

RADIUS Authentication and Authorization

Technical Note

UPDATED: 28 July 2023

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

These materials and all Progress® software products are copyrighted and all rights are reserved by Progress Software Corporation. The information in these materials is subject to change without notice, and Progress Software Corporation assumes no responsibility for any errors that may appear therein. The references in these materials to specific platforms supported are subject to change.

#1 Load Balancer in Price/Performance, 360 Central, 360 Vision, Chef, Chef (and design), Chef Habitat, Chef Infra, Code Can (and design), Compliance at Velocity, Corticon, Corticon.js, DataDirect (and design), DataDirect Cloud, DataDirect Connect, DataDirect Connect64, DataDirect XML Converters, DataDirect XQuery, DataRPM, Defrag This, Deliver More Than Expected, DevReach (and design), Driving Network Visibility, Flowmon, Inspec, Ipswitch, iMacros, K (stylized), Kemp, Kemp (and design), Kendo UI, Kinvey, LoadMaster, MessageWay, MOVEit, NativeChat, OpenEdge, Powered by Chef, Powered by Progress, Progress, Progress Software Developers Network, SequeLink, Sitefinity (and Design), Sitefinity, Sitefinity (and design), Sitefinity Insight, SpeedScript, Stylized Design (Arrow/3D Box logo), Stylized Design (C Chef logo), Stylized Design of Samurai, TeamPulse, Telerik, Telerik (and design), Test Studio, WebSpeed, WhatsConfigured, WhatsConnected, WhatsUp, and WS_FTP are registered trademarks of Progress Software Corporation or one of its affiliates or subsidiaries in the U.S. and/or other countries.

Analytics360, AppServer, BusinessEdge, Chef Automate, Chef Compliance, Chef Desktop, Chef Workstation, Corticon Rules, Data Access, DataDirect Autonomous REST Connector, DataDirect Spy, DevCraft, Fiddler, Fiddler Classic, Fiddler Everywhere, Fiddler Jam, FiddlerCap, FiddlerCore, FiddlerScript, Hybrid Data Pipeline, iMail, InstaRelinker, JustAssembly, JustDecompile, JustMock, KendoReact, OpenAccess, PASOE, Pro2, ProDataSet, Progress Results, Progress Software, ProVision, PSE Pro, Push Jobs, SafeSpaceVR, Sitefinity Cloud, Sitefinity CMS, Sitefinity Digital Experience Cloud, Sitefinity Feather, Sitefinity Thunder, SmartBrowser, SmartComponent, SmartDataBrowser, SmartDataObjects, SmartDataView, SmartDialog, SmartFolder, SmartFrame, SmartObjects, SmartPanel, SmartQuery, SmartViewer, SmartWindow, Supermarket, SupportLink, Unite UX, and WebClient are trademarks or service marks of Progress Software Corporation and/or its subsidiaries or affiliates in the U.S. and other countries. Java is a registered trademark of Oracle and/or its affiliates. Any other marks contained herein may be trademarks of their respective owners.

Please refer to the NOTICE.txt or Release Notes – Third-Party Acknowledgements file applicable to a particular Progress product/hosted service offering release for any related required third-party acknowledgements.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

Table of Contents

1 Introduction **5**

1.1 Document Purpose 5

1.2 Intended Audience 5

2 Prerequisites for Authentication and Authorization **6**

2.1 Add a RADIUS Client 6

3 Configure Authentication and Authorization **10**

3.1 Local Authentication and Authorization 11

3.1.1 Specify the RADIUS Server Details 11

3.1.2 Specifying RADIUS Authentication for an Individual User 11

3.1.3 Specifying Local Authorization for an Individual User 12

3.2 RADIUS Authentication and Authorization 12

3.2.1 Specify the RADIUS Server Details 12

3.2.2 Specifying RADIUS permissions for Groups and All Users 15

3.2.2.1 Specifying RADIUS Authentication and Authorization for a Group (Network Request Policy) 16

3.2.2.1.1 Specifying RADIUS Authentication for a Group 16

3.2.2.1.2 Specify RADIUS Authorization for a Group 23

3.2.2.2 Specify RADIUS Authentication and Authorization for All Users 28

3.2.2.2.1 Specify RADIUS Authentication for All Users (Connection Request Policy) 28

3.2.2.2.2 Specifying RADIUS Authorization for All Users 34

References **39**

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

Last Updated Date 40

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

1 Introduction

The Remote Access Dial In User Service (RADIUS) server can be used to authenticate users who log in to the Kemp LoadMaster. The LoadMaster passes the user's details to the RADIUS server and the RADIUS server informs the LoadMaster whether the user is authenticated or not.

RADIUS in Windows Server 2008 R2 is done with network policy and access services.

> The steps in this document have been tested and validated on Windows Server 2008 R2.

1.1 Document Purpose

The purpose of this document is to provide further information and steps on configuring RADIUS authentication and authorization.

1.2 Intended Audience

This document is intended to be used by anyone who is interested in learning more about using RADIUS authentication and authorization in the LoadMaster.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

2 Prerequisites for Authentication and Authorization

Before performing these steps, ensure there is an Active Directory group to add to the network policy. This needs to be done on the domain controller.

The steps in this document outline how to give the users/groups certain permissions to the Kemp LoadMaster.

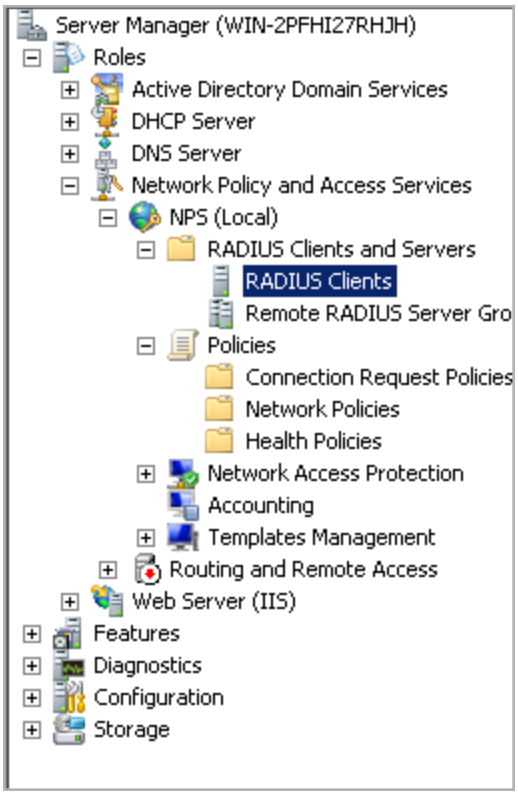
> It is not possible to use RADIUS authentication and authorization if you are using a FIPS LoadMaster.

2.1 Add a RADIUS Client

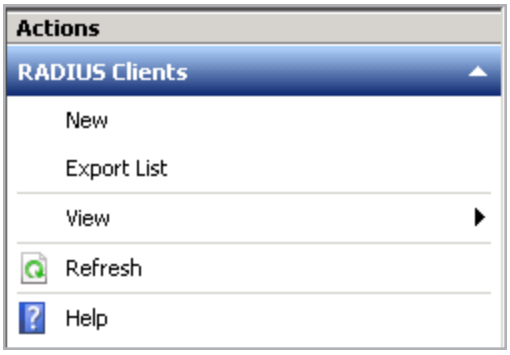
A RADIUS client needs to be created so that the LoadMaster can authenticate. Create a RADIUS client by following the steps below:

1. Open the **Server Manager** application.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

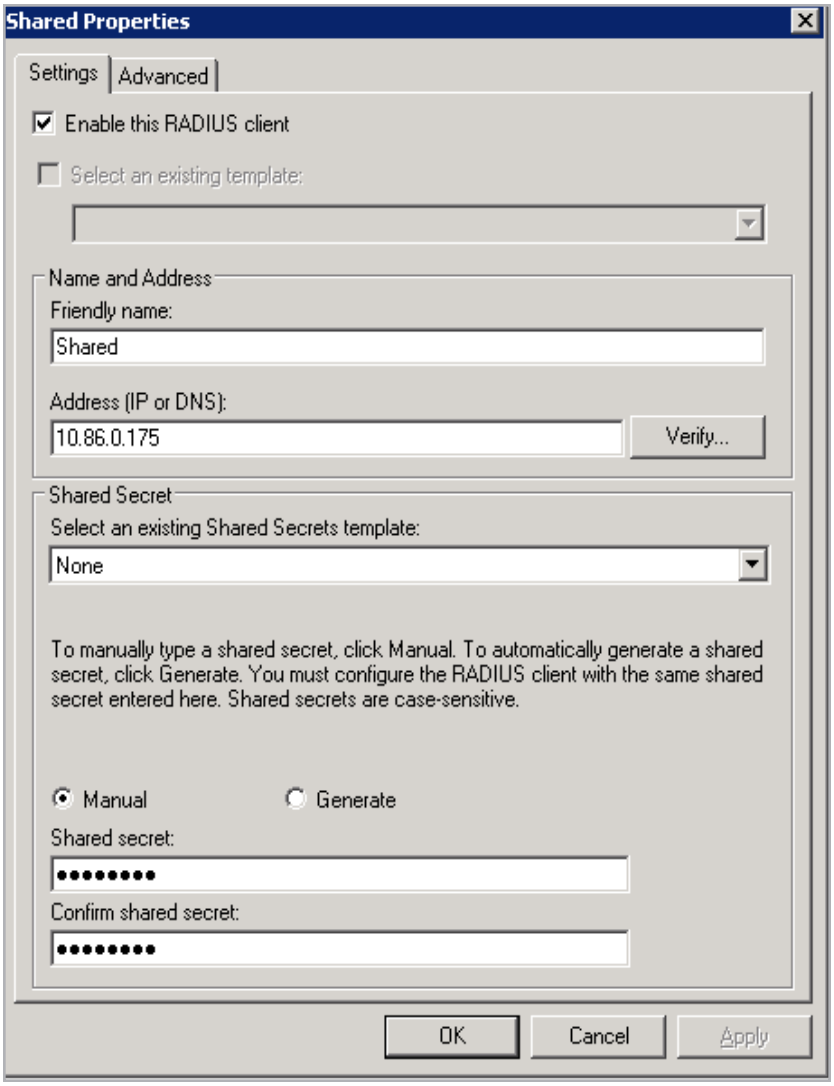


2. Navigate to the following option: **Roles > Network Policy and Access Services > NPS (Local) > RADIUS Clients and Servers > RADIUS Clients**.



3. Click **New** in the panel on the right.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



4. Enter a **Friendly name**.
5. Enter the IP **Address** of the LoadMaster.

   If using a High Availability (HA) pair, add all three IP addresses (unit 1, unit 2 and the shared IP address).

6. Enter a **Shared secret**.

   The **Shared secret** has a 48-character limit.

7. Enter the same shared secret in the **Confirm shared secret** text box and click **OK**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

8. When the LoadMaster contacts the RADIUS server, it uses the active physical interface. Therefore, two RADIUS clients must also be configured in addition to the shared address. Follow the steps above (using a different IP address) to create the additional RADIUS clients.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

3 Configure Authentication and Authorization

LoadMaster allows the users to be authorized by either RADIUS or Local User authorization. The user's authorization decides what level of permissions the user has and what functions on the LoadMaster they are allowed to perform.

When both authorization methods are selected, the LoadMaster initially attempts to authorize the user using RADIUS. If this authorization method is not available, the LoadMaster attempts to authorize the user using the Local User authorization.

In addition to configuring RADIUS authentication in the Server Manager, the LoadMaster also needs to be configured to use it. Configuration of RADIUS authentication in the LoadMaster varies depending on what method you want to use:

- **Local Authentication and Authorization** means that the LoadMaster contacts the RADIUS server for authentication and will use local authorization.
- **RADIUS Authentication and Authorization** means that the LoadMaster contacts the RADIUS server for authentication and will use reply messages sent back from the RADIUS server to authorize.

> The maximum character length for RADIUS authentication passwords that are used to log in to the Edge Security Pack (ESP) form is 128 alphanumeric characters. If non-alphanumeric or other characters are used that require multi-byte encoding, the maximum number of characters that can be used reduces.

Follow the steps in the relevant section below, depending on the chosen method.

For further details on what each of the LoadMaster fields mean, refer to the Web User Interface, Configuration Guide.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

3.1 Local Authentication and Authorization

Follow the steps below to configure the local authentication and authorization settings in the LoadMaster.

> Session Management must be disabled in order to use this method. If Session Management is enabled, the RADIUS server options mentioned in this section will not be available.

3.1.1 Specify the RADIUS Server Details

To enter the details of the RADIUS server, follow the steps below:

1. In the main menu of the LoadMaster Web User Interface (WUI), navigate to **Certificates & Security > Remote Access**.
2. Enter the IP address of the **Radius Server** and click the **Radius Server** button.

> If you do not see this option, ensure to disable **Session Management** in **Certificates & Security > Admin WUI Access**.

3. Enter the **Shared Secret** and click the **Set Secret** button.

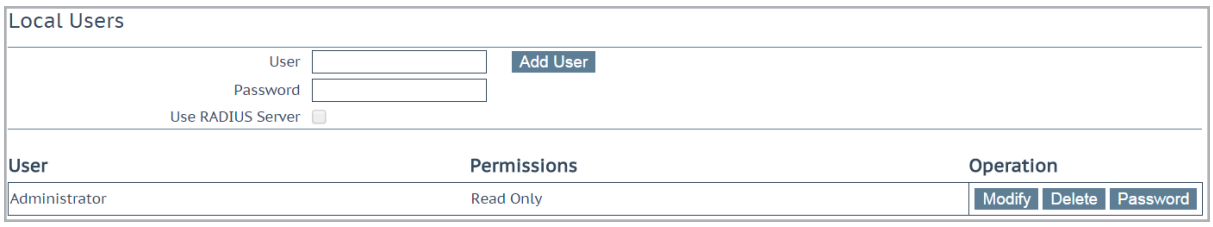
> The **Shared Secret** should be the same as the one entered in the **Add a RADIUS Client** section.

4. Enter the Revalidation Interval and click Set Interval.

3.1.2 Specifying RADIUS Authentication for an Individual User

When adding a new user in the **System Configuration** > **System Administration** > **User Management** screen, the **Use RADIUS Server** check box can be selected.

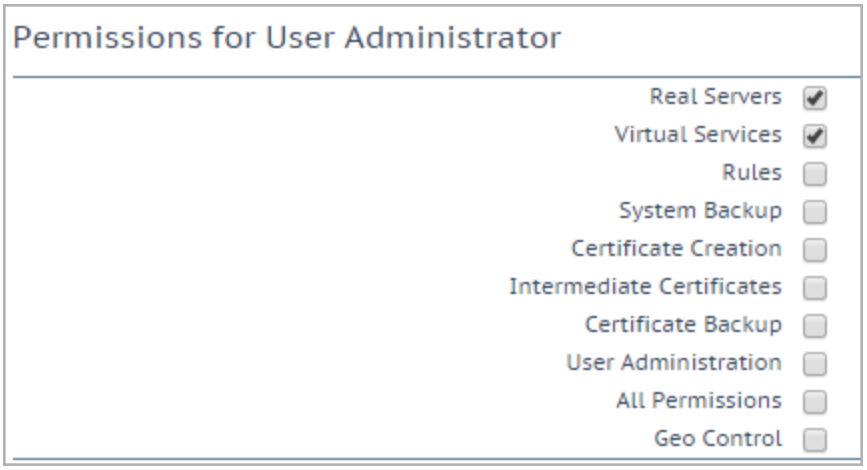
Selecting this check box will mean that RADIUS authentication is used when that user logs in to the LoadMaster. The RADIUS server details must be set up before this option can be used.



© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

3.1.3 Specifying Local Authorization for an Individual User

After a user has been added, you can specify what permissions they have by clicking the **Modify** button in the **Action** column.



The level of user permissions can be set in this screen. This determines what configuration changes the user is allowed to perform. The primary user, bal, always has full permissions. Secondary users may be restricted to certain functions.

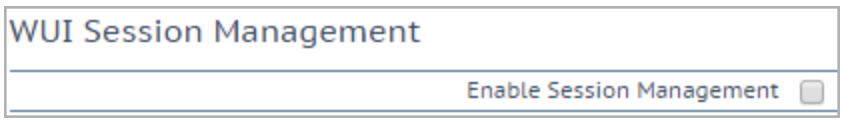
3.2 RADIUS Authentication and Authorization

This is an alternative option to using local authentication and authorization. In order to use this method, session management must be enabled. Session management settings are configurable in **Certificates & Security > Admin WUI Access**. If session management is disabled, the RADIUS options mentioned in this section will not be available.

3.2.1 Specify the RADIUS Server Details

To use the RADIUS Authentication and Authorization method, **Session Management** must be enabled. To enable **Session Management**, follow the steps below:

1. In the main menu of the LoadMaster WUI, select **Certificates & Security**.

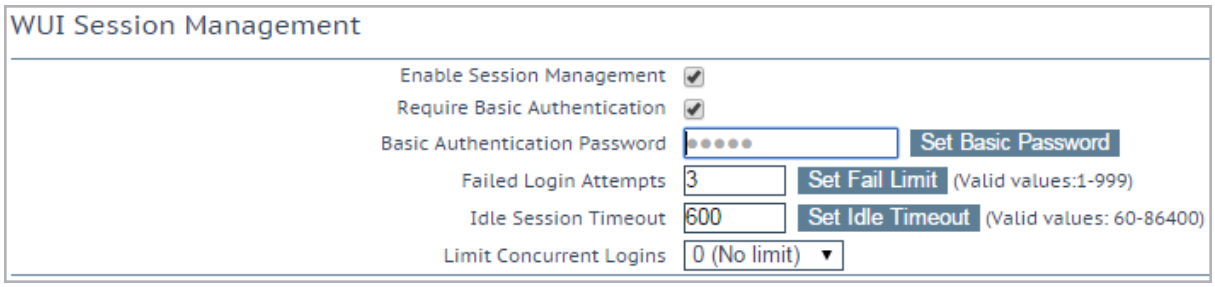


2. Select the **Enable Session Management** check box.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



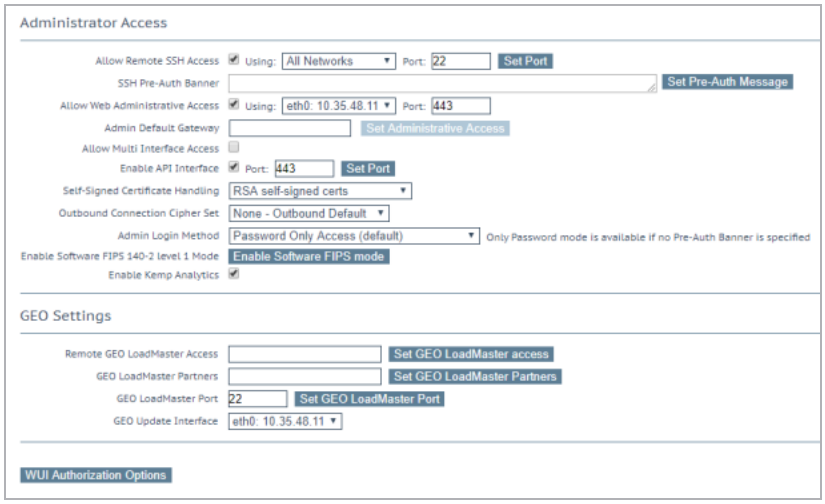
3. Enter **User** and **Password** details and click the **Login** button.



4. In the main menu of the LoadMaster WUI, select **Certificates & Security > Admin WUI Access**.

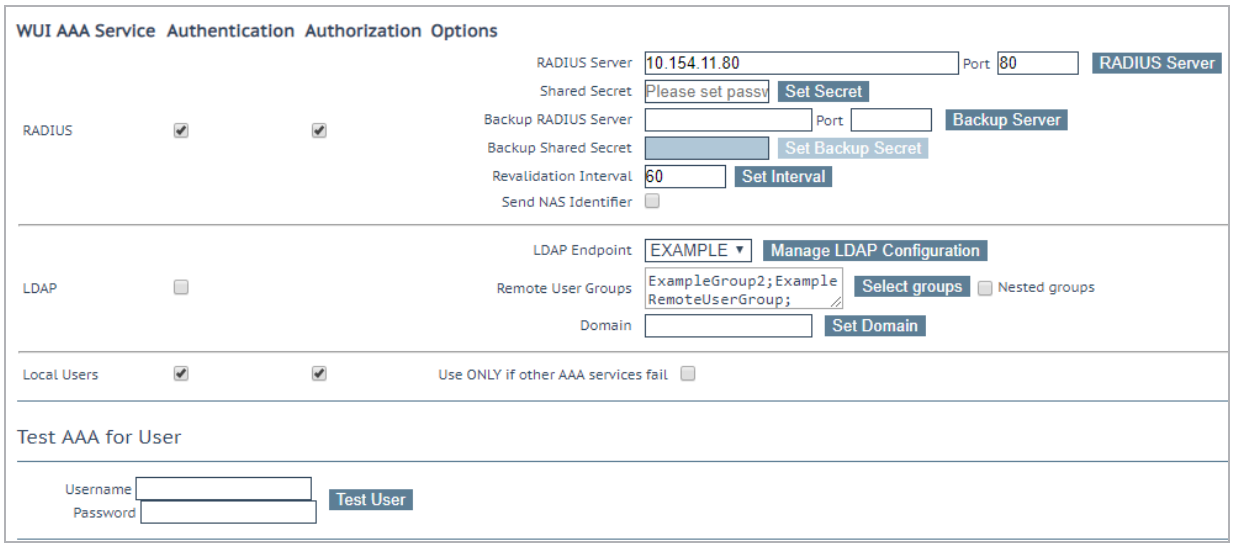
When **Session Management** is enabled on the LoadMaster, follow the steps below to configure RADIUS authentication:

5. In the main menu of the LoadMaster WUI, navigate to **Certificates & Security > Remote Access**.



6. Click **WUI Authorization Options**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



7. Enter the **Radius Server** IP address and **Port**.

   IPv6 is not supported for RADIUS authentication.

8. Select the **Radius Authentication** check box.
9. Select the **Radius Authorization** check box.
10. Click **Radius Server**.
11. Enter the **Shared Secret**.

    The **Shared Secret** should be the same as the one entered during the **Add a RADIUS Client** section.

12. Click **Set Secret**.
13. If necessary, fill out details for a **Backup Radius Server**.
14. Enter the **Revalidation Interval**.
15. Click the **Set Interval** button.

    The RADIUS authorization method can only be used if the RADIUS authentication method is selected.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

> There is a **Test AAA for User** section at the bottom of this screen. When session management is enabled, you can enter a valid **Username** and **Password** to test.

16. Decide whether or not to enable the **Send NAS Identifier** check box.

> If this check box is disabled (default), a NAS identifier is not sent to the RADIUS server. If it is enabled, a Network Access Server (NAS) identifier string is sent to the RADIUS server. By default, this is the hostname. Alternatively, if a value is specified in the **RADIUS NAS Identifier** text box, this value is used as the NAS identifier. If the NAS identifier cannot be added, the RADIUS access request is still processed.

17. If you enabled the **Send NAS Identifier** check box, decide whether or not to specify the **RADIUS NAS Identifier**.

> If the **Send NAS Identifier** check box is selected, the **RADIUS NAS Identifier** field is shown. When specified, this value is used as the NAS identifier. Otherwise, the hostname is used as the NAS identifier. If the NAS identifier cannot be added, the RADIUS access request is still processed.

18. Decide whether or not to enable the **Send Vendor Specific** check box.

> When this is enabled and a user is logging into the LoadMaster UI using RADIUS authentication with Cisco Access Control Server (ACS) or Identity Services Engine (IDE), the LoadMaster sends an Attribute Value Pair (AVP) to the server as part of the login request which contains Kemp's vendor ID. The server can use this AVP upon receipt to identify the LoadMaster device. The format and requirements for this attribute are in Section 5.26 of RFC 2865. The Kemp vendor ID is 12196.

3.2.2 Specifying RADIUS permissions for Groups and All Users

Permissions can be set up to apply to all users, or to groups:

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

- **Connection request policies:** Sets of conditions and settings that allow network administrators to designate which RADIUS servers perform the authentication and authorization of connection request that the Network Policy Server (NPS) receives from RADIUS clients. Connection request policies can be configured to designate which RADIUS servers are used for RADIUS accounting.
- **Network policies:** Sets of conditions, constraints and settings that allow you to designate who is authorized to connect to the network and the circumstances under which they can or cannot connect. When you deploy Network Access Protection (NAP), health policy is added to the network policy configuration so that NPS performs client health checks during the authorization process.

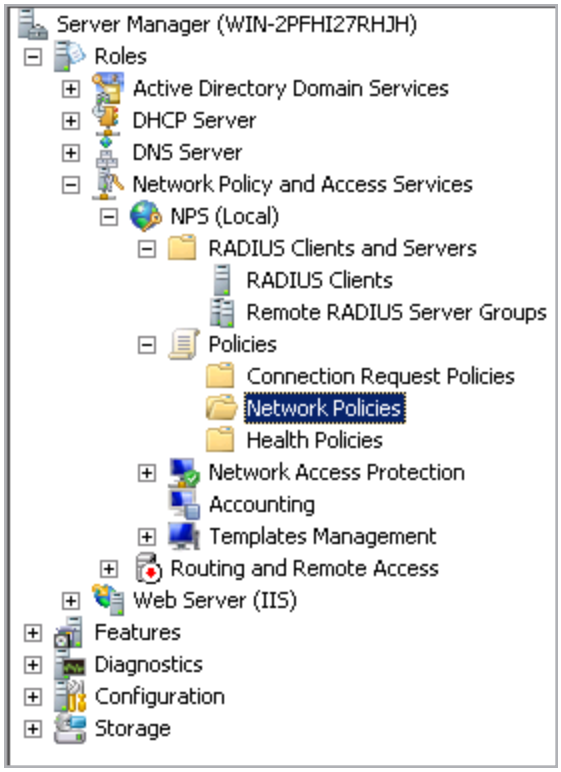
Connection request policies apply to all users. Network policies apply to groups.

Refer to the relevant section below depending on what level of permissions are needed.

3.2.2.1 Specifying RADIUS Authentication and Authorization for a Group (Network Request Policy)

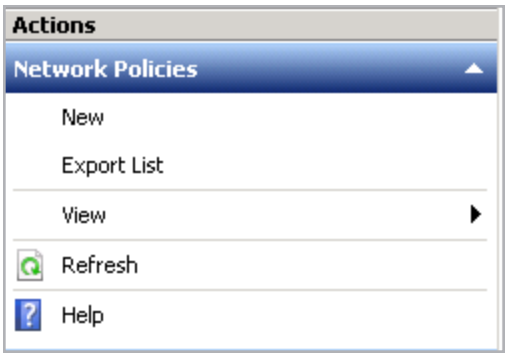
3.2.2.1.1 Specifying RADIUS Authentication for a Group

To set up a network policy, follow the steps below in the **Server Manager**.

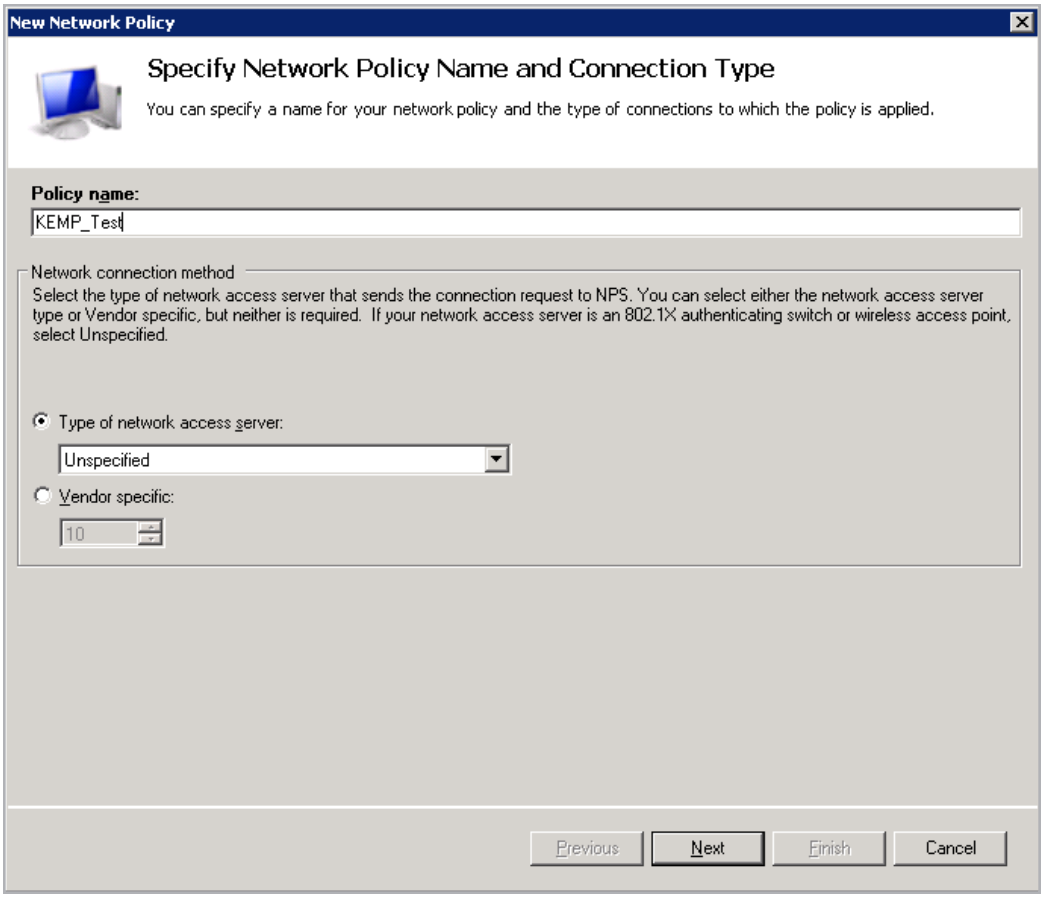


1. In the panel on the left, go to **Policies > Network Policies**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



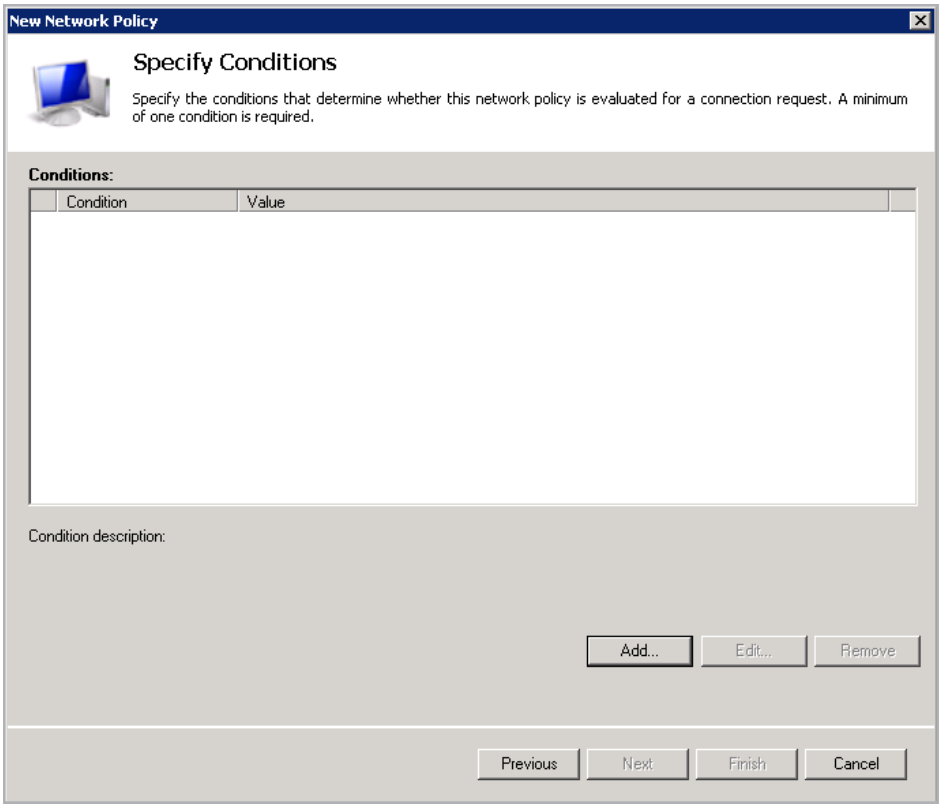
2. Click **New** in the panel on the right.



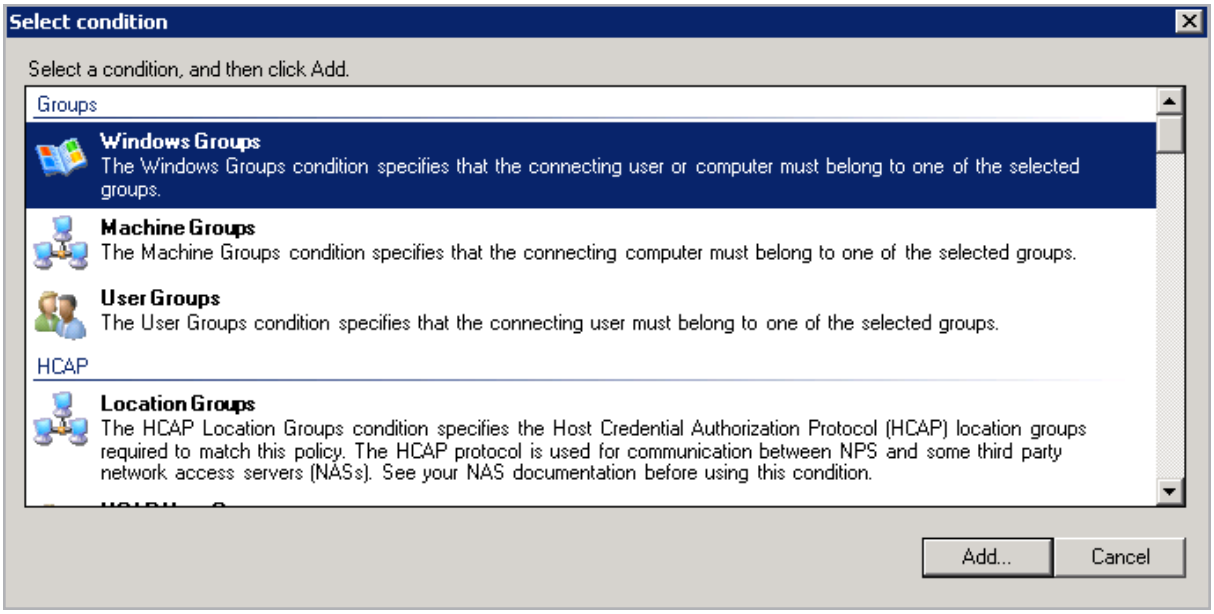
3. Enter a **Policy name**.

4. Click **Next**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



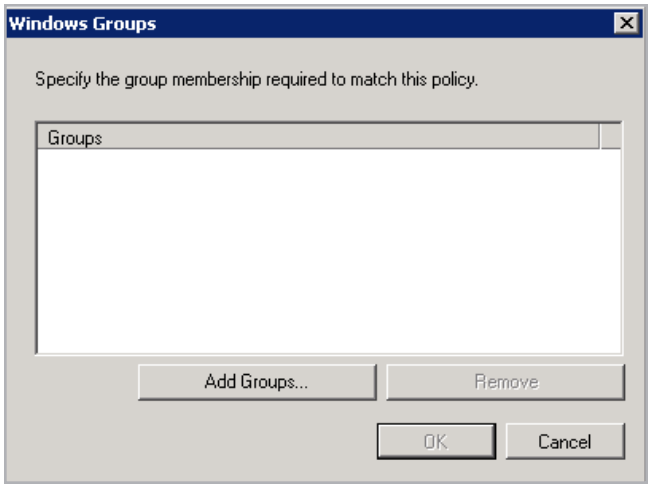
5. Click the **Add...** button.



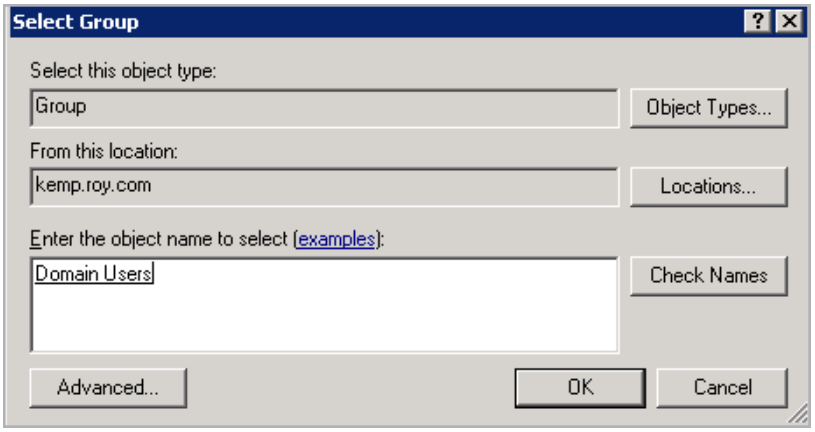
6. Select the relevant group type.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

7. Click the **Add...** button.



8. Click the **Add Groups...** button.

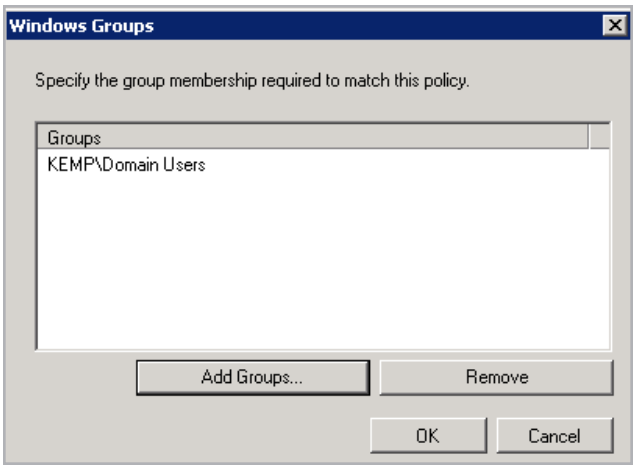


9. Enter the group name in the text area provided.

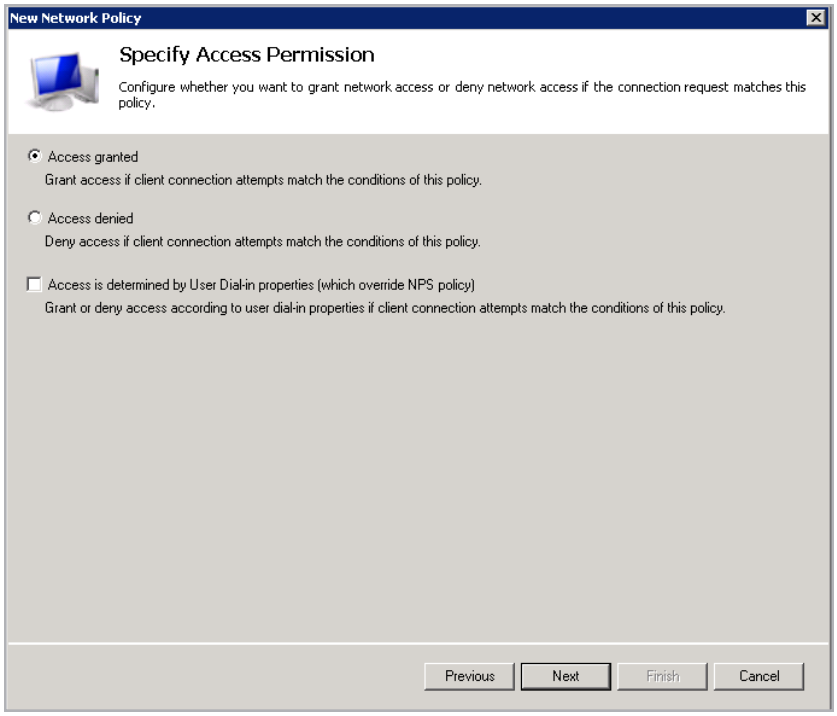
10. Click **Check Names**.

11. If the name is alright, click **OK**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

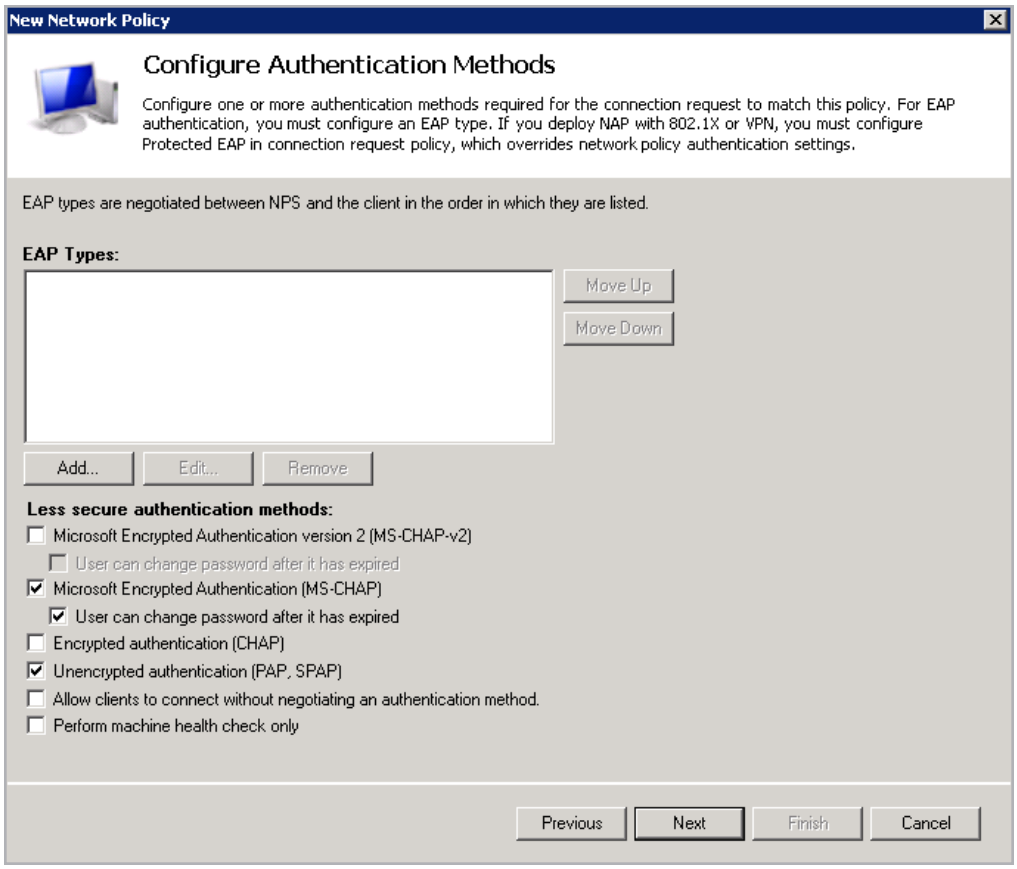


12. Click **OK**.
13. Click **Next**.



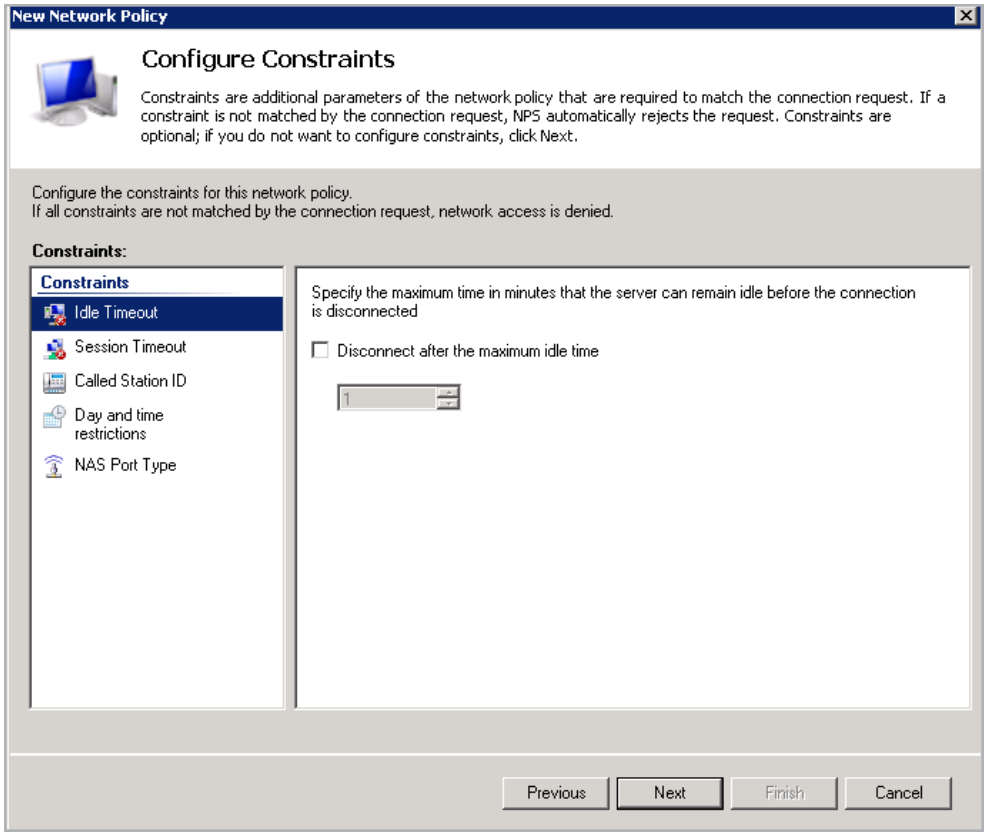
14. Select the relevant Access Permission option.
15. Click **Next**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



16. Remove the tick from the **Microsoft Encrypted Authentication version 2 (MS-CHAP-v2)** check box.
17. Ensure that **Microsoft Encrypted Authentication (MS-CHAP)** is selected.
18. Ensure that **User can change password after it has expired** is selected.
19. Select the **Unencrypted authentication (PAP, SPAP)** check box.
20. Click **Next**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



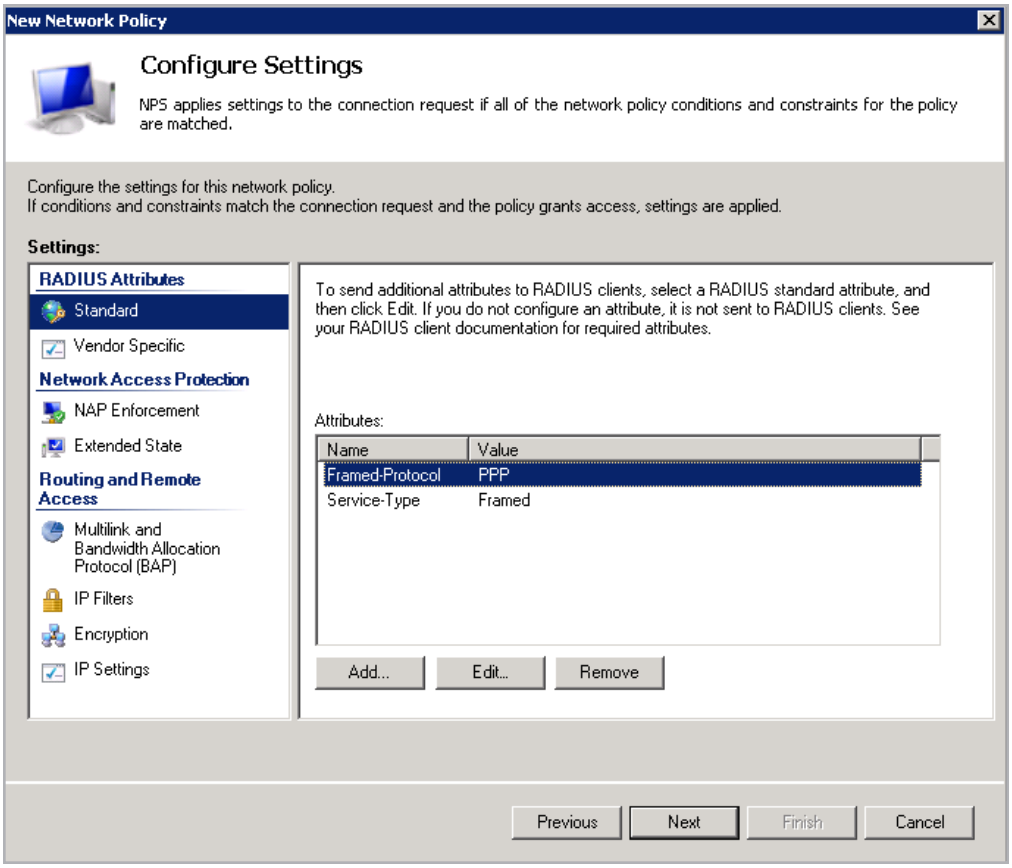
If idle timeout is used on the server it should match the idle timeout settings in the LoadMaster. Generally, Kemp recommends not setting this on the server.

21. Click **Next**.

The Kemp RADIUS policies should be moved to the top of the policy list on the Windows RADIUS server. The policies are executed in the order they are displayed.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

3.2.2.1.2 Specify RADIUS Authorization for a Group

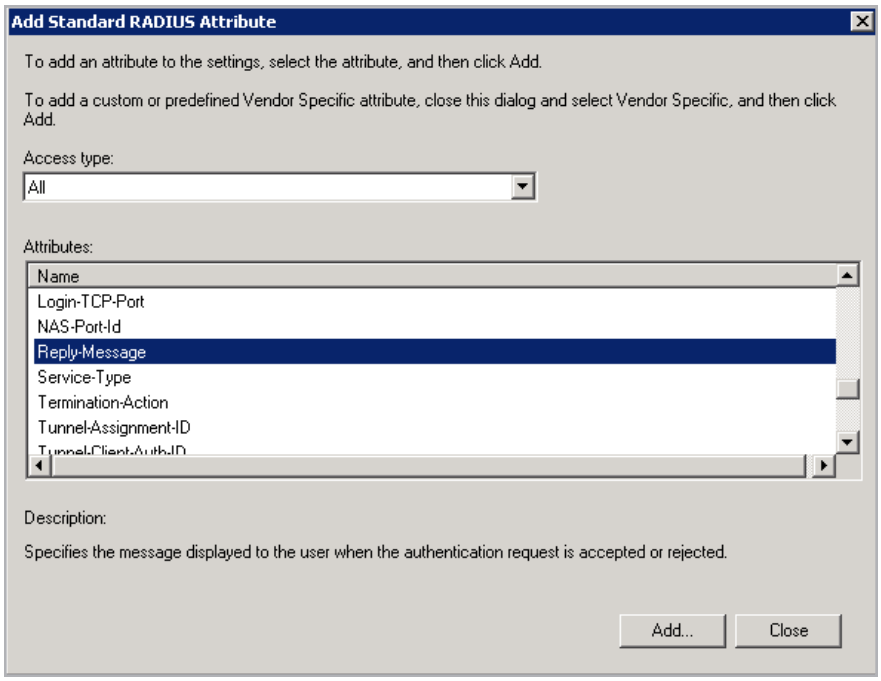


> The **Attributes** on this screen need to be in a certain order for the settings to work correctly. The order is as follows:
>
> **1. Reply-Message**
> **2. Framed-Protocol**
> **3. Service-Type**

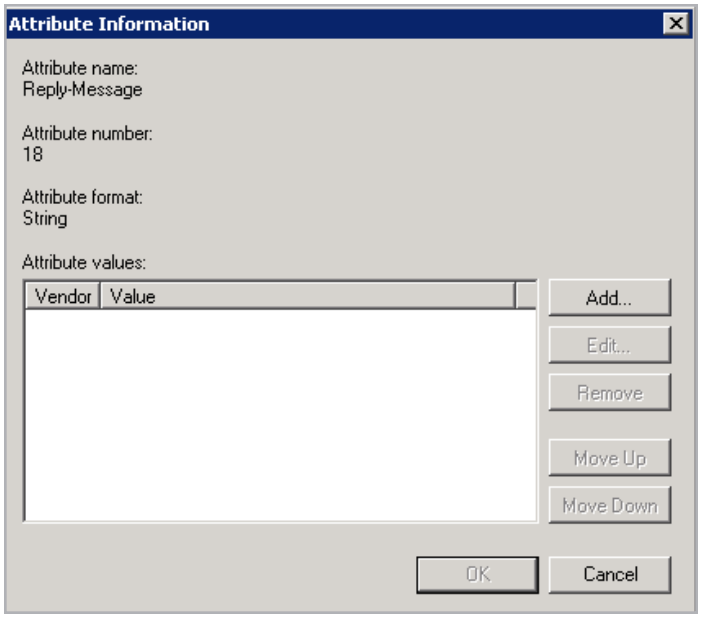
> Unfortunately, these attributes are not movable. So, to order these attributes correctly, you need to **Remove** and then **Add** them.

1. Select **Framed-Protocol** and click **Remove**.
2. Select **Service-Type** and click **Remove**.
3. Click the **Add...** button.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

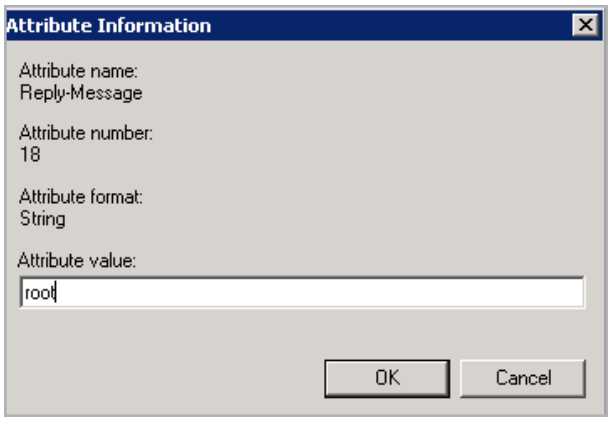


4. Select **Reply-Message**.
5. Click the **Add...** button.



6. Click the **Add...** button.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



7. Enter the relevant permission option(s) and click **OK**.

   The available permission options are as follows:
   real,vs,rules,backup,certs,cert3,certbackup,users,root,addvs
   These correspond to the permission options in the LoadMaster Web User Interface (WUI).

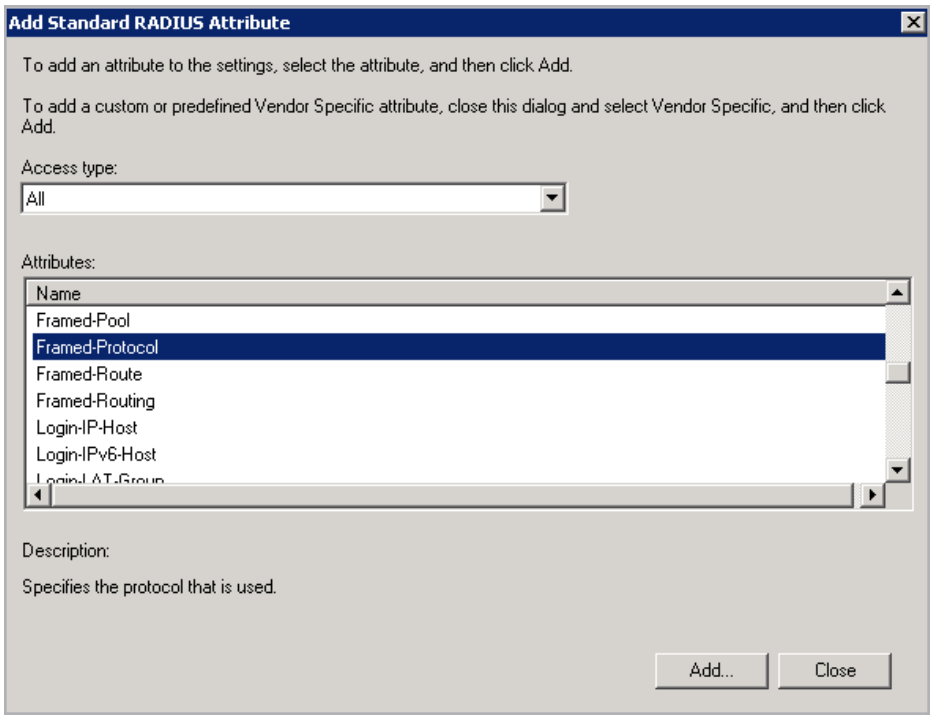
   The **root** permission grants all permissions.

   Multiple attributes can be specified here, but they must be separated by a comma (with no space).

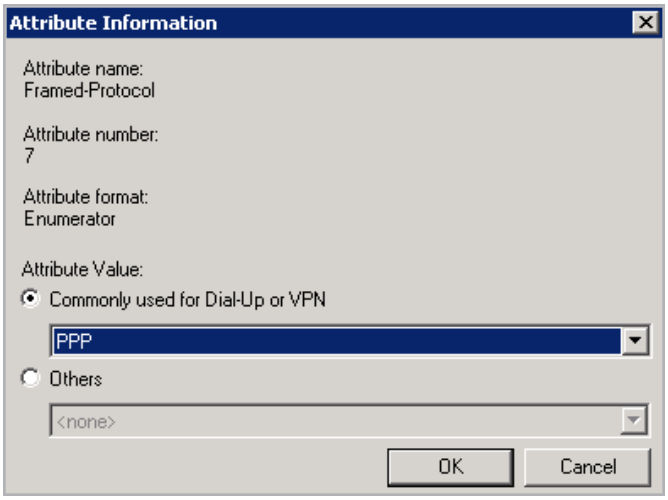
8. Click **OK** again.

9. Select **Framed-Protocol**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



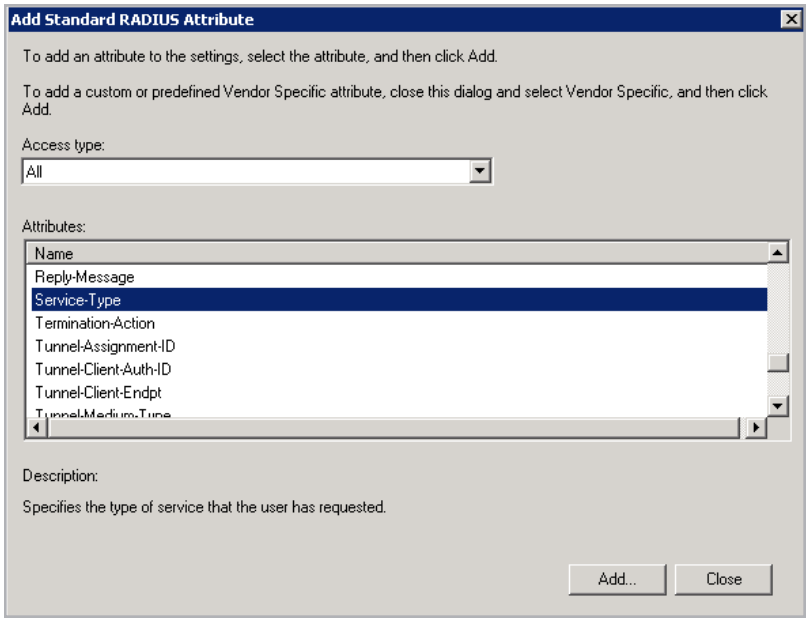
10. Click the **Add...** button.



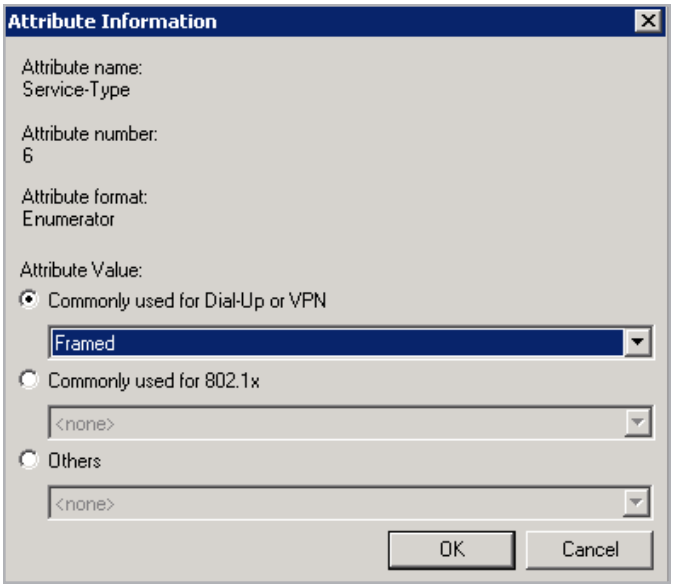
11. Select **PPP** from the **Commonly used for Dial-Up or VPN drop-down** list.

12. Click **OK**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



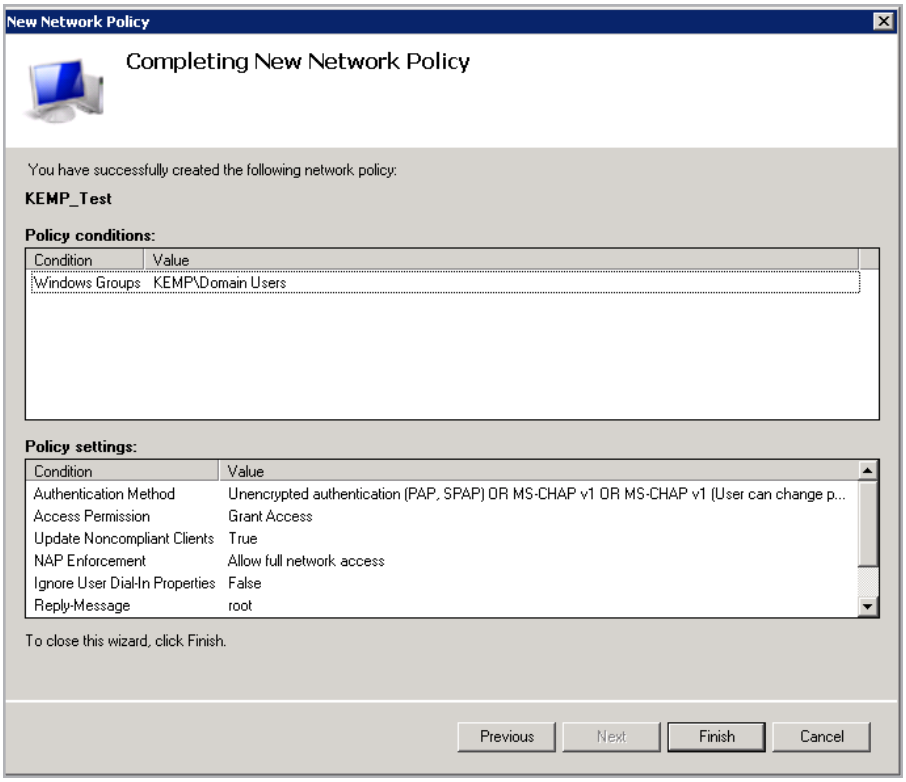
13. Select **Service-Type**.
14. Click the **Add...** button.



15. Select **Framed** from the **Commonly used for Dial-Up or VPN** drop-down list.
16. Click **OK**.
17. Click **Close**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

18. Click **Next**.



19. Click **Finish**.

20. Repeat this process as needed to set permissions for other groups.

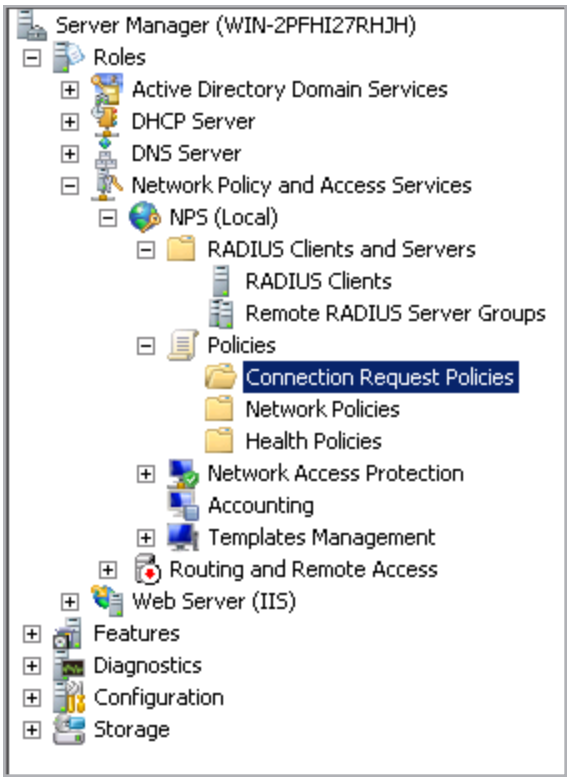
3.2.2.2 Specify RADIUS Authentication and Authorization for All Users

3.2.2.2.1 Specify RADIUS Authentication for All Users (Connection Request Policy)

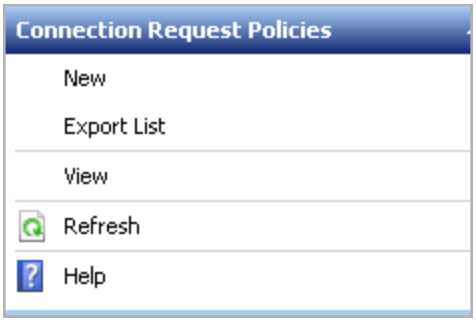
> Permissions set in the connection request policy apply to all users.

To set up a connection request policy, follow the steps below.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

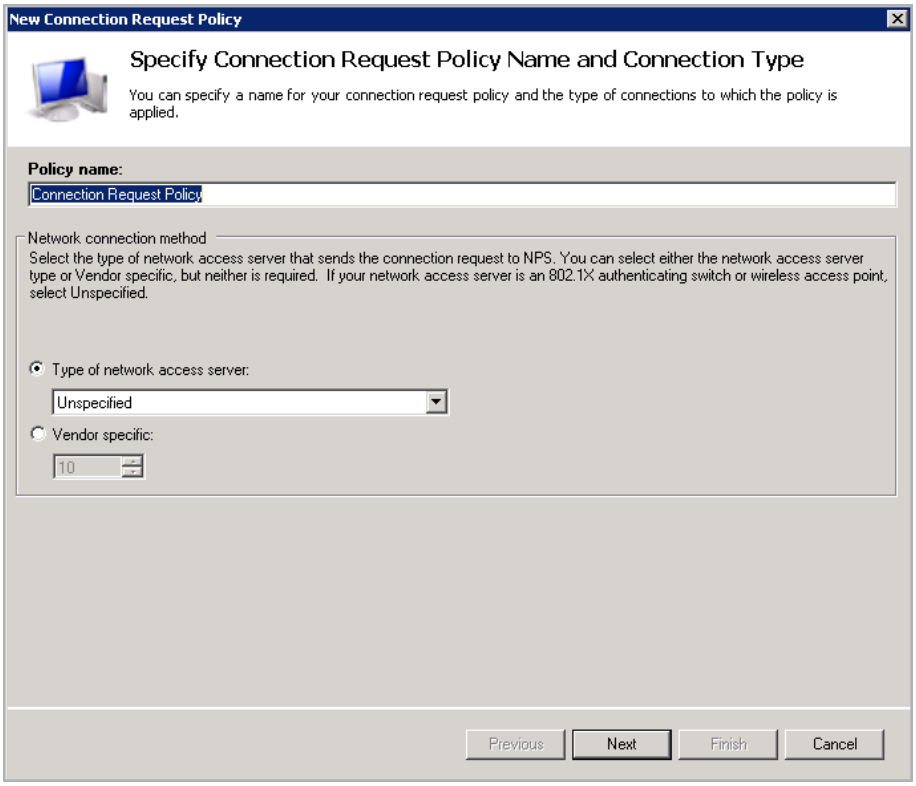


1. Navigate to **Roles > Network Policy and Access Services > Policies > Connection Request Policies**.



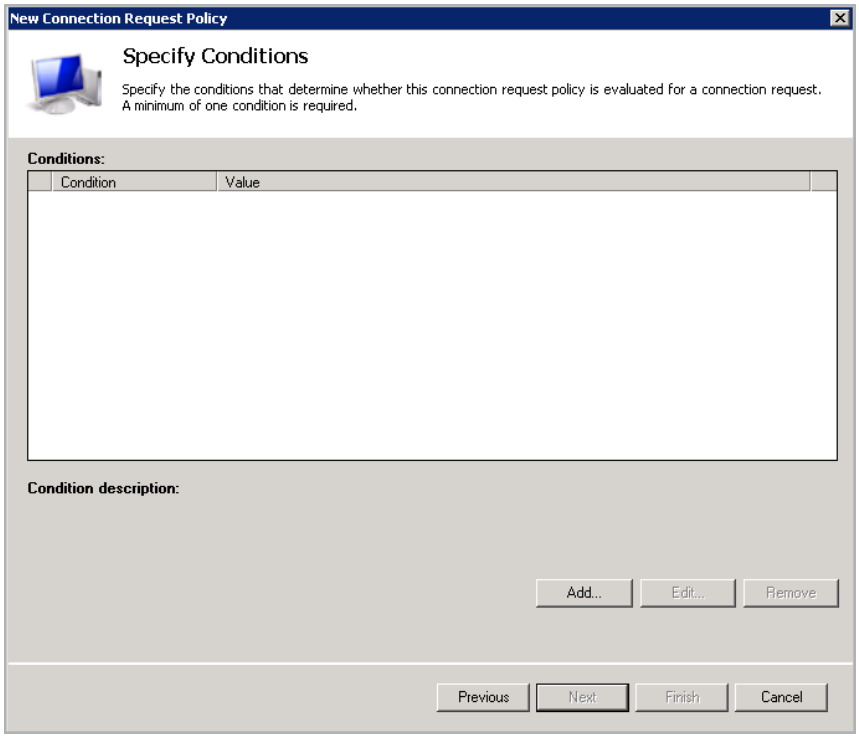
2. Click **New** in the panel on the right.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

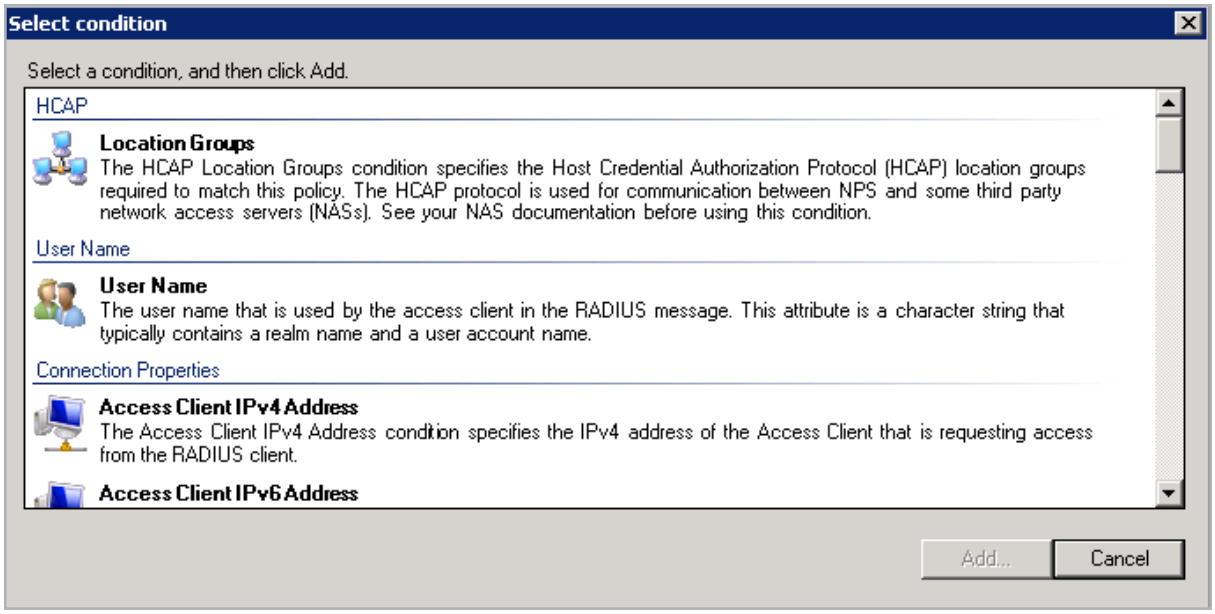


3. Enter a **Policy name.**
4. Click **Next**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

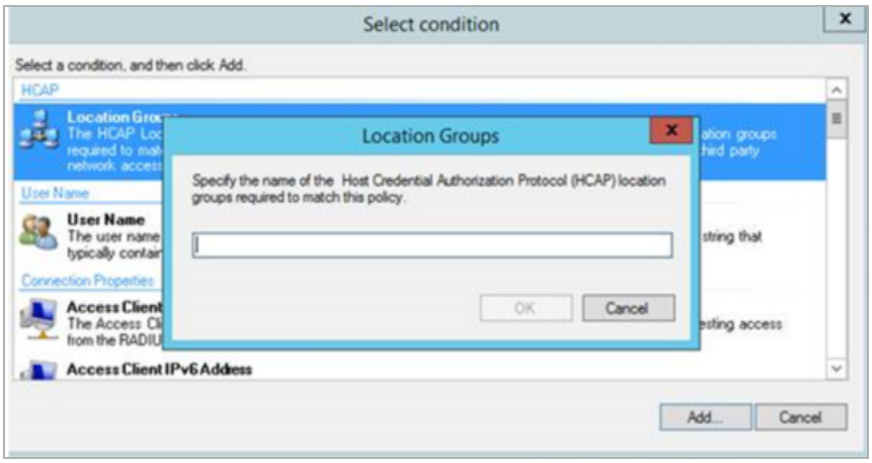


5. Click the **Add...** button.



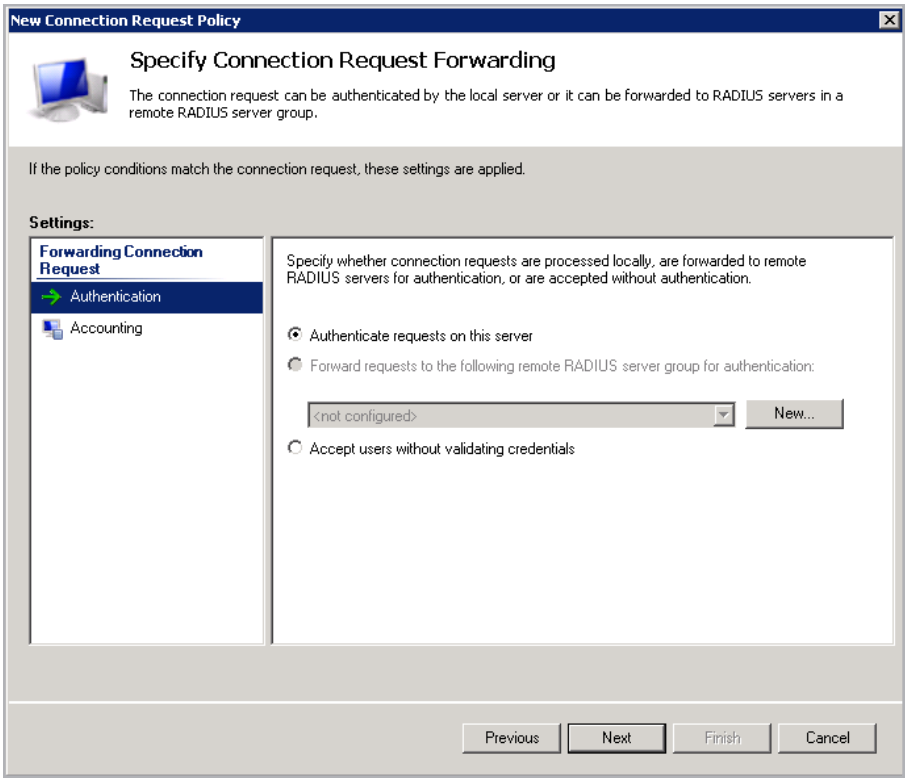
6. Select the **Location Groups** option.
7. Click the **Add...** button.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



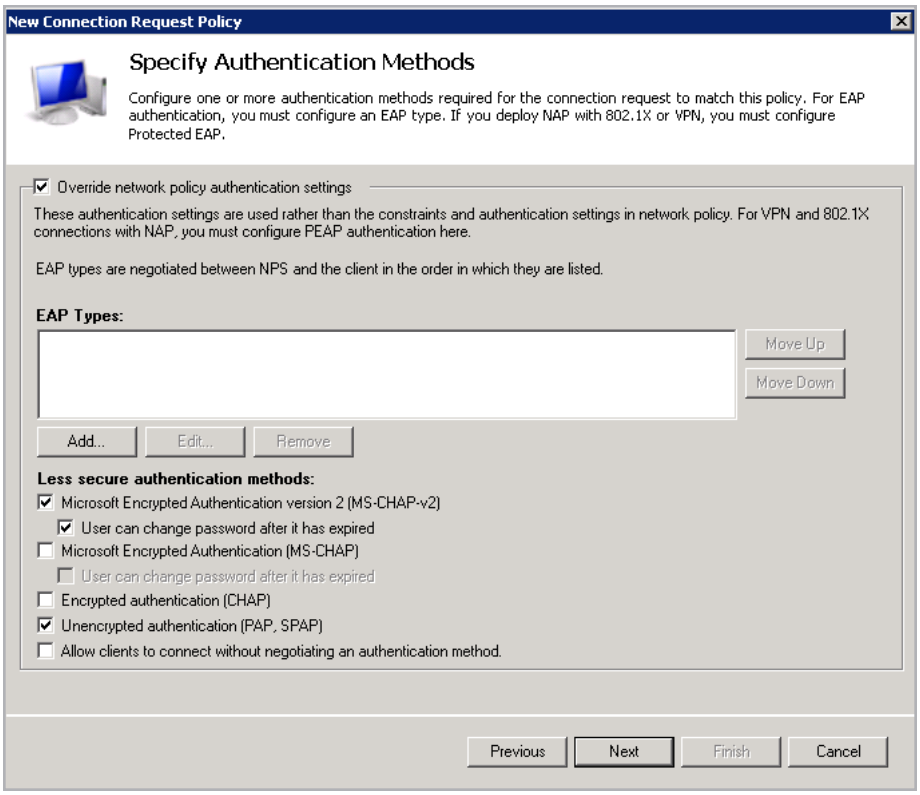
8. Type **Domain users** and click **OK**.

9. Click **Next**.



10. Click **Next**.

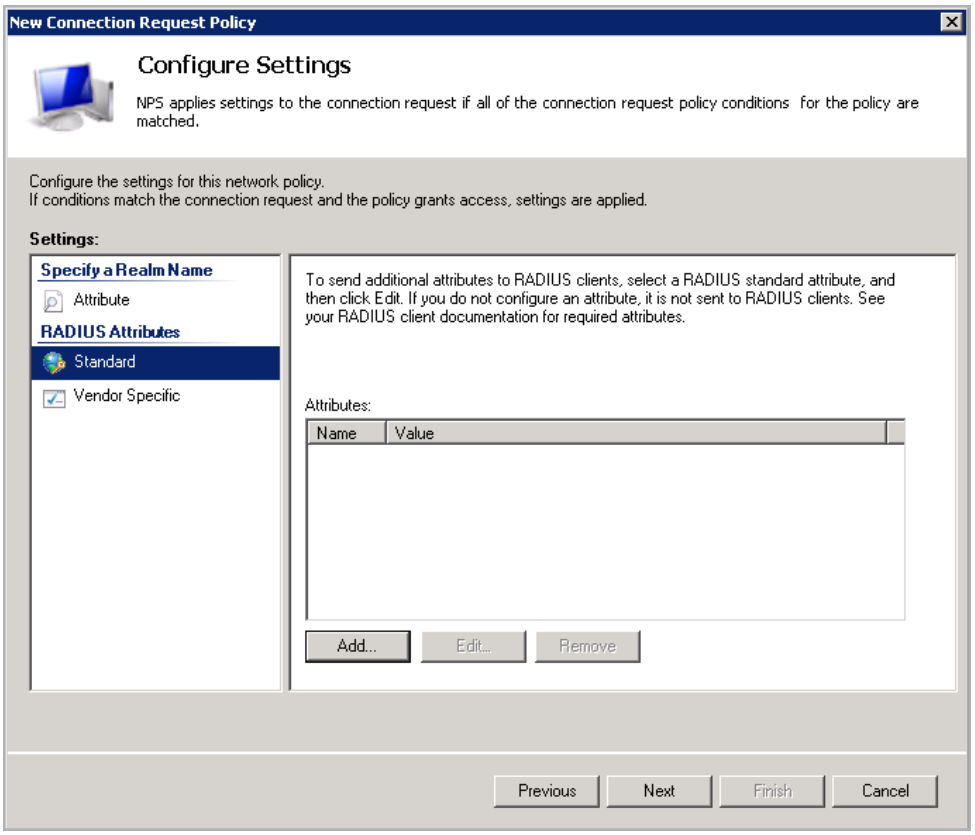
© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



11. Select the **Override network policy authentication settings** check box.
12. Select the **Microsoft Encrypted Authentication version 2 (MS-CHAP-v2)** check box.
13. Select the **User can change password after it has expired** check box.
14. Select the **Unencrypted authentication (PAP, SPAP) check** box.

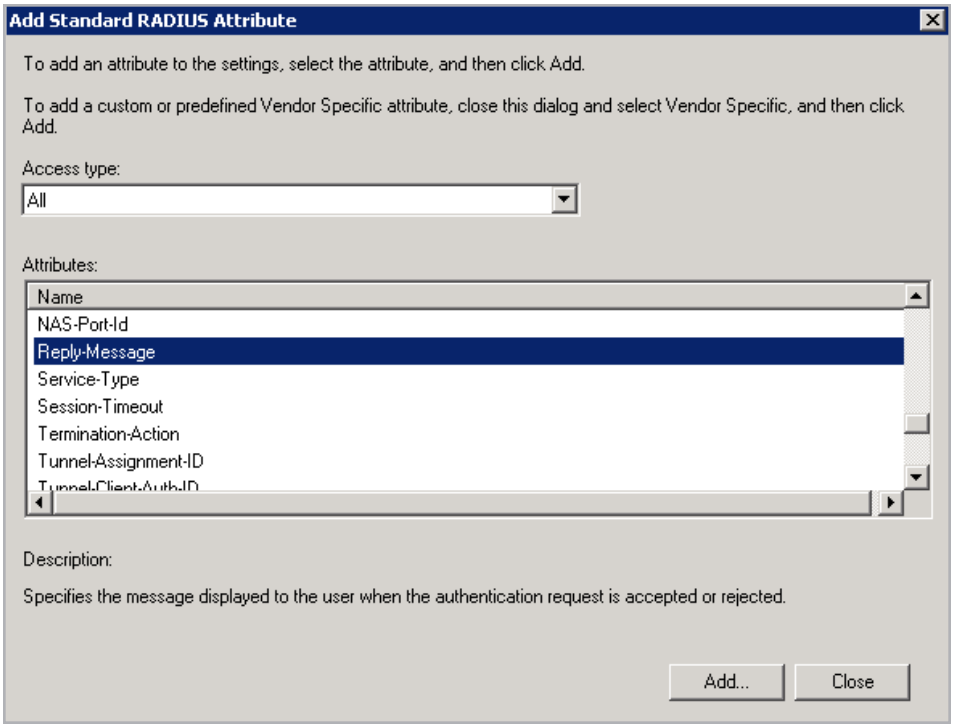
© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

3.2.2.2.2 Specifying RADIUS Authorization for All Users

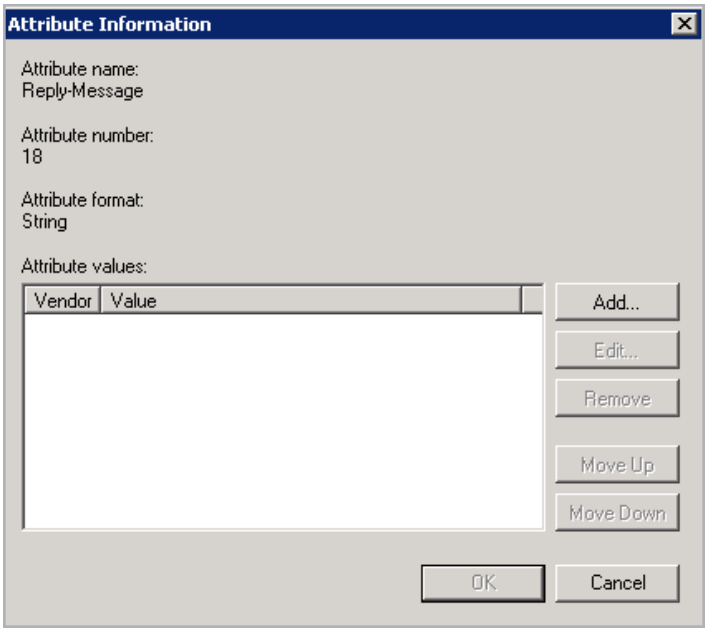


1. Select **Standard** in the panel on the left.
2. Click the **Add...** button.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

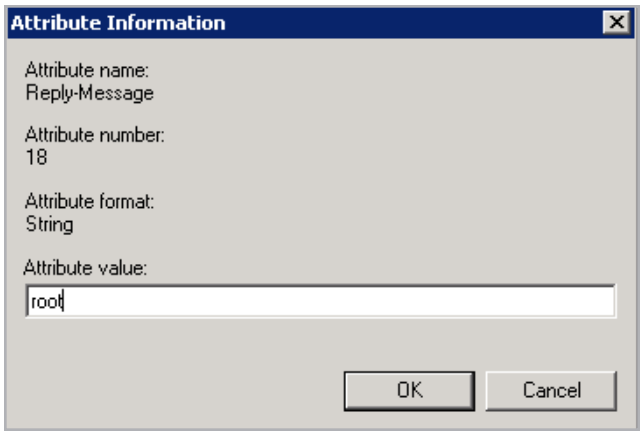


3. Select **Reply-Message**.
4. Click the **Add...** button.



5. Click the **Add...** button.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.



6. Enter the relevant permission(s) and click **OK**.

The available permission options are as follows:

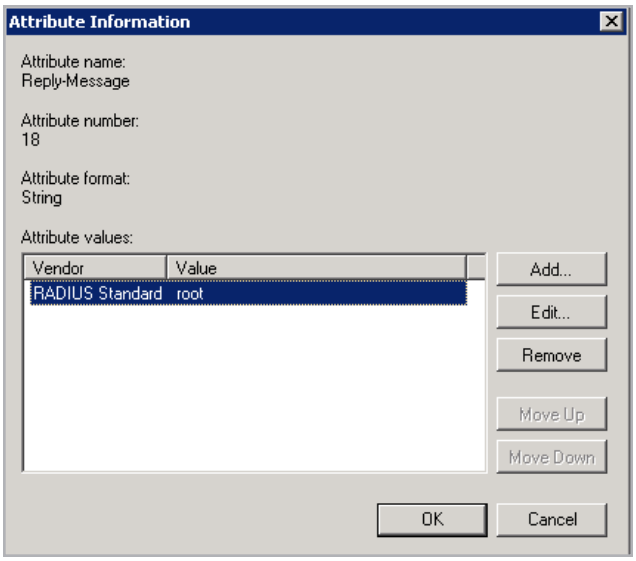
real,vs,rules,backup,certs,cert3,certbackup,users,root,geo

These correspond to the permission options in the LoadMaster Web User Interface (WUI).

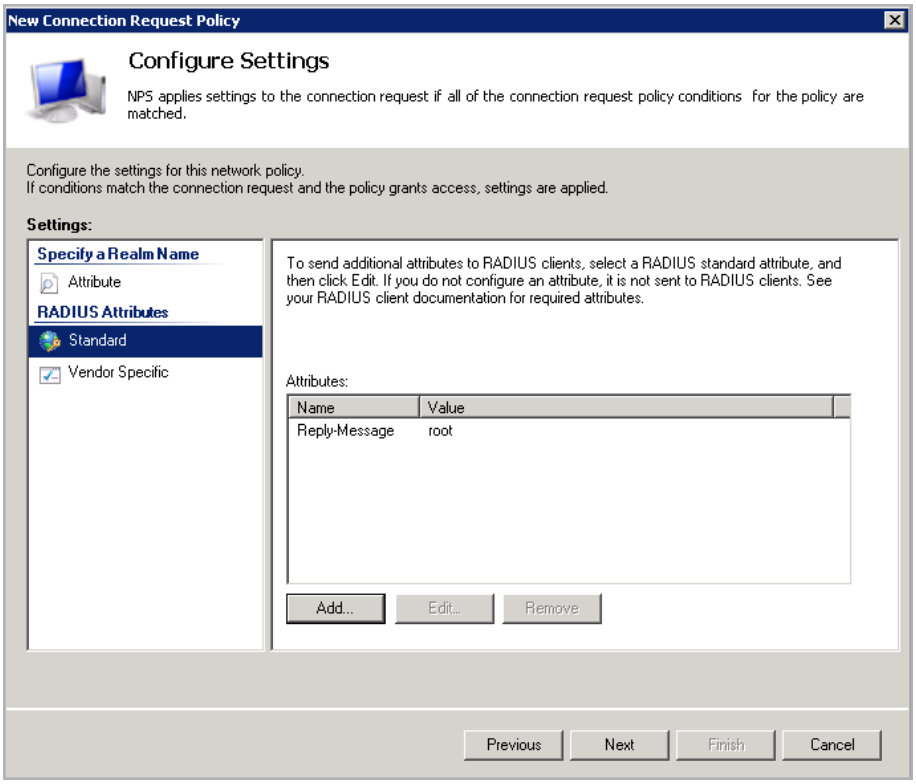
The **root** permission grants all permissions.

Multiple attributes can be specified here, but they must be separated by a comma (with no space).

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

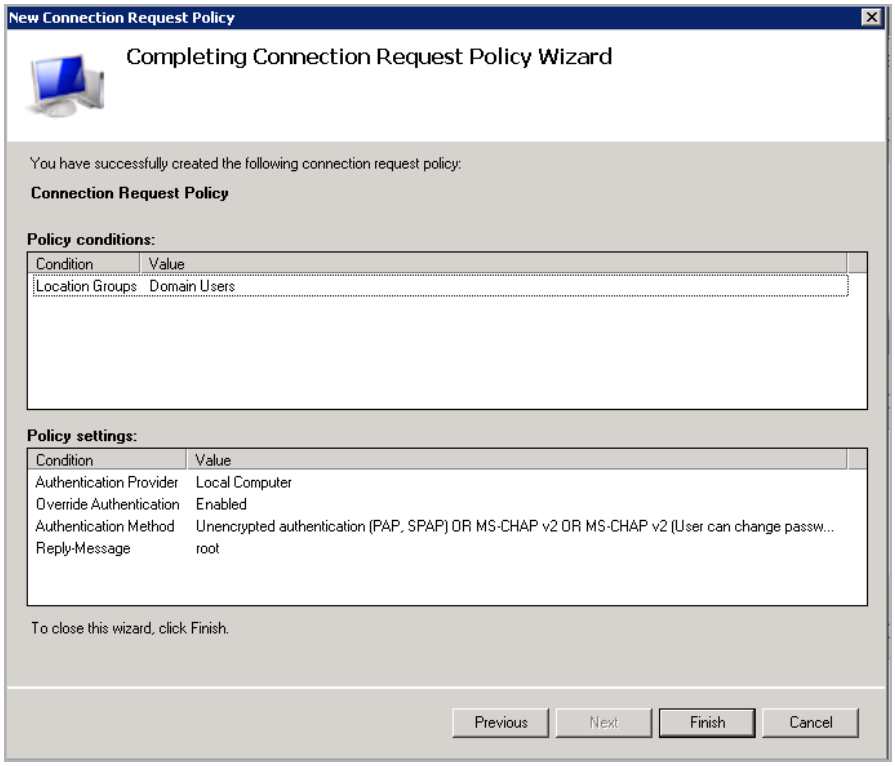


7. Select the attribute and click **OK**.
8. Click **OK** again.
9. Click **Close**.



© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

10. Click **Next**.



11. Click **Finish**.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

References

Unless otherwise specified, the following documents can be found at http://kemptechnologies.com/documentation.

Web User Interface, Configuration Guide

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.

Last Updated Date

This document was last updated on 28 July 2023.

© 2022 Progress Software Corporation and/or one of its subsidiaries or affiliates. All rights reserved.