AuthCacheDays
calling_it_to_dna	EnableEquantDna
debug_level	DebugLevel
isp_code	CustomerId
LOCAL ACCT RECORD	LocalAccounting
multi_provider	MultiProvider(and all IP Address mapping to an iPass provider ID, based on list of valid clients)
strip_realms (and all strip_realmN)	StripRealmN, where N is a number starting from 1
use_calledstationid_for_authcache	UseCalledStationIDForAuthCache
use_equantdna_for_authcache	UseEquantDnaForAuthCache
use_nasipaddress_for_authcache	UseNasIpForAuthCache

Rollback Procedure

If you need to roll back your NetServer 5.4.0 installation to a previous version, follow the appropriate procedures listed here.

These instructions assume that NetServer 3.9.x is installed in /usr/ipass, and NetServer 5.4.0 is installed in /usr/ipass/netserver.

To rollback NetServer 5.4.0:

1. If necessary, stop NetServer 5.4.0 as follows:

a. Type: cd /usr/ipass/netserver/5.4.0/bin

b. Type:./netserverd stop

c. Check if the process stopped by typing: ps -auxwww | grep ipassns

d. If the process did not die, execute: ./netserver kill

e. Verify that the process stopped by typing: ps -auxwww | grep ipassns

2. Change the softlink file /usr/ipass/netserver/current_version to point back to the previous NetServer directory /usr/ipass/netserver/<NS Version>, as follows:

a. cd to /usr/ipass/netserver/

b. rm current_version

c. ln –s /usr/ipass/netserver/5.1.1 current_version

3. Start the old NetServer:

a. cd to /usr/ipass/netserver/<NS Version>/bin

b. run ./netserverd start

To roll back NetServer 5.4.0 to 3.9.x,

1. Stop NS 5.4.0 (if necessary):

a. **Enter:** cd /usr/ipass/netserver/5.4.0/bin

b. **Enter:**./remove.sh

c. **Check if process stopped by typing:** ps -auxwww | grep ipassns

d. **If the process did not stop, execute:**./netserverd kill

2. Check if process is stopped by doing ps -auxwww | grep ipassns

3. Add the NetServer 3.9.x restart script:

e. cd/usr/ipass/scripts/

f. **Run**init.sh

4. Restart NetServer 3.9.x by running /etc/init.d/netserverd start

Optionally, you can also remove all installed components of NetServer 5.4.0.

Uninstalling NetServer 5.4.0

To uninstall NetServer 5.4.0:

1. Type: cd /usr/ipass/netserver

2. Type:rm –rf 5.4.0

NetServer Binding

To bind to a local IP for outgoing requests to the Transaction Servers, you need to configure the LocalIpAddress attribute of your IpassServers property:

To view iPass Transaction Server information, type: /usr/ipass/netserver/5.4.0/bin>ipassconfig.csh -help IpassServer

Sample format of IpassServer:

IpassServer1 = name11=value11,name12=value12,…

IpassServer2 = name21=value21,name

See the Property Glossary for more information on configuring this value.

Go to: Other Product Documents > NetServer Admin Guide

netserver

Configuration

There are two ways to configure your network architecture to allow the NetServer to route iPass access requests. These configurations vary depending upon where the NetServer is installed in relation to your NAS and AAA servers.

Configuration Types

NetServer Behind the AAA Server

The most common configuration, and the one iPass recommends, places the NetServer behind the provider's entire authentication system. In this scenario, all incoming authentication requests are received by the NAS and forwarded to the RADIUS AAA server. The RADIUS server performs the primary sorting and routing functions, separating iPass users from the provider’s other users.

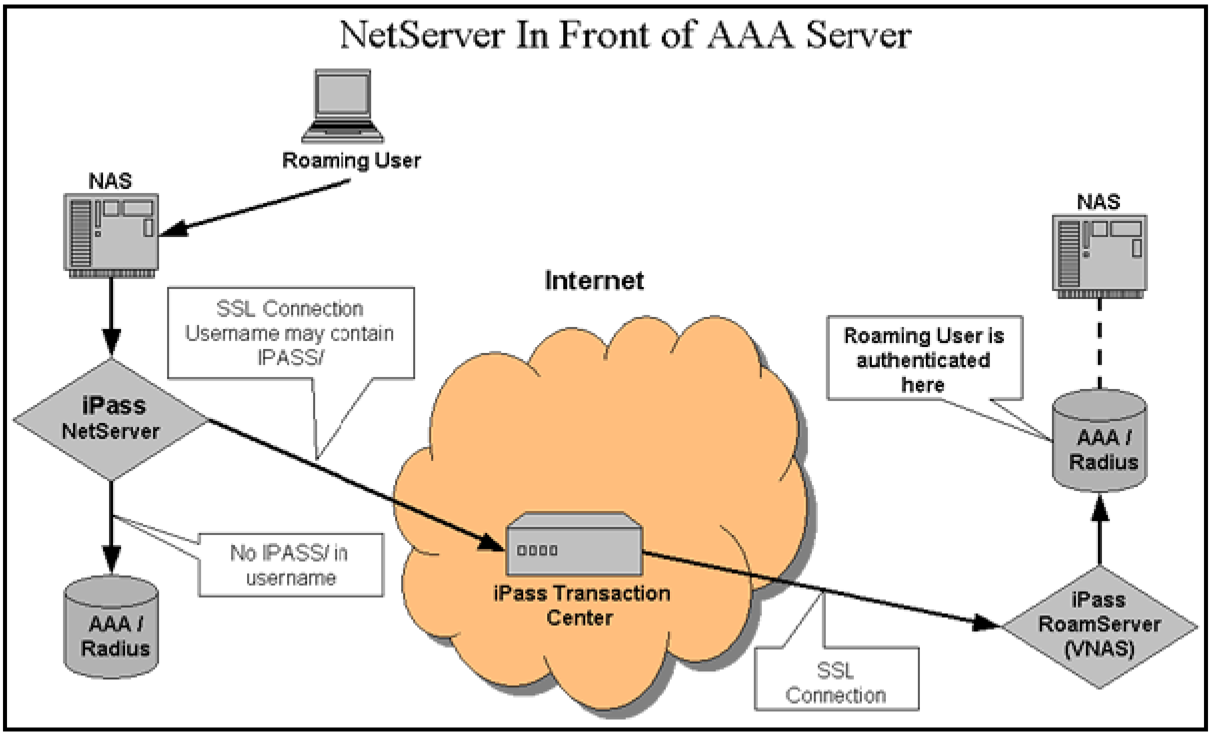
When iPass requests are received, the RADIUS server will forward the packets to the NetServer, which will then forward them to one of the iPass Transaction Centers. The RADIUS server will recognize all other packets as provider requests and authenticate the users accordingly.

With NetServer behind the AAA, in the rare event of NetServer failure, normal AAA authentication procedures are not impacted. Also, if there is a problem with accounting records received by the iPass Transaction Center, the provider can submit copies from the AAA server to resolve discrepancies.

This solution can only be implemented if the existing RADIUS server supports proxy.

NetServer In Front of the AAA Server

In this scenario, the NetServer will perform the primary sorting and routing functions, separating local users from iPass customers. The NetServer will scan the realm of each packet, and route all requests with the IPASS/ prefix to an iPass Transaction Center. All other packets will be routed to the local AAA server for authentication.



NAS Configuration

To support this type of network architecture, you must reconfigure the NAS to proxy all access requests to the NetServer rather than the AAA server. To do so, you will need to use the NAS configuration utility to allow the NAS to forward all authentication and accounting requests to the NetServer's IP address, port numbers and the shared secret listed for the NAS in the ipassNS.properties file.

For additional information about configuring your NAS, please refer to the documentation included with the software or contact the manufacturer for assistance.

ipassNS.properties File

The main NetServer configuration file is called ipassNS.properties. By setting properties in the file, you can enable or disable NetServer functions. (Enabling some features might involve setting more than one property.)

NetServer will periodically upload its encrypted ipassNS.properties to an upload server, including at startup. This information will be used for diagnostic and troubleshooting purposes across the iPass network.

An example of the ipassNS.properties file is shown in Appendix 1.

Viewing Properties

To view any property value, run: ipassconfig.csh -get <property name>

To view all property values, run: ipassconfig.csh -listall

Editing Properties

You can edit the file and add, change or delete properties in several ways:

- Run ipassconfig.csh -conf in your <NS_Home>/bin directory. This is the recommended method and is explained in detail on under *Initial Configuration*on page 16.
- To set a specific property value, run ipassconfig.csh -set <property name> <value>
- You can also use a text editor. However, we strongly recommend use of the ipassconfig.csh script, when possible, to ensure correct naming and formatting of property names and values.

- To set a new property value in a text editor, open the file and type in the name and value of a new property. If a text editor is used, properties should be set by entering: <property name>=<value>.

You will need to reload the properties file, or restart the NetServer, in order for your edits to go into effect.

Property names are case-sensitive, but property values are not. Valid values for Boolean properties are: true, false, yes, no, y, n.

For information on particular properties, see the Property Glossary.

Configuration Procedure

Before first running NetServer, you must perform some initial setup tasks and receive a digital certificate from iPass. This section explains how to complete these tasks.

Configuration Checklist

NetServer configuration consists of the tasks in this checklist. Page indicates the page of this document where the procedure is described in more detail.

Task	Page
1. Set initial configuration by running ipassconfig.csh	16
2. Certify the NetServer.	17
3. Run the init.sh script.	18
4. If necessary, configure your RADIUS server for iPass traffic.	36
5. Test the installation.	18

Initial Configuration

Initial congfiguration is done by running the ipassconfig.csh script, which sets many of the properties in your ipassNS.properties file.

To initially configure NetServer: 1. In <NS_Home>/bin,run ipassconfig.csh -conf. Supply the requested information as outlined here. For each script entry, the value shown in square brackets [] is the default. Where applicable, you can press enter to use default values.

2. **Time and Fate Verification**: (Default Value=Yes)the date/time stamp must be correct and correspond with the information in the iPass database in order to validate the certificate.

3. **Customer ID**: (Default Value=1) Enter your customer ID, supplied by iPass. This is the same ID number used on your iPass Web site login.

4. **Debug Level**: (Default Value=0): Debug level determines how debugging and error messages are logged to a trace file. Debug level can be any value from 0 to 5, with 0 generating only critical error messages and 5 generating the most detailed and extensive amount of information. Production servers should normally be run with a debug level of 0. See *Trace Log File*on page 30 for more information.

5. **Authorization Port**: (Default Value=11812) Enter the NetServer authorization port. iPass recommends you use port 11812.

6. **Proxy Listening Port**: (Default Value=11817) Enter the NetServer proxy listening port. iPass recommends you use port 11817.

7. **Transaction Servers**: (Default Value=no). If you wish to configure your NetServer to communicate with the iPass transaction servers, enter yes. You will need to enter each server's IP address and other relevant configuration parameters.

8. **RADIUS Clients**: (Default Value=yes). If you wish to configure your NetServer to communicate with your RADIUS clients, enter yes. You will need to enter each server's IP address and other relevant configuration parameters.

9. **SSL Certificate: Enter the information needed to generate your SSL certificate, including**:

a. 2-character Country Code:(Default Value=US)

b. State or Province Name:(Default Value=Some-State)

c. City or Town Name:(Default Value=Some-City)

d. Company or Organization Name:(Default Value=Some-Organization)

e. Public IP Address of the NetServer Host:(Default Value=<Local host IP>). This must be the public or external IP address, and may differ from the IP address you entered above. The IP address will not be stored by NetServer but will be used to generate your public key certificate. If you are using NAT (Network Address Translation), please supply this external address to your iPass installation engineer as well.

f. Fully Qualified Domain Name of the NetServer Host:(Default Value=<Host Name>). The domain name will not be stored by NetServer but will be used to generate your public key certificate.

10.**Your Email Address**:(Default Value=user@domain.com). iPass recommends that this mailbox be accessible to the host on which you are installing the software. This email address will be recorded as a potential contact when the certificate expires in 10 years.

Processing

The script will then describe any errors that may have occurred during installation and generate a certificate request located in <NS_Home>/certs/mail_cert_req.data.

- IF SMTP services are available on this server or another computer, you should email the contents of<NS_Home>/certs/mail_cert_req.data as a text file attachment to the network analyst responsible for your deployment or the email alias ops-so@ipass.com.
- If SMTP services are not available on this server, you can exchange certificates in real time with an iPass technician using FTP. Contact your iPass installation engineer to arrange this exchange.

Adding, Editing or Deleting Properties

You can rerun the script after initial configuration to add, edit or delete properties, as needed. If you rerun it, the script will read the default values from the existing ipassNS.properties, so you won't have to re-enter those values.

For example, two months after you install NetServer, you decide to add a secondary authorization server. You would run ipassconfig.csh -conf, skip all the questions not having to do with authorization servers by entering default values (press Enter each time), and only enter the configuration information for the new authorization server when the script requests this information.

Certification

Upon successful completion of the certificate request generation script, iPass will process your request and generate a certificate for your NetServer. The x509 certificate will allow SSL 128-bit encrypted communication between the iPass transaction server and your NetServer.

NOTE: This process may take up to 48 hours. If you need the certificate immediately, please contact iPass Technical Support.

Once your certificate request is processed, iPass will send the certificate file back to you, using either email or FTP. You will need to save the information in this file, without alteration, as a file named isp_cert.pem in the<NS_Home>/certs/ directory.

If you are cutting and pasting the file from an email, be sure to include the header and footer of the certificate string as shown in the example certificate here.

```
-----BEGIN CERTIFICATE REQUEST-----
MIIBeDCCASICAQAwgbwxCzAJBgNVBAYTAlVTMQswCQYDVQQIEwJ
DQTEXMBUGA1UEBxMOUmVkd29vZCBTaG9yZXMxFTATBgNVBAoT
DENvbXBhbnkgbmFtZTEfMB0GA1UECxMWMTAwMTcwMDoyMTYuMj
M5Ljk2LjExNTEgMB4GA1UEAxMXcnN0ZXN0c29sYXJpcy5pcGFzcy5jb
20xLTArBgkqhkiG9w0BCQEWHmRhdmlkZ0Byc3Rlc3Rzb2xhcmlzLmlw
YXNzLmNvbTBcMA0GCSqGSIb3DQEBAQUAA0sAMEgCQQDOJvFcK
9V6oppGZIGCTURU/jJRpAbqEZx7GAQg4axjvh7jhEXy3CKNgOL6c4QD
e4YSrQ+/9AZbHhXP61P7GDIVAgMBAAGgADANBgkqhkiG9w0BAQQF
AANBAIYvXUdcXS24HrXqEM+d0aEI8xLL1bWpYcsb2164m6RMo6LZ7
UegbMjgLkLzyNhKaAKhhHNnfEujMWWjdtlvMr89S8SSIUm33IiBIQA98s
-----END CERTIFICATE REQUEST-----
```

Verification

To verify your certificate, in <NS_Home>/bin, run the script verify_certificate.

To view your certificate, in <NS_Home>/bin, run the script view_certificate.

To view the dates on your certificate, in <NS_Home>/bin, run the script view_certificate_dates.

init.sh Now that the NetServer has been installed and configured, you will need to run the init.sh script. The script is located at: /usr/ipass/bin/init.sh and it does the following:

- Creates a startup script to ensure NetServer will be restarted anytime the host is restarted.
- Installs the run command script netserverd, enabling automatic startup when restarting the system.

This creates the /etc/init.d/netserverd file, as well as a symbolic link to the correct runlevel directory, depending on your operating system.

- Adds a crontab entry to run the keep alive script (ipasskeepalive.sh).

You are now finished with the basic installation and configuration of the NetServer, and are ready to begin initial testing.

Configuration Testing

Once you have finished configuring your NAS or RADIUS to route iPass access requests to your NetServer, you must test your network to ensure proper functioning. Before configuration testing, ensure that you have set up the NetServer as a client of your RADIUS.

There are two configuration tests you need to perform:

- checkipass

- a connectivity test using iPassConnect

checkipass in SSL Mode

The checkipass test, verifies that the NetServer can communicate with the iPass Transaction Server. When run in SSL Mode, the request passes through the corporate firewall to the iPass Transaction Server.

You will need to use a valid user name and password for the host on which the NetServer is installed.

Optimally, in order to run the checkipass test with no realm from the NetServer to the AAA, the AAA server should be configured with the NOREALM option in the routing realm. For example, RoutingRealm1=realm=NOREALM, AuthServer=ProxyAuthServer1, AcctServer=ProxyAcctServer1

ProxyAuthServer1 should be configured for AAA server.

To run checkipass in SSL mode, in <NS_Home>/test, type: ./checkipass.csh –proto SSLPost [options] -u <userid>

[options] Your options are:

-p <password>

-host <hostname or IP>	Host Namer or IP address to send request to.
-port <port number>	Port number of the destination host. for RADIUS, this would be the authentication port.
-type <request type>	Request type. Default is normal. Choices are auth, acct, start, stop, all, normal.
-timeout<timeout>	Timeout, in milliseconds, to wait for a reply. Default is 60000 milliseconds.
-secret <secret>	The RADIUS shared secret.
-proto <proto>	Protocol of request. Choices are SSLPost or RADIUS.
-attr<name=value>	Name=Value consists of pairs of attributes to add to the packet. Example: -attr namel=value1 -attr name2=value2. rs_ip_address=<ip address> -attr rs_port=<port>: Use this to specify which RS should handle the request. record_stats=y: Use this to get back statistics on connection times. vendor_specific=<vendorID:vendorTYPE:value>: Use this to test Vendor-Specific functionality, where vendorID is a positive number and vendorTYPE is a number between 0 and 255. nas_ip=<x.x.x.x>: Use this to test NAS-IP-Address related poilcy. framed_ip_address=<x.x.x.x>: Use this to test Framed_IP-Address related policy. location_id=<location id>: Use this to test location_id related policy. called_number=<called station id>: Use this to test Called-Station_Id related policy. called_number=<phone number>: Use this to test Called-Station_id related policy.
-show_radius_attrs	Shows the supported list of RADIUS attributes.
-interactive	Rune the tool in interactive mode.
-help	Show the help/usage of the tool.

The test output will show the status of the checkipass test = Accept or Reject. If status = Accept then the NetServer is properly installed, configures and working, and you may proceed to the next test.

Due to the simplicity of this test, a Reject test result should isolate the problem to your local server and reduce troubleshooting efforts. Possible causes for a failure here include:

- Invalid user name or password. The user in this test must have local login privileges to that system.

- Invalid certificate. If the certificate is corrupt, then it will need to be replaced. You can verify the dates and readability of your certificate by running the tools view_certificate_dates and verify_certificate in your <NS_Home>/bin directory . Generally, if the certificate is readable, then it is not corrupt.
- Improper configuration. Verify that you have correctly entered all of the information in the setup program and that your NetServer is running on port 9101.

- Invalid shared secret. Verify that your RADIUS shared secret is entered properly.

Test Cycle

Run the checkipass test once for each iPass Transaction Server, using the -host option and changing the IP address each time to reflect each Transaction Center IP.

Connectivity Test Using iPassConnect

This test will verify that iPass users are able to connect to the iPass network through your access points.

Shortly after your installation and configuration is complete, your iPass NetServer Installation Engineer will send you a customized version of the iPassConnect software for testing purposes, along with your test username and password.

To run the connectivity test:

1. Using the iPassConnect client, and your test username and password, connect to each of your access points.

2. Repeat this test at least 10 times for each access point.

checkipass in RADIUS Mode

This optional test verifies NetServer connectivity across your network. When run in RADIUS Mode, the checkipass request passes from the NetServer, through the corporate firewall, to the iPass Transaction Server, as well as to the AAA server and proxy server.

To run checkipass in RADIUS mode, in <NS_Home>/test, type: ./checkipass.csh –proto RADIUS [options] -u <userid>, where [options] are described on page 19.

Next Steps

After testing, the NetServer installation and configuration process is complete. Your network should now be configured to allow iPass traffic to be routed to the iPass Transaction Centers. Once your initial Dial-up testing is complete, the iPass Network Quality department will verify the quality of your network before pushing your access points to the iPass roaming users around the world. This final testing may take up to one month, after which you will enjoy the many benefits of being an iPass provider.

Go to: Other Product Documents > NetServer Admin Guide

netserver

ipassNS.properties

The ipassNS.properties file allows configuration of NetServer features. By setting properties in the file, you can enable important NetServer functions. Enabling some features may involve setting more than one property.

NetServer will periodically upload its encrypted ipassNS.properties to an upload server, including at startup. This information will be used for diagnostic and troubleshooting purposes across the iPass network.

Property Help

You can obtain help on any property by running ipassconfig.csh, found in your <NS_Home>/bin directory.

To list all server properties: ipassconfig -listall

To describe usage of a property: ipassconfig -help <property name>

Property Glossary

This glossary defines all properties found in ipassNS.properties, including configurable parameters for each property.

Property	Description
AcctLogBackupType	AcctLogBackupType=<backupType> where <backupType> is either MultipleWithTimestamp or SingleBackup. The default is MultipleWithTimestamp. AcctLogBackupType sets the accounting log's backup file name when rotation is to be performed on local accounting files.
AcctLogRotationDays	AcctLogRotationDays=<days> Valid range is: 1 to 30 days. the default is 7 days. AcctLogRoatationDays control how often the local accounting file is rotated.
AcctLogRotationMaxSize	AcctLogRotationMaxSize=<max size> Minimum value is 100 kbytes. Maximum value is 20000 kbytes. The default is 10000 kbytes. AcctLogRotationMaxSize limits how large (in kbytes) the local accounting file can get before it is rotated.
AcctLogRotationType	AcctLogRotationType=<rotationType> Where <rotationType> is either FileSize or NumberOfDays. AcctLogRotationType sets the type of rotation to be performed on th elocal accounting files. The default is FileSize.

AllowAcctUpdate	When AllowAcctUpdate is set to YES, this server will allow accounting Interim-Update requests to be forwarded to the iPass network. The default value is set to NO.
AscendDataFilter	
	AscendDataFilter1=<valid string for ascend-data-filter>. This is used as an Anti-spam feature for some providers and will block the email port (25) at the provider.
	If the AAA server does not send it to us, we will use the AscendDataFilter(s) specified to send back in the wuthorization accept packet.
	An example entry is: AscendDAtaFilter1=ip in forward tcp est. AcsendDataFilter2=ip in forward dstip xxx.xxx.xxx.xxx/yy. AscendDataFilter3=ip in drop tcp dstport=25. AscendDataFilter4=ip in forward.
	The string ip in drop tcp dstport=25 is a mandatory AscendDataFilter attribute. When no AscendDataFilter is configured, this feature is disabled.
AuthCacheDays	AuthCacheDays=<# of days> This attribute determines the maximum amount of days an authentication reply is cached by the NetServer. Valid range is 1 to 7 days. The default value of this property is to set to 7 days.
AuthCacheEnabled	AuthCacheEnabled=yes/no. Determines if the caching authentication requests is enables. Default is set to YES.
AuthCacheSize	AuthCacheSize=<number of users> This attribute determines the maximum amount of successful user authentication replies are cached by the NetServer. Valid range is 60 to 1000 users. The default value of this property is set to 500 usres. If an odd value is specified, then the allowed cache size is the next even number.
AutoUpdate	AutoUpdate=yes/no. Determines if automatic software update is enabled. Default is set to FALSE.
AutoUpload	AutoUpload=TRUE/FALSE. Determines if automatic file upload is enabled. Default is set to TRUE.
CollectStatstics	CollectStatistics=yes/no. Determines if statistics should be collected. Default is set to true.
CustomerId	CustomerId=<iPass Code>. This is the same number as your iPass portal customer ID. Default value=1.
DebugLevel	DebugLevel=<level>. Debug level determines if debug and error messages are logged to the trace file. The following levels are supported.
	Debug Level 0- Only severe messages are logged.
	Debug level 1-Error messages are logged.
	Debug level 2-Error and Debug messages are logged.
	Debug level 3-Error, Debug, and Packet parsing information is logged.
	Debug level 4-Error, Debug, Packet parsing, and Packet dumping is logged.
	Debug level 5-Detailed Packet and debug information is logged.
	The default value for this property is 0. Production servers should normally run with debug level 0.

DupFilterCleanupDelay	DupFilterCleanupDelay=<# of seconds> This attribute determines the amount of time in seconds to continue duplicate filtering a completed authentication requests. Valid range is 0 to 60 seconds. The default value of this property is set to 2 seconds.
DupFilterTimeToLive	DupFilterTimeToLive=<# of seconds>. This attribute determines the maximum amount of time in seconds to cache all attempted user authentication requests. Valid range is 5 to 60 seconds. The default value of this property is set to 30 seconds.
DuplicateFilterByUid	DuplicateFilterByUid=yes/no. When enabled, duplicate detection will be done solely based on the user ID. When disabled, duplicate detection will be based on the source IP Adress, source port, and Identifier of the RADIUS packet. Default is set to: NO.
EapMode	EapMode=yes/no or true/false. Determines if the NetServer will do early-termination of EAP_TTLS/PAP requests. All other EAP types will be blocked unless otherwise conifigured to do so. Default setting is:true.
EapNaiCheck	EapNaiCheck=yes/no or true/false. Determines if the NetServer will check that the inner NAI contained the Outer NAI of a tunnled request, prior to forwarding to iPass. This only applies to EAP Early-Terminated tunnled protocols. Default setting is: true.
EapNotification	EapNotification=yes/no or true/false. Determines if the NetServer will send back the Reply-Message(s) in EAP-Notification Requests prior to sending back the final RadiusAccess-Accept/Access-Reject. Default setting is: true.
EapNotificationFilter	EapNotificationFilter1=<Reply-Message prefix string>. **Expected format is**: EapNotificationFilter1=FilterPrefix=<filter string>, KeepPrefix=<yes/no>. This feature is used in conjunction with the EapNotification feature. It is used to filter which Reply-Message(s) can get sent back to EAP-Notifications. It will check if any Reply-Messages begin with the given FilterPrefix string. **FilterPrefix**: The string to match at the beginning of the Reply-Message. It is case intensive. **KeepPrefix**: Whether to keep that prefix attached to the Reply-Message when sending back as an EAP-Notification. **An example entry is**: EapNotificationFilter1= FilterPrefix="Location=",KeepPrefix=YES EapNotificationfilter2= FilterPrefix=iPassTAG,KeepPrefix=NO. When no EapNotificationFilter is configured, the nothing is filtered/blocked. This means the server will send back all Reply-Message(s) as EAP-Notifications, as long as EapNotification has been enabled.

EapPassThroughAllow	EapPassThroughAllow=<EAP Protocol Type> Determines is a NetServer in EAP Mode (early-termination) will allow the mediated pass-through of other EAP protocols end-to-end. The <EAP Protocol Type> can be the either one of the keywords all, or nothing, or a list of EAP type protocol numbers separated by comas. When nothing is configured, then nothing is allowed to pass. Default setting is: nothing.
EapPassThroughDeny	EapPassThroughDeny=<EAP Protocol Type>. Determines is a NetServer in EAP Mode (early-termination) will deny the meditated pass-through of certain EAP protocols end-to-end. The <EAP Protocol Type> can be either the keyword. When nothing is configured, then nothing is explicitly denied passage. Default setting is:nothing.
EapTlsServerKeyFile	EapPassThroughDeny=<EAP Protocol Type> Determines if a NetServer in EAP Mode (early-termination) will deny the meditated pass-through of certain EAP protocols end-to-end. The <EAP Protocol Type> can be either the keyword nothing, or a list of EAP type protocol numbers separated by commas. When nothing is configured, the nothing is explicitly denied passage. Default setting is: nothing.
EapTlsCaCertFile	EapTlsCaCertFile=<EAP-TLS CA Cert file Name>. This entry determines the location of the EAP-TLS CA certificate file. The EAP-TLS CA certificate file name should specify either the full path to the file or the path relative to the iPass server home via the $ipass.server.home macro. Default value for this property is set to $ipass.server.home/certs/eacpa_cert.pem
EapTlsServerCertFile	EapTlsServerCertFile=<EAP-TLS Server Cert file Name>. This entry determines the location of the EAP-TLS Server certificate file. The EAP-TLS Server Certificate file name should specify either the full path to the file or the path relative to the iPass server home via the $ipass.server.home macro. Default value for this property is set to $ipass.server.home/certs/eapserver_cert.pem
EapTlsServerKeyPassword	EapTlsServerKeyPassword=<EAP-TLS Server Key Password>. To replace the password, change it to an invalid claer text password such as the word invalid and run the ipassconfig.csh -listall tool, which will prompt you to re-enter the password. This will re-encrypt the password back into the configuration file. Then, restart the server. The default value is NULL (no passwrod).
EnableEquantDna	EnableEquantDna=yes/no. Determines if the NetServer should send the first 4 bytes of Calling-Station-Id as Equant-DNA to the iPass Transaction Center. Default is set to false.
HeartBeatInterval	HeartBeatInterval=<number of minutes>. This entry determines the time interval between heartbeat messages. This is an advanced setting. The server may not function properly if this value is set incorrectly. Default value for this property is set to 15 minutes.
HeartBeatMessage	HeartBeatMessage=yes/no. This entry determines if the heartbeat is turned on or off. This is an advanced setting. The server may not function properly if the value is set incorrectly. Default value for this property is set to no (heartbeat messages are turned off)

IMonServer	Provides IMonServer information. The IMonServers are central iPass servers used to receive HeartBeat Messages form this server.

	Sample format of the entries:
	IMonServer1=name11=value11,name12=value12,…
	IMonServer2=name21=value21,name22=value22,…

	IMonServer attributes:
	IpAddress: The IMonServer's IP address. Port: The IMonServer's port number.
	Do not change the default values set internally, unless instructed by iPass.

IpassServer	Provides iPass Transaction Server information. Sample format of the entries:
	IpassServer1=name11=value11,name12=value12,…
	IpassServer2=name21=value21,name22=value22,…

	IpassServer attributes:
	IpAddress: The iPass Transaction Server's hostname or IP address.
	LocalIpAdress: The Local IP adress to bind the socket to. (Optional)
	Port: The server's port number.
	ConnSharing: This is used for persistant SSL connection. If this is set to 1, then the connection is shared bwtween requests. A value of 0 means the feature is disabled. The default value is 0.
	SslSessionExpTime: The maximum duration of a persistant SSL connection. Valid range is 10 to 480 minutes. The default value is 10 minutes.
	FailureThreshold: Once the failure count exceeds the Failure Threshold, the server is removed form the list. The default value is 4.
	InititalPingInterval: A thread will be launched to ping a failed Transaction Server. The first ping is sent out according to the InitialPingInterval. The default value is 60 seconds.
	PingBackOffFactor: If there is no response, then the next ping is sent out according to the InitialPingInterval mutiplied by the PingBackOffFactor. The default value is 2. FinalPingInterval: This process is continued until the ping time interval reaches the final interval rate, at which time all of the folloeing pings will go out at the preset FinalPingInterval. The default value is 960 seconds.**WARNING: Please consult with iPass before changing any default ping interval values. Incorrect settings can significantly impact your network performance.**
	IdleTimeout: The connection's idle time before it is torn down. Valid range is 60000 to 300000 milliseconds. The default value is 300000 milliseconds (5 minutes).

Listener	List of the Listeners for this server. **Expected format**: Listener1=Type=<protocol>,Port=<port number>,IpAddress=<local IP address> Listener2=Type=<protocol>,Port=<port number>,IpAddress=<local IP address>
	Default Listeners are: Listener1=Port=11812
	NumOfThreads: You can improve connectivity to a NetServer by increasing the number of threads accepting requests on port 11812. This can be helpful for if your NetServer in under heavier stress, such as 10 or more requests per second. For example: Listener1=Port=11812,NumOfThreads=10
	This is an advanced setting. The server may not function properly if this value is set incorrectly.
LocalAccounting	LocalAccounting=<true> This attribute if set to true, enables the server to store the accounting START and STOP records locally. It normally sotres in the detail.txt file under ipass.server.home/ipaddress of the machine. If it fails to create this file, it stores under ipass.server.home/logs.
LocalAccountingDir	LocalAccountingDir=<local accounting directory> A provider can enable local accounting (i.e. the detail.txt file for each RADIUS client or NAS with the LocalAccounting=true flag. This property allows them to customize the location of those detail.text files. Default value for this property is set to $ipass.server.home/s.
LogDirFileDeletionAge	LogDirFileDEletionAge=<age in days> Valid range is: 0 to 180 days. The default is 90 days. A value of 0 means deletion is disabled. LogDirFileDeletionAge determines how old files in the directory <iPass Server Home>/logs must be before the are deleted. The check for file age is done only when the log file rotation happens.
MaxProxyTime	MaxProxyTime=<max proxy time in seconds>. This setermines the maximum time for handling proxy requests. If a proxy reply is received that exceeds this limit then the RADIUS packet will be dropped. The property's value must be greater than 0 seconds and within 3600 seconds. Default value for this property is set to 30 seconds.
MultiProvider	MultiProvider= YES/NO. Default is set to NO. If enabled, the CustomerId sent to iPass will be that of the RadiusClient that the request came from. If the CustomerId is not set in the RadiusClient info, the main CustomerId of this server is used.

ProxyAcctServer	Provides RADIUS Proxy Server information. **Sample format of the entires**: ProxyAuthServer1=name11=value11,name12=value12,… ProxyAuthServer2=name21=value21,name22=value22,… ProxyAcctServer attributes: **IpAddress**: The RADIUS proxy server's hostname or IP address. **Port**: The proxy server's port number. **SharedSecret**: The shared secret used by the RADIUS proxy server. **IncludeDomain**: Include the user's domain in the request sent to the proxy server. The default is YES, always keep the domain with the username. **ValidateAuthenticator**: Specifies if the RADIUS Authenticator should be validated. Values are YES or No. Default is YES.
ProxyAuthServer	Provides RADIUS Proxy Server information. Sample format of the entries: ProxyAuthServer1=name11=value11,name12=value12,… ProxyServer2=name21=value21,name22=value22,… ProxyAuthServer attributes: **IpAddress**: The RADIUS proxy server's hostname or IP address. **IncludeDomain**: Include the user's domain in the request sent to the proxy server. The default is YES, always keep the domain with the username. **ValidateAuthenticator**: Specifies if the RADIUS Authenticator should be validated. Values are YES or NO. Default is YES.
RadiusClient1	Provides RADIUS client information. Only RADIUS clients listed here can send requests to this server. **Sample format of the entires**: RadiusClient1=name11=value11.name12=value12,… RadiusClient2=name21=value21,name22=value22,… RadiusClient attributes: **IpAddress**: The RADIUS client's IP address. **SharedSecret**: The shared secret used by the RADIUS Client. **CustomerId**: Used by multi-providers to specify an alternate iPass CustomerId. **ValidateAuthenticator**: Specifies if the RADIUS Authenticato should be validated. Values are YES or NO. Default is YES.
RoutingRealm	RoutingRealm=<valid domain or routing prefix>. See also routebyRealm for examples of proper use and formatting.
StartUpMessage	StartUpMessage=yes/no. This entry determines if a message is genterated by the server on startup. This is an advanced setting. The server may not function properly if this value is set incorrectly. Default value for this property is set to no(startup messages are turned off)
StatusTraceCollectInterval	StatusTraceCollectInterval=<number of minutes>. Minimum value: 60 minutes. Maximum value:1440 minutes. Default value: 60 minutes. StatusTraceCollectInterval determines the time interval between collection of statistics into the StatusTraceFile.

StatusTraceUploadInterval	StatusTraceUploadInterval=<upload frequency in minutes>. Minimum value: 120 minutes. Maximum value: 10080 minutes. Default value: 1440 minutes. StatusTraceUploadInterval determines the frequency of upload of status trace file.
StripRealm1	StripRealm1=<realm_name>. Where the <realm_name> is a domain name to be stripped away from the end of the username, such as: user@domain@extraDomain. This feature can be used to remove the extra domain some providers attached to the username.
TraceLogBackupType	TraceLogBackupType=<backupType>. Where <backupType> is either MultipleWithTimestamp or SinlgeBackup. The default is SingleBackup. TraceLogBackupType sets thr trace log's backup file name when rotation is to be performed on the local trace files.
TraceLogRotationHours	TraceLogRotationHours=<hours>. Valid range is: 1-720 hours. The default is 168 hours (1 week). TraceLogRotationHours controls how often the local trace file is rotated.
TraceLogRotationMaxSize	TraceLogRotationMaxSize=<max size>. Minimum value is 100 kB. Maximum value is 20000 kB. The default is 10000 kB. TraceLogRotationType sets the type of rotation to be performed on the local trace file(s).
UpdateInterval	UpdateInterval=<DayOfWeek Hour:Minute>. Where DayOfWeek ranges from Sunday to Saturday, and hour of the day is between 0-23. Default value is Monday 2:00. Determines when the Software Update module contacts the update server. The UpdateInterval mechanism resychronizes with the system clock every sixty minutes.
UpdateServer	Provides iPass software Update Server information. Sample format of the entries: UpdateServer1=name11=value11,name12=value12,… UpdaterServer2=name21=value=21,name22=value22,… UpdateServer attributes: **IpAddress**: The URL of the iPass software update server. **RetryDelay**: The time delay, in minutes, before retrying a server that recently failed a connection request. When a connection fails to a server, it is reordered to the end of the list. Once the RetryDelay expires, that server is brought back to the top of the list. The default value is 15 minutes. Valid range is: >=0. **FailureThreshold**: Once the failure count exceeds the Failurethreshold, the server is reordered to the end of the list. The default value id 0.
UploadAtStartup	UploadAtStartup=TRUE/FALSE. Default is set to TRUE. Determines if file upload should be done at startup. Note that this feature works in conjunction with AtuoUpload. This feature will be disabled if AutoUpload is disabled.
UploadInterval	UploadInterval=<upload frequency in days>. Minimum value: 1 day. Maximum value: 7 days. Default value: 7 days. UploadInterval determines the frequency of upload of config, cert, status trace, and download trace files.

UploadServer	Provides iPass software Upload Server information.

	Sample format of the entries:
	UploadServer1=name11=value11, name12=value12,…
	UploadServer2=name21=value21,name22=value22,…

	UploadServer attributes:
	IpAdress: The URL of the iPass software update server.
	RetryDelay: The time delay, in minutes, before retry a server that recently failed a connection request. When a connection fails to a server, it is reordered to the end of the list. Once the RetryDelay expires, that server is brought back to the top of the list. The default value is 15 minutes. Valid range is: >=0.
	FailureThreshold: Once the failure count exceeds the FailureThreshold, the server is reordered to the end of the list. The default value is 0.
UseCalledStationIDForAuthCache	UseCalledStationIDForAuthCahce=y/n. This is an advanced setting, If this flag is enabled, Called-Station-ID will also be used for auth cache sensitivity.
UseEquantDnaForAuthCache	UseEquantDnaForAuthCache=y/n. This is an advanced setting. If this flag is enabled, equant_dna (first 4 bytes of Calling-Station-Id) will also be used for auth cache sensitivity.
UseIspCodeForAuthCache	UseIspCodeForAuthCache=y/n. This is an advanced setting. If this flag is enabled, the CostumerId (provider code) from the properties will also be used for auth cache sensitivity.
UseNasIpForAuthCache	UseNasIpForAuthCache=y/n. This is an advanced setting. If this flag is enabled, NAS-IP-Address will also be used for auth cahce sensitivity.
ZipLogFilesEnabled	ZipLogFilesEnabled=true/false. Determines whether or not trace and log files are compressed. Default is set to true.

Go to: Other Product Documents > NetServer Admin Guide

netserver

Running NetServer

This section describes a number of NetServer runtime commands.

Starting NetServer

To start the NetServer manually:

1. Change directory to: <NS_Home>

2. Type: <NS_Home>/bin/netserverd start

Stopping NetServer

To stop NetServer:

1. Change directory to: <NS_Home>

2. Type: <NS_Home>/bin/netserverd stop

Killing NetServer

You can also stop the NetServer by using the kill command: <NS_Home>/bin/netserverd kill. However, unlike the regular stop, this is a non-graceful stop and will immediately shut down any processes without closing them. It will also end all NetServer processes on the host, not just for the single NetServer. Only use the kill command if stop does not work.

Restarting NetServer

To restart (stop and then start) NetServer:

1. Change directory to: <NS_Home>

2. Type: <NS_Home>/bin/netserverd restart

ns_command

You can also perform many runtime functions by using the tool ns_command, in the <NS_Home>/bin directory. ns_command can only be used locally, not remotely.

Usage: ns_command.csh <options>

Where your options are:

-shutdown: Causes the server to shutdown.

-restart: Causes the server to restart.

-software_update: Causes the server to do a software update.

-reload_config: Causes the server to reload many (but not all) of the properties from the ipassNS.properties file. These are:

- AutoUpdate flag, used to enable/disable automatic software update.
- AAA Servers (AuthServer and AcctServer properties)
- Log Rotation parameters.
- DebugLevel of server.
- For a complete reload, you should use the -restart switch.

-dump_queue: Causes the server to dump the queue elements to a file.

-version: Prints the server version.

-file_upload : Uploads the file named to the upload server.

-force_log_rotation: Causes the server to rotate/backup its log file.

-sslcversion: Print the version of the SSL-C Library.

Help

NetServer has a help tool, found in your <NS_Home>/bin directory, which you can use to get information on the configurable properties in the ipassNS.properties file.

To list all server properties, run: ipassconfig.csh -listall

To describe usage of a property, run: ipassconfig.csh -help <property name>

Log Files

There are several important log files associated with NetServer operations:

netserver.trace, located in <NS_Home> contains daily traffic statistics, including:

- time

- number of authorization requests, accepts, challenges and rejections
- number of cache hits
- number of accounting starts, stops and updates.
- number of proxy requests
- The nsdownload.trace file, located in <NS_Home>/logs, records software download activities. It also contains the number of pending or corrupted accounting files on the local NetServer system.
- nsfailurecount: This log records any connection failures between NetServer and Transaction Servers and can help track which Transaction Servers have poor connectivity rates. (These messages will continue to also be logged in the netserver.trace file.) Connection failure messages only appear at DebugLevel=1 or greater. The TraceLogRotation properties will control when the file is backed up.

DebugLevel

The amount of debugging output in netserver.trace can be controlled by changing the value of the DebugLevel property. The range for this value is 0 to 5 (inclusive), where 0 produces the least amount of output, and 5 produces the highest.

Debug Level	Logging Output
0	Only severe problems logged.
1	Error messages.
2	Error and Debug messages.
3	Error, Debug, and Packet parsing information.
4	Error, Debug, Packet parsing, and Packet dumping.
5	Detailed Packet and Debug information.

Property: DebugLevel

Default Value: 0

iPass recommends a debug level of 3 in a production environment.

Log File Deletion

A DebugLevel of 5 produces a great deal of output. This can cause the NS.trace file to grow very large, and may slow the processing time of the NetServer. To control this, you can set log files to be deleted after a specified period of time.

Property: LogDirFileDeletionAge

Default Value: 180 <days>

Get Version Tool

You can check your NetServer version by running the Get Version tool.

To check your NetServer version, in <NS_Home>/bin, run ns_get_version.csh.

Automatic Software Updates

NetServer can be configured to periodically poll the iPass update server for the latest version of NetServer, and then automatically install it.

AutoUpdate

If AutoUpdate is enabled, NetServer will check for any updates to NetServer, download and install them automatically, then restart.

Default Value: No

Valid Range: Boolean

UpdateInterval

This is the weekly time of day at which NetServer will check for any updates.

Default Value: Monday 02:00

Valid Range: <any day> <24 hour time>

To enable: set AutoUpdate to Yes.

Transaction Center List Update

In addition to software updates, NetServer will periodically poll the iPass update server for the most current list of iPass transaction servers. The file is called TCList. If there is a change to the list, the new servers will automatically be added to the list in ipassNS.properties. This feature is enabled automatically and does not need to be set.

NetServer Failover

NetServer monitors the iPass Transaction Servers, which are the next step in the request path. If a particular Transaction Server is unresponsive, NetServer will reroute the request to an operational Transaction Server. If the first Transaction Server continues to be unresponsive, it will be reprioritized to the end of the Transaction Server list. When a Transaction Server is taken out of the request path, the NetServer reroutes the calls through the next Transaction Server on the priority list.

Go to: Other Product Documents > NetServer Admin Guide

netserver

Sample ipassNS.properties File

This file is included in the NetServer installation for your reference as ipassNS.properties.example.

```
#
# File: ipassNS.Properties.example
#
# Description: iPass Netserver configuration file.
#
# Blank lines and lines beginning with # ignored.
#
# Your iPass Customer ID
#
CustomerId=1
#
# Configure RadiusClients
#
RadiusClient1=ipaddress=10.10.6.2,sharedsecret=testkey
RadiusClient2=ipaddress=10.10.50.19,sharedsecret=testkey
#
# Configure MultiProvider
# Determines if MulitProvider functionality is enabled.
# If enabled, the CustomerId sent to iPass will be that of the RadiusClient
# that the request came from.
# If the CustomerId of this server is used.
# Eg: to set a custmoerId for a client using RadiusClient settings:
# RadiusClient1=ipaddress=10.10.6.2,shared=testkey,CustomerId=111
#
```

```
MultiProvider=Yes
#
# Mapping Realm to ProxyServer(s)
# If no DEFAULT realm is configured, NetServer internally creates a
# DEFAULT RoutingRealm pointing to IPASS.
#
#RoutingRealm1=realm=IPASS, AuthServer=IpassServer, AcctServer=IpassServer
#RoutingRealm2=realm=DEFAULT, AuthServer=IpassServer, AcctServer=IpassServer
RoutingRealm3=realm=NOREALM, AuthServer=ProxyAuthServer1, AcctServer=ProxyAcctServer1
#
# Proxy Server settings
# Protocol should be defaulted to Radius
#
ProxyAuthServer1=protocol=RADIUSProxy,ipaddress=127.0.0.1, port=1812,IdleTimeout=15000, sharedsecret=testkey
ProxyAuthServer1=protocol=RADIUSProxy,ipaddress=127.0.0.1,port=1813, IdleTimeout=15000, sharedsecret=testkey
#
# Ipass Server (Transaction Server List)
#
IpassServer1=IpAddress=auth5.ipass.com, Port=9101
IpassServer2=IpAddress=auth6.ipass.com, Port=9101
IpassServer3=IpAddress=auth7.ipass.com, Port=9101
IpassServer4=IpAddress=auth8.ipass.com, Port=9101
#
# Auth, Acct, and Proxy Listener information.
#
# Sample line:
# Listener1= Port=<value>
# Port - Port number to listen for iPass requests from.

# Default is UDP port 11812/11813.

#

#

Listener1=Type=Radius, Port=11812

Listener2=Type=RadiusProxy, Port=11817

Listener3=Type=SSLPost, Port=ll811

#

# IP Address, in X.X.X.X format, permitted to send control messages (such as

# shutdown and restart) to this server. Multiple IPs can be specified. All

# must be unique and contain the prefix ControlMessageIp.

# By default, the local host and iPass Transaction Servers IP address

# are already included.

#

# Sample format:

# ControlMessageIp1=555.555.555.555

#

#

# Debug level determines if debug and error messages are logged

# to the event table.

# Debug Level 0 - No messages are logged

# Debug Level 1 - Error messages are logged

# Debug Level 2 - Error and Debug messages are logged

# Debug Level 3 - Error, Debug, and Packet parsing information is logged

# Debug Level 4 - Error, Debug, Packet parsing, and Packet dumping is logged

# Debug Level 5 - Detailed Packet and Debug information is logged

#

# Note: Production servers should normally run with debug level 0 or 1.
```

```
#

DebugLevel=0
```

Go to: Other Product Documents > NetServer Admin Guide

netserver

Third-Party RADIUS Configurations

This section provides configuration instructions for several different third-party RADIUS products. These configurations will allow the RADIUS server to route iPass traffic to the NetServer, which will route to the iPass Transaction Centers for authentication. Use these instructions only when configuring RADIUS in environments where the NetServer is installed behind the RADIUS server.

If your network configuration requires the NetServer to be in any other location relative to your NAS and RADIUS servers, you will need to change your configuration accordingly. For further information on this, please consult the documentation provided with your server software.

NetServer supports many varieties of RADIUS server. Instructions found here do not imply that iPass endorses a particular RADIUS solution. We only provide information on these types as a helpful reference as it relates to NetServer operation. Always consult your RADIUS server's documentation for the most current and complete information on configuring your RADIUS server.

RADIATOR

iPass providers who use RADIATOR can choose between two different methods of configuration.

Configuring RADIATOR Using the IPASS/ Prefix

To configure RADIATOR to route iPass traffic based on the IPASS/ prefix, you will need to alter your RADIATOR configuration file, radius.cfg.

1. **Add entries to the clients list in the radius.cfg file.**

In the radius.cfg file (/etc/raddb/radius.cfg), there will be a section containing your clients list. For each client, this file will have a section that looks similar to the example below. To allow RADIATOR to route iPass traffic to the NetServer, add the new italicized line here to the very bottom of every distinct client entry in this file:

```
<Client 123.456.789.0>

Secret the-secret-we-share-with-NAS's

RewriteUsername s/^IPASS\/([^@]+)\@([^@]+)$/IPASS\/$1#$2\@myipass/

</Client>
```

This entry will allow RADIATOR to append @myipass to the username of all iPass users. In addition, the first @ in the username will be changed to a # sign.

2. **Add entries to the Realm list in the radius.cfg file**

In the radius.cfg file (/etc/raddb/radius.cfg), there will also be a section containing your realm list. This section lists all of the realms known to RADIATOR, and defines how they are handled. Add the following entry to the realm list section. It can be placed anywhere within the section, provided it is placed above the DEFAULT realm entry.

```
<Realm myipass>

AcctLogFileName %L/ipass/detail

RewriteUsername s/^IPASS\/([^#]+)\#([^@]+)\@myipass$/IPASS\/$1\@$2/

<AuthBy RADIUS> Host 123.456.789.0

AuthPort 11812

AcctPort 11813

Secret mysecret

</AuthBy>

</Realm myipass>
```

This entry instructs RADIATOR to handle the @myipass realm by stripping the @myipass off the username and rewriting it in its original format. This means that we do not need the default realm and our proxy will be handled before any handler clauses.

The shared secret listed in the entry above must be the same value as the secret of the NetServer found in the ipassNS.properties file of your NetServer.

When you have finished editing radius.cfg, save and exit the file. Then restart RADIATOR to allow these changes to take effect.

Configuring RADIATOR Using the DEFAULT Realm

If it is not possible to configure RADIATOR to recognize the IPASS/ prefix (for example, if you are using an older version of the software), you may opt to route iPass traffic based on a DEFAULT realm. You may only use this option if you are not already using the DEFAULT realm, and you have defined all other realms for which traffic is received by RADIATOR.

If not all other realms are defined, all users with undefined domains will be routed to the NetServer. To use this configuration, add the following entry to as the final realm in the Realm section of the radius.cfg file (/etc/raddb/radius.cfg):

```
<Realm DEFAULT>
<AuthBy RADIUS>
Host 123.456.789.0
AuthPort 11812
AcctPort 11813
Secret mysecret
</AuthBy>
</Realm>
```

The shared secret listed in the entry must be the same value as the secret of the NetServer found in the ipassNS.properties file of your NetServer.

When you have finished, restart RADIATOR to allow these changes to take effect.

FreeRADIUS

iPass providers using FreeRADIUS will need to edit <path to radius>/raddb/sites-enabled/default, <path to radius>/raddb/modules/realm, and the <path to radius>/raddb/proxy.conf configuration files to allow iPass traffic to travel through their network.

1. **Edit the realm section of your** <path to radius>/raddb/modules/realm **file**.

Within the <path to radius>/raddb/sites-enabled/default, there will be a section containing your realm list. This section lists all of the realms known to FreeRADIUS, and defines how they are handled. To enable FreeRADIUS to recognize the IPASS/ prefix, make sure the following is uncommented in the realm file (and please add it if it is not present):

```
realm IPASS {
format = prefix
delimiter = ”/”
}
```

2. **Edit the authorization section of your** <path to radius>/raddb/sites-enabled/default **file**.

Within the <path to radius>/raddb/sites-enabled/default file, there will also be an authorization section. This section defines how FreeRADIUS will authorize users. You will want to ensure that the listings in this section are in the order shown below to allow FreeRADIUS to perform authorization properly. The entry below allows FreeRADIUS to preprocess all users against the hints or huntgroups files, then to process all realms, and finally to look in the users file. The order of the realm modules will determine the order in which the FreeRADIUS will try to find a matching realm. You will need to add an entry for the IPASS/ prefix above the line for the suffix to allow these users to be processed first. When complete, this section should look similar to the example below:

```
authorize {

preprocess

IPASS

suffix

files

}
```

3. **Edit the pre-accounting section of your** <path to radius>/raddb/sites-enabled/default file. Another section you will need to edit in the <path to radius>/raddb/sites-enabled/default file is the pre-accounting section. The following entry allows FreeRADIUS to look for a proxy realm in the order that each realm is listed, then to look at the acct_users file, and finally to preprocess users using the hints file. You will need to add an entry for the IPASS/ prefix above the line for the suffix to allow these users to be processed first. When complete, this section should look similar to the example below:

```
preacct {

IPASS

suffix

files

preprocess

}
```

When you have finished editing radiusd.conf, save and exit the file.

4. **Edit the users file.**

The users file (/etc/raddb/users) dictates how FreeRADIUS authenticates users. You will need to ensure that there is a DEFAULT entry in the users file similar to the one shown below. Please note that this is only an example of the type of entry needed. If you already have a default entry, please let your iPass technician know what it is before modification:

```
DEFAULT Auth-Type = Local
```

When you have finished editing the users file, save and exit the file.

5. **Add the IPASS/ realm entry to your proxy.conf file.**

To complete this configuration and allow FreeRADIUS to proxy iPass traffic to your NetServer, you must add an entry for the IPASS/ prefix realm to your proxy.conf file(/etc/raddb/proxy.conf). The following entry can be to this file anywhere within the list of realm entries, provided it is placed above the DEFAULT realm entry.

```
realm IPASS {

type = RADIUS

authhost = IP.Address.of.NetServer:11812

accthost = IP.Address.of.NetServer:11813

secret = mysecret

nostrip

}
```

The shared secret listed in the entry must be the same value as the secret of the NetServer found in the ipassNS.properties file of your NetServer.

When you have finished editing proxy.conf, save and exit the file.

6. **When complete, restart your FreeRADIUS to allow these changes to take effect**.

DTC RADIUS

iPass providers using the DTC RADIUS software will need to add the an entry to their users (/etc/raddb/users) file to allow iPass traffic to travel through their network. In addition, the DTC RADIUS and the NetServer must be installed on different hosts, and they must use the same port number for routing requests (that is, if the DTC is sending requests on port 1812, the NetServer must run on 1812 on another host).

1. **To allow the DTC RADIUS to recognize iPass users based on the IPASS/ prefix, and proxy these requests to the NetServer, add the following entry to your users file (/etc/raddb/users):**

```
DEFAULT Password = “PROXY”, Prefix = “IPASS/”, DTC-Trunc-PreSuffix = Trunc-No,

DTC-Limit-Login = Limit-No

DTC-Auth-Server = IP.Address.of.NetServer,

DTC-Acct-Server = IP.Address.of.NetServer,

DTC-Auth-Secret = “sharedsecret”,

DTC-Acct-Port = 1813

DTC-Acct-Secret = “sharedsecret”
```

The shared secret listed must be the same value as the secret of the NetServer found in the ipassNS.properties file of your NetServer.

When you have finished editing the users file, save and exit the file.

2. **When complete, restart your DTC RADIUS to allow these changes to take effect**.

Cistron RADIUS

iPass providers using Cistron RADIUS will need to edit the clients, realms, and users configuration files to allow iPass traffic to travel through their network.

1. **Edit the clients file.**

The clients file (/etc/raddb/clients) contains a separate entry for each software application that acts as a client of Cistron RADIUS. To add the NetServer as a client of your RADIUS, add this entry to this file:

```
<IP.Address.of.NetServer> <SharedSecret>
```

The shared secret must be the same value as the secret of the NetServer found in the ipassNS.properties file of your NetServer.

When you have finished editing, save and exit the file.

2. **Edit the realms file.**

The realms file (/etc/raddb/realms) lists all of the realms known to Cistron RADIUS, and defines how they are handled. To enable the Cistron RADIUS to route iPass traffic using the DEFAULT realm, add these two lines to anywhere in this file.

```
NULL LOCAL

DEFAULT <IP.Address.of.NetServer>:11812 NOSTRIP
```

When you have finished editing, save and exit the file.

3. **Edit the users file**.

The users file (/etc/raddb/users) dictates how Cistron RADIUS authenticates users. You will need to ensure that there is a DEFAULT entry in the users file similar to the one shown below. Please note that this is only an example of the type of entry needed. If you already have a default entry, please let your iPass technician know what it is before modification:

```
DEFAULT Auth-Type = Local
```

When you have finished editing, save and exit the file.

4. **Restart your Cistron RADIUS to allow these changes to take effect**.

Go to: Other Product Documents > NetServer Admin Guide

netserver