



SOFTWARE INSTALLATION GUIDE

SYNERGIX ADCE - Active Directory Client Extensions for MS Windows™

This guide explains how to install the SYNERGIX ADCE software product on current versions of Microsoft® Windows™ computers.

SYNERGIX ADCE software addresses issues encountered by business users who connect to Active Directory domain based resources, typically over VPN connections (legacy or SSL based) or over WiFi connections and using cached credentials. The software includes features such as Password Change Notification, Password Change synchronization, Group Policy update, User Logon Script execution, Kerberos Ticket refreshes, Duplicate DNS record reconciliation and many more.

The Secure Network Connection feature of ADCE serves dual purposes. It limits inbound and outbound network connectivity until an authorized user logs in. This feature also enables Fast Logon Optimization and defers the processing of otherwise synchronous and slow group policy processing.

SYNERGIX, INC.

www.synergix.com

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DOCUMENT SUMMARY

SYNERGIX Active Directory Client Extensions (ADCE) software **Installation Guide** provides step-by-step instructions to the systems administrator responsible for the product installation, which involves configuration of the ❶ Microsoft® Windows™ Client Operating System¹ ❷ Microsoft® Active Directory Domain Environment and ❸ Group Policy Objects that are required for the product to function optimally.

¹ Supported Microsoft Windows Operating Systems only i.e. Windows XP and above

SOFTWARE INSTALLATION GUIDE

SYNERGIX ADCE - ACTIVE DIRECTORY CLIENT EXTENSIONS FOR MS WINDOWS™

SYNERGIX Active Directory Client Extensions [ADCE] for Microsoft® Windows™ is a unique software solution that bridges the gap between LAN connected computers and remote (VPN or WiFi) computers. SYNERGIX Active Directory Client Extensions software is VPN client software agnostic tool; it works on legacy VPN client software ex. Cisco VPN Client Software, MCI, Nortel, Microsoft and on SSL based VPN software such as from Juniper.

Remote users logging in from a domain computer or even from a personal computer in a workgroup or untrusted domain environment to their corporate network using VPN client software are presented with several challenges; these translate into poor user experience and increased desktop management and support costs. SYNERGIX ADCE software addresses several of such challenges:

- **Enforce** domain password policy changes on VPN users
- **Manage** Group Policy refreshes on VPN connected computer
- **Execute** user login scripts when user [VPN] connects to corporate network
- **Execute** VPN connect and **VPN disconnect** scripts
- **Map** user's home drive to home path when user [VPN] connects to corporate network
- **Update** Kerberos tickets and group membership without logging off the user or restarting remote computer
- **Update** computer object attributes dynamically ex. description, location, managedBy
- **Secure** dormant accounts
 - **Update** user object attributes dynamically ex. account expires
- **Manage** Duplicate DNS records
- **Maintain** domain membership of trusted computer objects
- **Centrally manage** local administrator and backup administrator account credentials
- **Map** domain user account to a local account
- **Local account** can be granted elevated privileges
- **Improve** the Return on Investment, on desktop management software that tie into Active Directory

SYNERGIX ADCE requires Microsoft® .NET Framework 2.0 or higher version. Microsoft® .NET Framework 1.1 may be required for the Windows Installer.

Synergix, Inc.

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TERMS AND DEFINITIONS²

ACTIVE DIRECTORY

Active Directory is a technology created by Microsoft that provides a variety of network services, including:

- Lightweight Directory Access Protocol LDAP is the industry standard directory access protocol, making Active Directory widely accessible to management and query applications. Active Directory supports LDAPv3 and LDAPv2.
- Kerberos-based authentication
- DNS-based naming and other network information (Guts of DNS, Stable DNS is needed for AD to work properly)
- Central location for network administration and delegation of authority
- Information security and single sign-on for user access to networked based resources
- The ability to scale up or down easily
- Central storage location for application data
- Synchronization of directory updates amongst several servers

FORESTS, TREES AND DOMAINS

All objects inside a common directory database is known as domain. Each domain stores information only about the objects that belong to that domain. A tree consists of a single domain or multiple domains in a contiguous namespace. A forest is a collection of Trees and represents the outermost boundary within which users, computers, groups, and other objects exist. The forest is the security boundary for Active Directory.

The Active Directory framework that holds the objects can be viewed at a number of levels. At the top of the structure is the *forest*. A forest is a collection of multiple trees that share a common global catalog, directory schema, logical structure, and directory configuration. The forest, tree, and domain are the logical parts in an Active Directory network.

The Active Directory forest contains one or more transitive, trust-linked *trees*. A tree is a collection of one or more *domains* and domain trees in a contiguous namespace, again linked in a transitive trust hierarchy. Domains are identified by their DNS name structure, the namespace.

SCHEMA

The Microsoft Active Directory schema contains formal definitions of every object class that can be created in an Active Directory forest. The schema also contains formal definitions of every attribute that can exist in an Active Directory object. This section provides the reference for each schema object and provides a brief explanation of the attributes, classes, and other objects that comprise the Active Directory schema.

² Reference: Wikipedia.org, Microsoft

OBJECTS AND OBJECT ATTRIBUTES

Everything that Active Directory tracks is considered an object. An object is any user, system, computer, resource, or service tracked within Active Directory. The generic term object is used because Active Directory is capable of tracking a variety of items, and many objects can share common attributes.

An Active Directory structure is a **hierarchical framework** of objects. The objects fall into two broad categories: resources (e.g., printers) and security principals (user or computer accounts and groups). Security principals are Active Directory objects that are assigned unique security identifiers (SIDs) used to control access and set security.

Each object represents a single entity — whether a user, a computer, a printer, or a group — and its **attributes**. Certain objects can also be containers of other objects. An object is uniquely identified by its name and has a set of attributes — the characteristics and information that the object can contain — defined by a schema, which also determines the kind of objects that can be stored in Active Directory.

Each attribute object can be used in several different schema class objects. The schema object exists to allow the schema to be extended or modified when necessary. However, because each schema object is integral to the definition of Active Directory objects, deactivating or changing these objects can have serious consequences because it will fundamentally change the structure of Active Directory itself. A schema object, when altered, will automatically propagate through Active Directory and once it is created it can only be deactivated — not deleted. Changing the schema usually requires a fair amount of planning.

INTRODUCTION

Microsoft provides several Windows based tools to manage the Active Directory environment. They generally require the Windows Server 2003 Administration Tools Pack or the Remote Server Administration Tool to be installed on the each of the administrators' machines in order for them to manage the Active Directory environment.

LAN connected computers and users interactively logging into Active Directory from such computers get a rich experience and seamless access to Active Directory domain resources. In contrast, remote users connecting the corporate network via VPN i.e. using cached credentials may experience issues. These issues include password change notification, group policy updates, user login script execution, DNS duplicate records and several others. SYNERGIX ADCE addresses several of these issues and allow the administrators to manage remote computers and remote users like LAN connected computers and users.

- **Enforce** domain password policy changes on VPN users
- **Manage** Group Policy refreshes on VPN connected computer
- **Execute** user login scripts when user [VPN] connects to corporate network
- **Execute** VPN connect and **VPN disconnect** scripts
- **Map** user's home drive to home path when user [VPN] connects to corporate network
- **Update** Kerberos tickets and group membership without logging off the user or restarting remote computer
- **Update** computer object attributes dynamically ex. description, location, managedBy
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- **Local account** can be granted elevated privileges
- **Improve** the Return on Investment, on desktop management software that tie into Active Directory

SOFTWARE REQUIREMENTS

SYNERGIX ADCE for Microsoft® Windows™ is client based software. No schema changes are required in the Active Directory forest environment nor is any server software required on a domain server.

Server Requirements

	None

Client Requirements

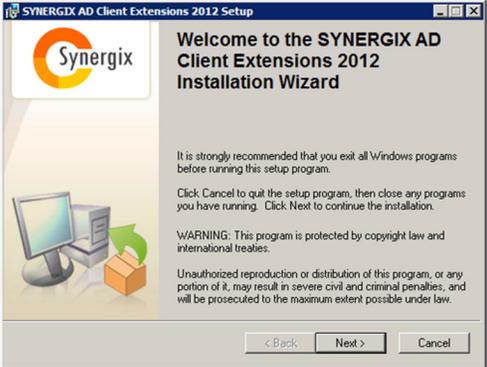
Client Computer Operating System	Ex. Windows Server XP Windows Vista Windows 7.0 Windows Server 2003 Windows Server 2008
Client Computer Operating Platform	Ex. 32 bit 64 bit
Client Computer Role	Ex. Domain Member or Workgroup Computer
.NET Framework	Ex. .NET Framework 2.0 or above SP1

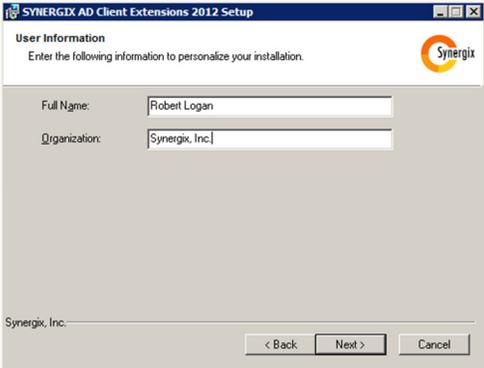
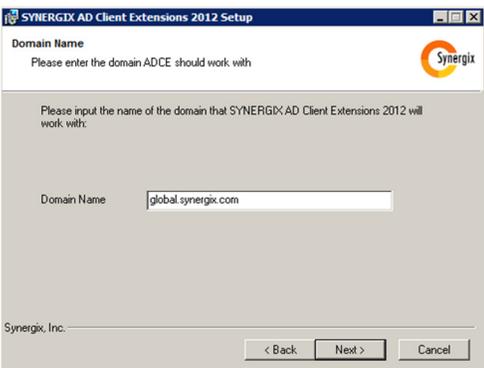
STARTING SYNERGIX ADCE INSTALLATION

Interactive Installation

This section of the document guides you through interactive installation process of SYNERGIX Active Directory Client Extensions.

You must have administrative privileges in order to perform the installation or your system must be configured to *Allow install with elevated privileges* (<http://msdn.microsoft.com/en-us/library/ms813108.aspx>)

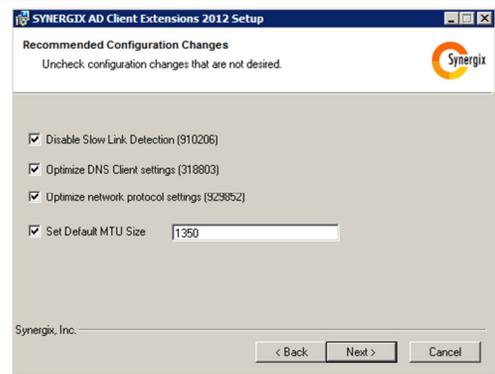
Task	Illustration
Login to the client computer using an administrative account	
Locate ADCE software installation package file (MSI formatted file). Double click on the MSI file to launch the software installation wizard. Note: The same MSI package file will install on 32 bit and on 64 bit platforms.	
When the Welcome dialog box is displayed, click on Next button.	
Review the content of the <i>End User License Agreement</i> . By default, <i>I do not accept the license agreement</i> radio button is selected	

<p>Review the content of the <i>End User License Agreement</i>. Select I accept the license agreement radio button, if you wish to proceed with the software installation.</p>	
<p>In the User Information dialog box, enter <i>Full Name</i> and <i>Organization</i>.</p>	
<p>Review <i>Destination Folder</i> setting. The default <i>Destination Folder</i> is set under the <code>\Program Files\</code> folder.</p> <p>It is generally not necessary to change this setting.</p>	
<p>In the <i>Domain Name</i> dialog box, ensure that your Active Directory domain FQDN is displayed. Correct it as needed.</p> <p>Note: It is required that you type the Active Directory Domain Name in FQDN format</p>	

In the *Recommended Configuration Changes* dialog box, review the settings and check / uncheck the options as appropriate for your environment. The 6 digit numbers displayed in parenthesis indicate the KB article published by the vendor. You may visit Microsoft website to get more information on specific settings.

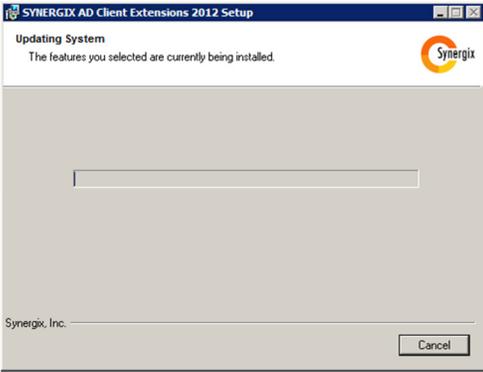
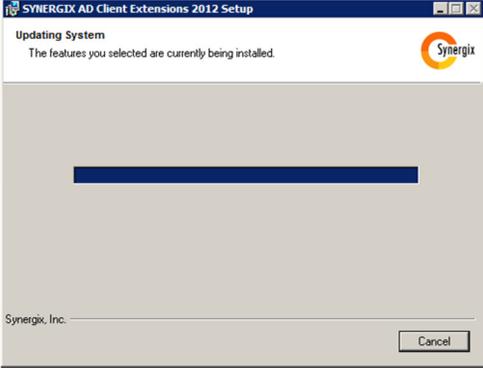
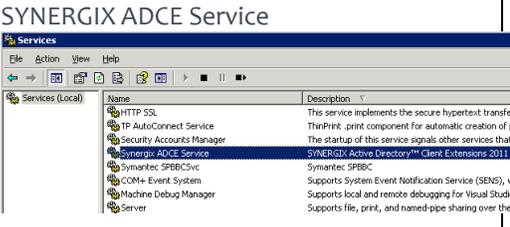
1. (910206) In order to facilitate the download of Group Policy object over a slow link network connection, the registry setting is modified to facilitate this setting.
2. (318803) Disables caching of negative DNS responses
3. (929852) Optimizes network protocol settings
4. In order to reduce network packet fragmentation and optimize data transmission over a VPN connection, it is generally recommended to adjust the MTU size.

Note: It is strongly recommended that the *Recommended Configuration Changes* are left as shown i.e. they are checked.



When you're ready to start the installation, click on *Next* button.



<p>Please wait while the system is updated.</p>	
<p>The User Account Control (UAC) feature in Windows Operating System will prompt you to continue with the installation. Click on <u>C</u>ontinue button.</p>	
<p>The installation will resume after the prompt in UAC dialog is acknowledged.</p>	
<p>Check the status of the installation and then, click on <i>Finish</i> button to complete the installation.</p>	
<p>Immediately after the software installation has completed, SYNERGIX ADCE Service will start running.</p>	

<p>And SYNERGIX ADCE Client application will be displayed in the System Tray.</p>	 <p>SYNERGIX ADCE Client</p>
<p>Immediately after the software installation has finished and the program (service and client components) started, following features of the software will work without requiring any configuration changes:</p> <ul style="list-style-type: none">① Domain Password Change Notification② Group Policy Refresh③ Kerberos Ticket Refreshes <p>For additional product features to work, you will be required to configure a Group Policy Object. You must add the Group Policy Administrative Template file provided and configure the settings as appropriate for your environment.</p>	

Silent Installation

This section of the document guides you through silent installation process of SYNERGIX Active Directory Client Extensions.

You must have administrative privileges in order to perform the installation or your system must be configured to *Allow install with elevated privileges* (<http://msdn.microsoft.com/en-us/library/ms813108.aspx>)

Task	Illustration
Login to the client computer using an administrative account	
Locate ADCE software installation package file (MSI formatted file). Note: The same MSI package file will install on 32 bit and on 64 bit platforms.	
Start the command prompt	
Run following command. It will silently install SYNERGIX ADCE software and generate a verbose log file, when /l*v parameter is specified. <pre>msiexec /i ADCE.MSI /qb-! /l*v ADCE.MSI.log</pre>	<pre>msiexec /i ADCE.MSI /qb-! /l*v ADCE.MSI.log</pre>
Immediately after the software installation has completed, SYNERGIX ADCE Service will start running.	 <p>The screenshot shows the Windows Services console with the 'SYNERGIX ADCE Service' highlighted. The service is listed as 'SYNERGIX Active Directory™ Client Extensions 2011.3' and is currently running.</p>
And SYNERGIX ADCE Client application will be displayed in the System Tray.	 <p>The screenshot shows the Windows System Tray with several icons. An orange arrow points to the SYNERGIX ADCE Client icon, which is a green circle with a white 'C'.</p> <p>SYNERGIX ADCE Client</p>
When the software installation has finished	

and the program (service and client components) started, following features of the software will work without requiring any configuration changes:

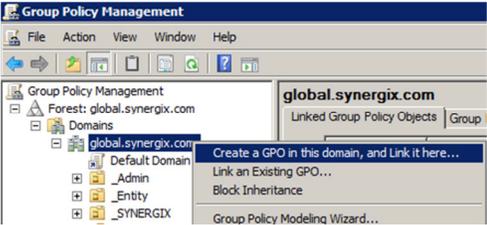
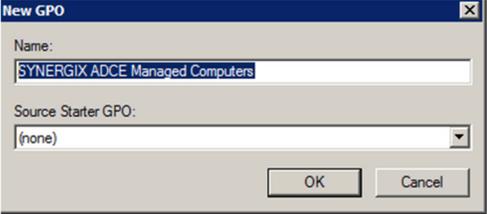
- ① Domain Password Change Notification
- ② Group Policy Refresh
- ③ Kerberos Ticket Refreshes

For additional product features to work, you will be required to configure a Group Policy Object. You must add the Group Policy Administrative Template file provided and configure the settings as appropriate for your environment.

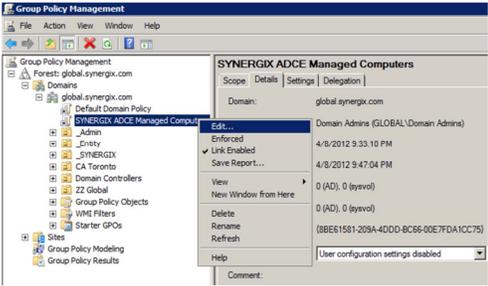
INSTALLING GROUP POLICY ADMINISTRATIVE TEMPLATE FILE

Task	Illustration
Login to administrator computer (domain computer running Windows XP or Windows 7.0) using an administrative account.	
Extract SYNERGIX-ADCE.adm file from the downloaded compressed file.	
The Administrative Template file SYNERGIX-ADCE.adm must be copied to %SystemRoot%\INF folder (default in Windows XP environment) or %SystemRoot%\PolicyDefinitions (default in Windows VISTA and Windows 7.0 environments)	C:\Windows\INF (XP) or C:\Windows\PolicyDefinitions (Win 7)

CREATING NEW DOMAIN GROUP POLICY OBJECT

Task	Illustration
Login to the Administrator's workstation	
Launch GPMC.MSC	
Select the container where the new GPO will be created and linked. In the illustration, the default naming context is chosen	 <p>The screenshot shows the Group Policy Management console for the forest 'global.synergix.com'. The left pane shows a tree view with 'Domains' expanded, and 'global.synergix.com' selected. The right pane shows the 'Linked Group Policy Objects' for the selected domain, with a 'Link Order' list containing '1'.</p>
Right click on the container object and select <i>Create and Link a GPO Here ...</i>	 <p>The screenshot shows the same Group Policy Management console as the previous illustration. A context menu is open over the 'global.synergix.com' domain. The menu options are: 'Create a GPO in this domain, and Link it here...', 'Link an Existing GPO...', 'Block Inheritance', and 'Group Policy Modeling Wizard...'. The first option is highlighted.</p>
Enter <i>New GPO</i> name Ex. SYNERGIX ADCE Managed Computers Policy	 <p>The screenshot shows the 'New GPO' dialog box. The 'Name' field contains the text 'SYNERGIX ADCE Managed Computers'. The 'Source Starter GPO' dropdown menu is set to '(none)'. There are 'OK' and 'Cancel' buttons at the bottom.</p>
Click on OK. New GPO is created and linked to the selected container object.	

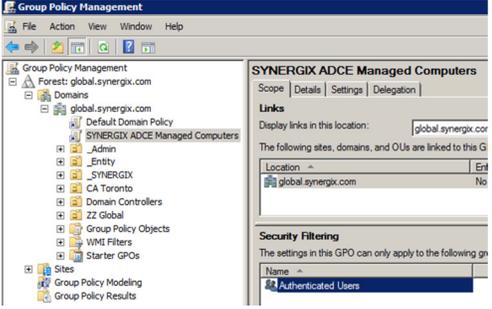
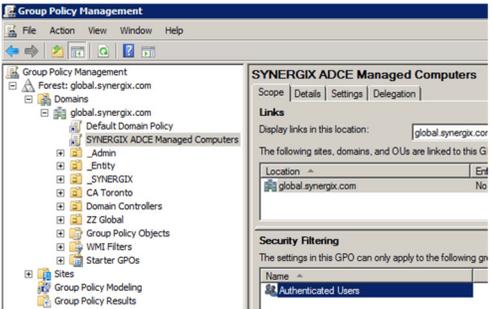
EDITING DOMAIN GROUP POLICY OBJECT

Task	Illustration
Login the Administrator's workstation	
Launch GPMC.MSC	
Select the container where the new GPO is created.	
<p>Select the new GPO that was recently created</p> <p>Ex. SYNERGIX ADCE Managed Computer Policy</p>	 <p>The screenshot shows the Group Policy Management console for the domain global.synergix.com. The left-hand tree view is expanded to show the 'SYNERGIX ADCE Managed Computers' Group Policy Object. The right-hand pane displays the 'SYNERGIX ADCE Managed Computers' details, including links and security filtering.</p>
<p>Right mouse click on the GPO and select <i>Edit</i>. This will launch the Group Policy editor</p> <p>Ex. SYNERGIX ADCE Managed Computer Policy</p>	 <p>The screenshot shows the same Group Policy Management console as the previous one, but with a context menu open over the 'SYNERGIX ADCE Managed Computers' GPO. The 'Edit' option is highlighted, indicating that the user has right-clicked on the GPO to launch the Group Policy editor.</p>

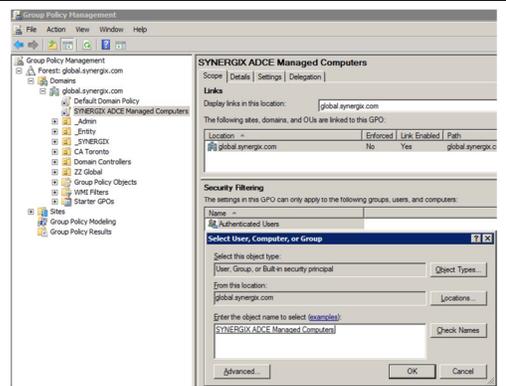
Editing Domain Group Policy Object Scope Options

This section of the document guides you through setting the Scope Options in the selected Group Policy Object. The steps outlined in this section are optional.

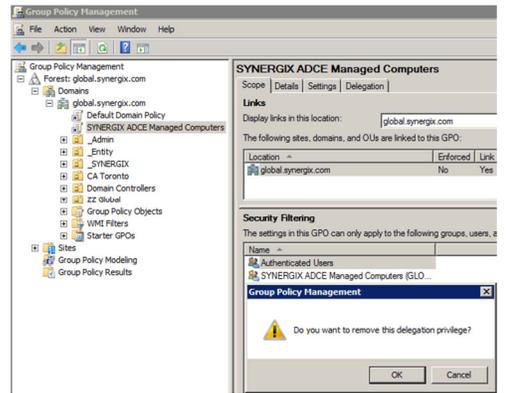
In its default configuration, the GPO scope includes the “*Authenticated Users*” security principal in the Security Filtering section of the GPO. It means all computer objects and user objects that are in the Organizational Unit or the domain container that the GPO is linked to, will be in scope of the GPO. If you desire to narrow down the scope, you may remove the “*Authenticated Users*” security principal and in its place, add the “*SYNERGIX ADCE Managed Computers*” security group which only contains computer objects on which the software is installed. Please note that the security group “*SYNERGIX ADCE Managed Computers*” is also used for license monitoring purposes (refer to the section on configuring Product Activation Key)

Task	Illustration
Login the Administrator’s workstation	
Launch GPMC.MSC	
Select the container where the new GPO is created.	
Select the new GPO that was recently created Ex. SYNERGIX ADCE Managed Computer Policy	
Select the Scope tab and verify the security principal under Security Filtering. By default, it will contain <i>Authenticated Users</i>	

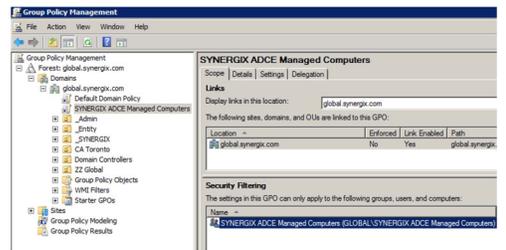
Click on Add. Select **SYNERGIX ADCE Managed Computers** security group and click on OK



Select *Authenticated User* and click on Remove. When prompted to remove the delegation privilege, click on OK



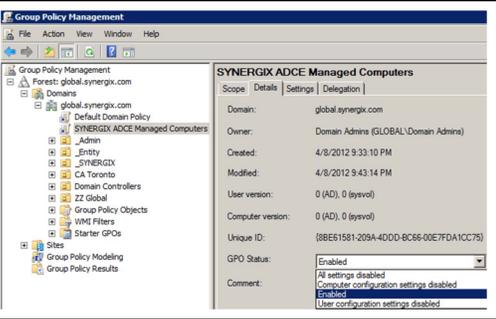
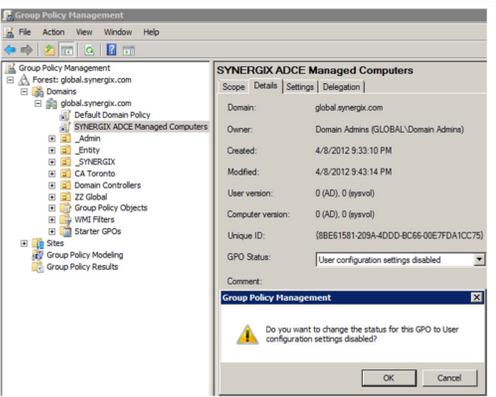
Verify that the Security Filtering setting now contains only the **SYNERGIX ADCE Managed Computers** security group.



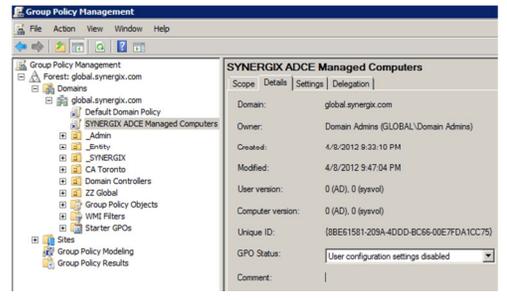
Editing Domain Group Policy Object Status

This section of the document guides you through changing the GPO Status. The steps outlined in this section are optional.

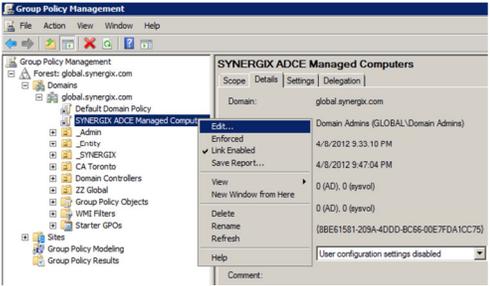
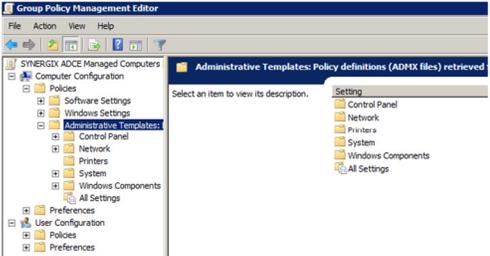
In its default configuration, the GPO status for both the COMPUTER configuration and the USER configuration is enabled. SYNERGIX ADCE software manages all of its configuration parameters in the COMPUTER configuration only. Follow the steps provided in this section of the document if you wish to disable the USER configuration part of the GPO.

Task	Illustration
Login the Administrator's workstation	
Launch GPMC.MSC	
Select the container where the new GPO is created.	
Select the new GPO that was recently created Ex. SYNERGIX ADCE Managed Computer Policy	
Select the Details tab. By default, the GPO Status will be Enabled i.e. both the COMPUTER and USER configuration settings will be enabled.	
From the drop down list, select <i>User Configuration settings disabled</i> . When prompt to change the GPO status, click on OK.	

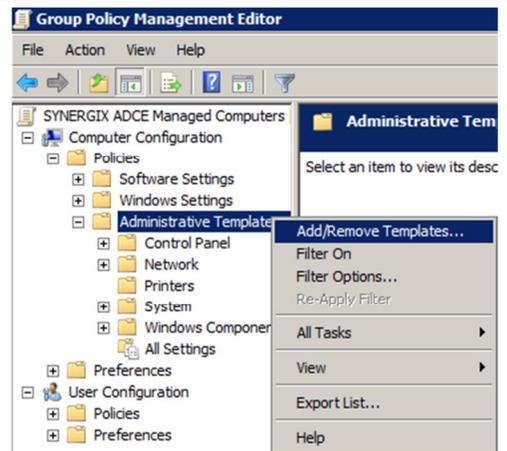
Verify that the *User Configuration settings disabled* displays in the GPO Status field.



ADDING ADMINISTRATIVE TEMPLATE FILE TO A GPO

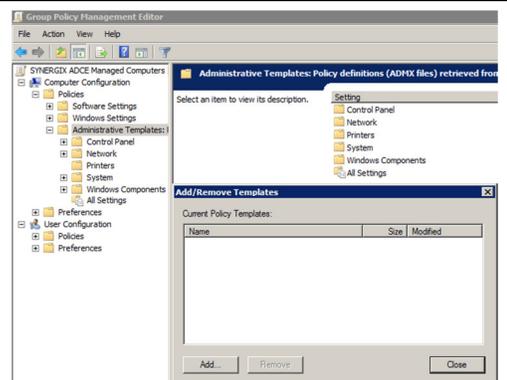
Task	Illustration
Login the Administrator's workstation	
Launch GPMC.MSC	
Select the container where the new GPO is created.	
<p>Select the new GPO that was recently created</p> <p>Ex. SYNERGIX ADCE Managed Computer Policy</p>	 <p>The screenshot shows the Group Policy Management console. The left pane displays a tree view of the Group Policy Objects (GPOs) for the domain global.synergix.com. The 'SYNERGIX ADCE Managed Computers' GPO is highlighted. The right pane shows the details for this GPO, including its scope (global.synergix.com) and security filtering (Authenticated Users).</p>
<p>Right mouse click on the GPO and select <i>Edit</i>. This will launch the Group Policy editor</p> <p>Ex. SYNERGIX ADCE Managed Computer Policy</p>	 <p>The screenshot shows the Group Policy Management console with the context menu open over the 'SYNERGIX ADCE Managed Computers' GPO. The 'Edit' option is selected, which will launch the Group Policy Editor.</p>
<p>Under Computer Configuration, select Administrative Templates</p>	 <p>The screenshot shows the Group Policy Editor. The left pane displays the 'Computer Configuration' folder expanded, and the 'Administrative Templates' folder is selected. The right pane shows a list of administrative templates, including 'Control Panel', 'Network', 'Printers', 'System', and 'Windows Components'.</p>

Right mouse click on Administrative Templates. From the context sensitive menu, select Add / Remove Templates ...

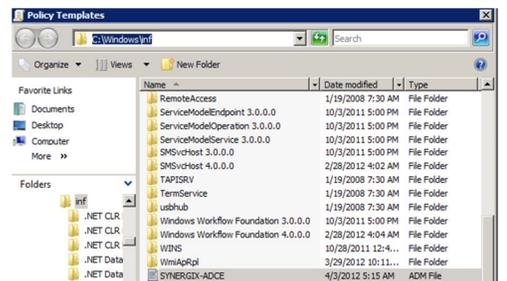


You will see list of Administrative Template files that are already added in the Group Policy Editor console.

Click on **Add** button.

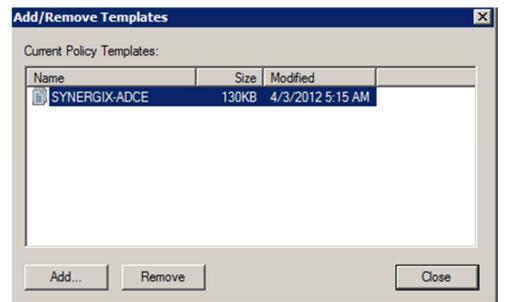


Select **SYNERGIX-ADCE.adm** file from the list and click on Open button.

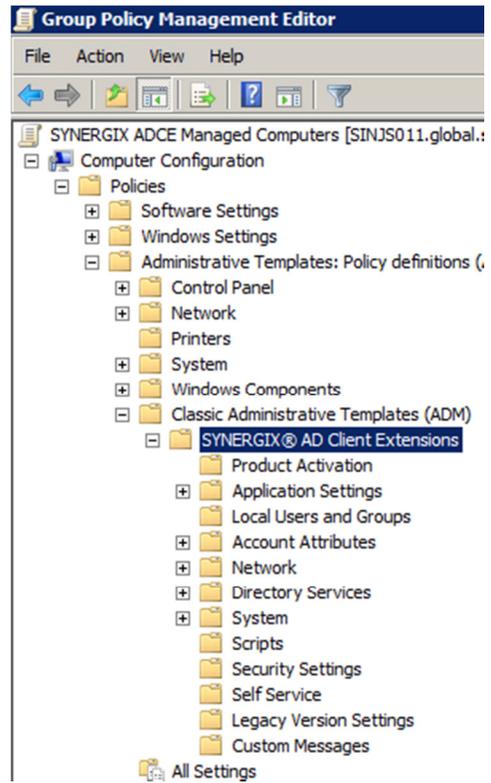


You will notice that SYNERGIX-ADCE template file in the Current Policy Templates list.

Click on Close button to return back to Group Policy Editor



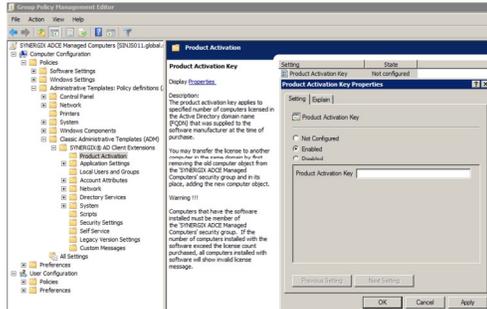
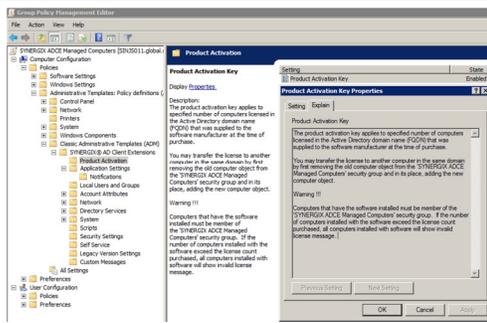
In the Group Policy Editor tree view, you should notice that the SYNERGIX Active Directory Client Extensions node added.



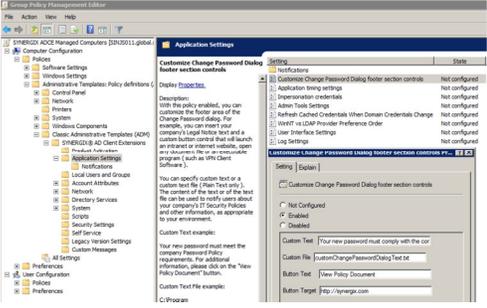
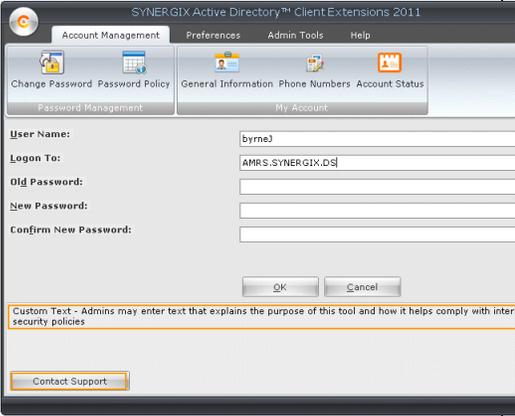
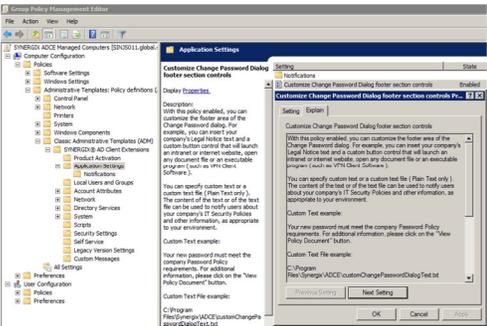
Explore various settings that are configurable using Group Policy object.

CONFIGURING SOFTWARE SETTINGS (ILLUSTRATIONS)

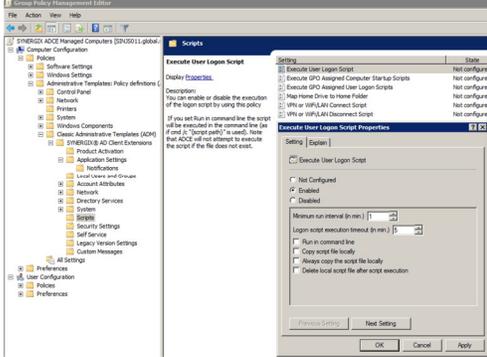
Product Activation Key

Task	Illustration
<p>For illustration purposes, the Product Activation Key setting is opened.</p> <p>Under the Setting tab, 2 options are provided</p> <ol style="list-style-type: none"> 1. Enable the setting 2. Product Activation Key <p>You may paste the long product activation key provided by the software vendor, in the textbox control. When the Product Activation Key settings are configured, specific number of computer objects that are members of designated security group (by default, the SYNERGIX ADCE Managed Computer security group) will have the product license.</p> <p>Note: The Product Activation Key contains your Active Directory domain FQDN, Active Directory security group (SYNERGIX ADCE Managed Computers) and the license count.</p>	  <p style="text-align: center;">Figure 1 Product Activation Key validated</p>
<p>The Explain tab of the selected Group Policy setting provides precise information on the use of the setting.</p>	

Customize User Interface Footer Section Controls

Task	Illustration
<p>For illustration purposes, the Customize User Interface footer section controls is opened.</p> <p>Under the Setting tab, 4 options are provided</p> <ol style="list-style-type: none"> 3. Enable the setting 4. Custom Text 5. Custom File 6. Button Text 7. Button Target <p>When the Customize User Interface footer section control settings are configured, the user interface of the software will display custom information. This helps the system administrators notify the users about the use of the software and provide specific URL on their intranet website or on the Internet.</p>	  <p style="text-align: center;">Figure 1 Customize User Interface footer section controls</p>
<p>The Explain tab of the selected Group Policy setting provides precise information on the use of the setting.</p>	

Execute User Logon Scripts

Task	Illustration
<p>Double click on a setting. For illustration purposes, the Execute User Logon Script setting is opened.</p> <p>Under the Setting tab, 7 options are provided</p> <ol style="list-style-type: none">1. Enable the setting2. Minimum run interval (mins)3. Logon script time out (mins)4. Run in command line5. Copy the script file locally6. Always copy the script file locally7. Delete local script file after script <p>Setting Minimum run interval (mins) to a low value, for example to 1 minute, will ensure that the User Logon Script is executed every time VPN connection is established. If you wish to have the User Logon Script execute only once per day, set the value to 1,440 mins</p>	 <p>The illustration shows the Group Policy Management Editor interface. The left pane displays a tree view of policy settings, with 'Execute User Logon Script' selected under 'Logon Scripts'. The right pane shows the 'Execute User Logon Script' properties dialog box. The 'Settings' tab is active, showing the following options:</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Execute User Logon Script (Not configured)<input type="checkbox"/> Execute GPO Assigned Computer Start-up Scripts (Not configured)<input type="checkbox"/> Execute GPO Assigned User Logon Scripts (Not configured)<input type="checkbox"/> Map Home Drive to Home Folder (Not configured)<input type="checkbox"/> VPN or WPA/LAN Connect Script (Not configured)<input type="checkbox"/> VPN or WPA/LAN Disconnect Script (Not configured) <p>The 'Execute User Logon Script Properties' dialog box is open, showing the following options:</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Execute User Logon Script<input type="checkbox"/> Not Configured<input checked="" type="checkbox"/> Enabled<input type="checkbox"/> DisabledMinimum run interval (mins): 1Logon script execution timeout (mins): 5<input type="checkbox"/> Run in command line<input type="checkbox"/> Copy script file locally<input type="checkbox"/> Always copy the script file locally<input type="checkbox"/> Delete local script file after script execution

For your comments, please contact:

Synergix, Inc.

1200 Route 22 East, Suite 2000

Bridgewater, New Jersey 08807

+1 908 988 4688

<http://www.synergix.com>