

# Configuring RADIUS Dial-Up with Livingston Server Authentication

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## Introduction

This document assists the first-time RADIUS user in how to set up and debug a dial-in RADIUS configuration with authentication to a Livingston RADIUS server. It is not an exhaustive description of the Cisco IOS<sup>®</sup> Software RADIUS capabilities. Livingston documentation is available from the Lucent Technologies web site. The router configuration is the same no matter what server you use.

Cisco offers RADIUS code in Cisco Secure ACS for Windows, Cisco Secure UNIX, or Cisco Access Registrar. The router configuration in this document was developed on a router running Cisco IOS Software Release 11.3.3. Cisco IOS Software Release 12.0.5.T and later uses **group radius** instead of **radius**. Therefore, statements such as **aaa authentication login default radius enable** appear as **aaa authentication login default group radius enable**. Refer to the RADIUS information in Cisco IOS documentation for details on RADIUS router commands.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

The information in this document is based on these software and hardware versions:

- Cisco IOS Software Release 11.3.3
- Livingston RADIUS

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

## Configure

In this section, you are presented with the information to configure the features described in this document.

**Note:** Use the Command Lookup Tool (registered customers only) to find more information on the commands used in this document.

## Configuration

This document uses this configuration:

```
Router Configuration
!
aaa new-model
aaa authentication login default radius enable
aaa authentication ppp default if-needed radius
aaa authorization network default radius
enable password cisco
!
chat-script default "" at&fls0=1&h1&r2&c1&d2&b1e0q2 OK
!
interface Ethernet0
 ip address 10.29.1.3 255.255.255.0
!

!--- CHAP/PPP authentication user:

interface Async1
 ip unnumbered Ethernet0
 encapsulation ppp
 async mode dedicated
 peer default ip address pool async
 no cdp enable
 ppp authentication chap
!

!--- PAP/PPP authentication user:

interface Async2
 ip unnumbered Ethernet0
 encapsulation ppp
 async mode dedicated
 peer default ip address pool async
 no cdp enable
 ppp authentication pap
!

!--- Login authentication user with autocommand PPP:

interface Async3
 ip unnumbered Ethernet0
```

```

encapsulation ppp
async mode interactive
peer default ip address pool async
no cdp enable
!
ip local pool async 10.6.100.101 10.6.100.103
radius-server host 171.68.118.101
radius-server timeout 10
radius-server key cisco
!
line 1
  session-timeout 20
  exec-timeout 120 0
  script startup default
  script reset default
  modem Dialin
  transport input all
  stopbits 1
  rxspeed 115200
  txspeed 115200
  flowcontrol hardware
!
line 2
  session-timeout 20
  exec-timeout 120 0
  script startup default
  script reset default
  modem Dialin
  transport input all
  stopbits 1
  rxspeed 115200
  txspeed 115200
  flowcontrol hardware
!
line 3
  session-timeout 20
  exec-timeout 120 0
  autoselect during-login
  autoselect ppp
  script startup default
  script reset default
  modem Dialin
  autocommand ppp
  transport input all
  stopbits 1
  rxspeed 115200
  txspeed 115200
  flowcontrol hardware
!
end

```

## Clients File on Server

**Note:** This assumes Livingston RADIUS.

```

# Handshake with router--router needs "radius-server key cisco":
10.29.1.3 cisco

```

## Users File on Server

**Note:** This assumes Livingston RADIUS.

```

# User who can telnet in to configure:

```

```

admin Password = "admin"
User-Service-Type = Login-User

# ppp/chap authentication line 1 - password must be cleartext per chap rfc 1994
# address assigned from pool on router
chapuser Password = "chapuser"
User-Service-Type = Framed-User,
Framed-Protocol = PPP

# ppp/pap authentication line 2
# address assigned from pool on router
# Can also have 'Password = "UNIX" which uses /etc/passwd
papuser Password = "papuser"
User-Service-Type = Framed-User,
Framed-Protocol = PPP

# ppp/chap authentication line 1 - password must be cleartext per chap rfc 1994
# address assigned by server
chapadd Password = "chapadd"
User-Service-Type = Framed-User,
Framed-Protocol = PPP,
Framed-Address = 10.10.10.10

# ppp/pap authentication line 2
# address assigned by server
papadd Password = "papadd"
User-Service-Type = Framed-User,
Framed-Protocol = PPP,
Framed-Address = 10.10.10.11

# authentication user line 3
# address assigned from pool on router
# Can also have 'Password = "UNIX" which uses /etc/passwd
authauto = "authauto"
User-Service-Type = Login-User

```

## Microsoft Windows Setup for Users Lines 1 and 2

**Note:** The PC configuration can vary slightly based on the operating system version you use.

1. Select **Start > Programs > Accessories > Dial-Up Networking**.
2. Select **Connections > Make New Connection** and enter a name for your connection.
3. Enter your modem-specific information. Under **Configure > General** choose the highest speed of your modem, but do not check the box below this.
4. Select **Configure > Connection**, and use **8 data bits, no parity, and 1 stop bit**. For Call preferences, select **Wait for dial tone before dialing**, and **Cancel the call if not connected after 200 seconds**.
5. Select only **Hardware Flow Control** and **Modulation Type Standard** for Advanced.
6. Under **Configure > Options** nothing should be checked except under status control. Click **OK**.
7. Enter the telephone number of the destination, then click **Next** and **Finish**.
8. Once the new connection icon appears, right-click on it and select **Properties > Server Type**.
9. Choose **PPP:WINDOWS 95, WINDOWS NT 3.5, Internet** and do not check any advanced options. Check at least **TCP/IP** under allowed network protocols.
10. Choose **Server assigned IP address, Server assigned name server addresses, and Use default gateway on remote network** under TCP/IP settings. Click **OK**.
11. When the user double-clicks the icon to bring up the Connect To window to dial, the user must fill in the User name and Password fields, and then click **Connect**.

## Microsoft Windows Setup for User Line 3

The configuration for User Line 3 (authentication user with autocommand PPP) is the same as for Users Line 1 and 2. The exception is to check **Bring up terminal window after dialing** from the **Configure > Options** window.

When you double-clicks the icon to bring up the Connect To window to dial, do *not* fill in the User name and Password fields. Click **Connect**. After the connection to the router is made, the enter the username and password in the black window that appears. Click **Continue (F7)** after authentication.

## Verify

There is currently no verification procedure available for this configuration.

## Troubleshoot

### Router Troubleshooting Commands

The Output Interpreter Tool (registered customers only) (OIT) supports certain **show** commands. Use the OIT to view an analysis of **show** command output.

**Note:** Refer to Important Information on Debug Commands before you use **debug** commands.

- **terminal monitor** Displays **debug** command output and system error messages for the current terminal and session.
- **debug ppp negotiation** Displays PPP packets sent during PPP startup, where PPP options are negotiated.
- **debug ppp packet** Displays PPP packets that are sent and received. (This command displays low-level packet dumps.)
- **debug ppp chap** Displays information about whether a client passes authentication (for Cisco IOS Software Releases earlier than 11.2).
- **debug aaa authentication** Displays information on AAA/TACACS+ authentication.
- **debug aaa authorization** Displays information on AAA/TACACS+ authorization.

## Server

**Note:** This assumes Livingston's UNIX server code.

```
radiusd -x -d <full_path_to_users_clients_dictionary>
```

## Related Information

- **Configuring RADIUS with Livingston Server**
- **RADIUS Support Page**
- **RADIUS in IOS Documentation**
- **Requests for Comments (RFCs)** [↗](#)
- **Technical Support & Documentation – Cisco Systems**

