LDAP Implementation AP561x KVM Switches



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LDAP Implementation

- Does not require LDAP Schema to be touched!
- Uses existing Schema Attribute field to store configuration setting
- Allows easy implementation



IP KVM authentication levels

• Basic

•Very simple implementation that allows the KVM to browse the LDAP directory for user credentials. All users are administrators

• Attribute

- •Allow users in the LDAP directory to be distinguished as non-users, appliance administrators or users
- Group
 - •Provides highly granular security down to the port level



Settings Used in this Lab

- The Microsoft® domain controller (Active Directory) acts as the DHCP server and DNS server in these examples.
- The domain is **kvmcorp.com**.
- The user account that is used to query the domain controller for authentication and access controls is **kvmldap**.
- The OU (Organizational Unit) for grouping APC IP KVM Switches and users is **IPKVM**.
- The IP Address of the IP KVM Switch is 192.168.5.11
- The IP Address of the AD Server is 192.168.5.100
- The IP Address of the Client is 192.168.5.50





Synchronize Server Module names to AD Computer Object names

- Name the Server Modules to match exactly the names of the computers with which they are connected. This must be done using the OSD from the local port on the IP KVM switch. The domain controller's server modules should have a different name than the domain controller. A computer with the same name representing the domain controller should be added separately to the directory for IP KVM access because the domain controllers are not listed under computers in the Active Directory, and the domain controllers folder is not browsable to the Admin accounts.
- For example, the interface adapter for the domain controller KVMcorp-AD is named KVMcorp-AD-SM, and a computer is created with the name KVMcorp-AD-SM. A standard user cannot authenticate for a domain controller.



Name the Server Modules via the Local Port OSD





From the local OSD, press the **Print Scrn** key. The Main dialog box appears. Click the name you want to change, and click **Modify**, rename the server module and click **OK**.

Remember, the server names here must match the computer object names in the directory!



Active Directory Tasks

- **NOTE:** In a production environment, work with your IT department to create the console query user account and add the IP KVM switches OU. You need a level of access that enables you to create, delete, modify groups, and add computer objects for interface adapters connected to non-domain systems within the IP KVM switches OU. Use the Microsoft® MMC to access the Active Directory from another server or a client workstation.
- To administer the directory from the domain controller console, click Start>Programs>Administrative Tools>Active Directory Users and Computers.
- On the domain controller, add an OU group container named **IPKVM** to Active Directory in the root of the domain for the IP KVM switch administrative groups.
- 1. Right-click **kvmcorp.com**.
- 2. Select New Organizational Unit.
- 3. Name it **IPKVM**
- 4. Click OK.



Create User to Browse the Directory

This is a special user account specifically for LDAP queries instead of using the Admin account

New Object - User		x
Create in:	kvmcorp.com/Users	
<u>F</u> irst name:	kvmldap <u>I</u> nitials:	
Last name:		
Full n <u>a</u> me:	kvmldap	
<u>U</u> ser logon name:		
kvmldap	@kvmcorp.com	
User logon name (pre-	<u>W</u> indows 2000):	
KVMCORP\	kvmldap	
	< <u>B</u> ack <u>N</u> ext > Cancel	

Create a user named **kvmldap**, and assign the password: **Password1** Set the Password not to expire



Create two groups for IP KVM switch administrators and users.

- 1. Right-click **IPKVM OU.**
- 2. Choose New Group.
- 3. Create groups names KVMSwitchAdministration and ServerAdministration.

ew Object - Group	X				
Create in: kvmcorp.com/IPKVM					
Group n <u>a</u> me:					
Group name (pre- <u>W</u> indows 2000):					
Group scope	Group type				
C Domain local	• Security				
Global	C Distribution				
C Universal					
	OK Cancel				



- **NOTE:** In a production environment, groups in the Active Directory IPKVM OU would match the organization's hierarchy, usually by function, geography, or a combination.
- Set up the default access control for the Server Administration group by rightclicking the group object and selecting **Properties** for the group and entering <u>KVM User</u> in the group's notes field.
- Set up the default access control for the IP KVM Administration group by rightclicking **Properties** for the group and entering **KVM Appliance Admin** in the

group's notes field.

MSwitchAdministration Proper	ties	?		
General Members Member Of N	1anaged By			
KVMS witchAdministrati	on			
Group name (pre- <u>W</u> indows 2000):	KVMSwitchAdministration			
Description:				
E- <u>m</u> ail:				
Group scope	Group type			
C Domain local C Security				
© Global C Distribution				
C Universal				
Notes:				
KVM Appliance Admin		<u> </u>		
	DK Cancel <u>A</u> p	ply		



Add the users and Server Modules to the appropriate groups that associate them

- 1. Right-click each of the two new groups.
- 2. Click Properties.
- 3. Click the **Members** tab.
- 4. Click Add.
- 5. Click Object Types.
- 6. Select Computers and Users.
- 7. Click OK.
- 8. Click Advanced>Find Now.
- 9. Add the computer and users that should belong together in the group by clicking the first object holding the **Ctrl** key while clicking the others. Include the KVM switch
- 10. Click **OK.**

<u>S</u> elect this object	type:			
Users, Computers	, or Other objects		<u>O</u> bj	ect Types
From this location:				
kvmcorp.com			Lo	ocations
Common Querie	5			
N <u>a</u> me:	Starts with 💌			<u>C</u> olumns
Description:	Starts with 💌			Find <u>N</u> ow
Disabled a	counts			Stop
Non expirir	ig password			
Days since las	i logon:			Ś
Days since las	: logon:			Cancel
Days since las Search res <u>u</u> lts: Iame (RDN)	E-Mail Addres	s Description	OK.	Cancel
Days since las Gearch res <u>ults:</u> Iame (RDN)	E-Mail Addres	s Description Built-in account f.	OK In Folder kvmcorp.com/U.	Cancel
Days since las Gearch res <u>ults:</u> Iame (RDN) Administrator Guest	E-Mail Addres	s Description Built-in account f. Built-in account f.	OK In Folder kvmcorp.com/U kvmcorp.com/U.	Cancel
Days since las Search res <u>ults:</u> lame (RDN) Administrator Guest jpkvm1	E-Mail Addres	s Description Built-in account f. Built-in account f.	OK In Folder kvmcorp.com/U kvmcorp.com/U kvmcorp.com/C	Cancel
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Create Computer Object in AD for the IP KVM Switch



Create a computer object in the directory for each IP KVM switch with the same name as you will give it in the SNMP panel for the switch.

In this Lab, create a computer object named **IPKVM1**. You will give the same name to the IP KVM switch later in this lab.



Log into the Switch

🕲 Mozilla Firefox Start Page - Mozilla Firefox	
Eile Edit View Higtory Bookmarks Tools Help	
	C Google
Web Images Maps News Shopping more ▼	🕲 Appliance Login - Mozilla Firefox
Firefor Stort	Eile Edit <u>V</u> iew Hi <u>s</u> tory <u>B</u> ookmarks <u>T</u> ools <u>H</u> elp
Firefox Start	• • • • • • • • • • • • • • • • • • •
Google	_
Google Search	
	Username: apc
Upgrade now to Firefox 3 for improved security and better b	Password: ***
	OK Cancel

Launch your web browser and point it to the IP address of the IP KVM Switch and login with the default Admin user name & PW: apc and apc



Name the Switch

Connect	tions Status Configure Tools Help	Log Off Username: apc
Appliance Configuration Appliance Network Sessions Virtual Media Authentication Users SNMP Traps Servers SMs Cascade Devices PDUs Outlets Versions SM Versions	SNMP System Name: IPKVM1 Description: AP5610 01.03.30.00 Contact: American Power Conversion Allowable Managers 1. 2. 3. 4. Community Names Read: public Write: public Trap: public 3. 4.	
	Save	Restore

From the Configure screen, select SNMP and name the switch **IPKVM1**



Enable LDAP Authentication

Conn	ections Status Configure Tools Help	Log Off Username: apc
Appliance Configuration	Authentication	
□Appliance Network Sessions Virtual Media	Authentication Settings ✓ Use Local Authentication Use Local First Use LDAP Authentication Use LDAP First 	
Authentication	Authentication Parameters	
	Primary Server Secondary Server	
□ …PDUs ↓ Outlets □ … versions	IP Address 192, 168, 5, 100 Port ID 389	
ISM Versions	Access Type LDAP LDAPS LDAP LDAPS LDAP LDAPS	
	Save	Restore
		Reboot Required

Click on Authentication under Appliance in the Configuration Menu



Appliance Configuration Appliance Appliance Appliance Users SMMP Traps Saveres SMs Cascade Devices PDUs Outlets Versions SM Versions Authentication Parameters IP Address IP2.168.5.100 Port ID 389 389 Access Type IDAP DAPS OLDAP DAPS DAP DAPS Save Restore	Conne	ections Status Configure Tools Help	Log Off Username: apc
	Appliance Configuration Appliance Network Sessions Authentication Users SNMP Traps Servers SMs Cascade Devices PDUs Custats SM Versions SM Versions	Authentication Settings Use Local Authentication Use LDAP Authentication Use LDAP Authentication Authentication Parameters Use LDAP for Authentication Only Server Server Primary Server Secondary Server IP Address Port ID 389 Access Type LDAP LDAP LDAPS LDAP LDAPS Save	Restore

Check the Use LDAP Authentication box. On the Server Parameters tab, enter the IP address of the **Primary Server: 192.168.5.100** (domain controller).

After this, a reboot of the switch is required. Reboot and log back in as apc with apc as the password and return to the Authentication screen.



Configure LDAP Search Parameters

Server	Search Query
Search DN	cn=kvmldap,cn=Users,dc=kvmcorp,dc=com
Search Password	*****
Search Base	dc=kvmcorp,dc=com
UID Mask	sAMAccountName=%1

On the Search Parameters tab, enter the Search DN: cn=kvmldap,cn=users,dc=kvmcorp,dc=com

NOTE: The first cn field must match the full name of the user, not the login name. For example, if the user name is John Doe, then *cn=John Doe* (note the space in the name).

Enter the search password for the kvmldap user account. (*Password1*) Enter the search base: dc=kvmcorp,dc=com.

NOTE: The search base should always be at the root of the domain.



APC by Schneider Electric

Leave Query Parameter at Basic

Conne	ections Status Configure Tools Help	Log Off Username: apc
Appliance Configuration	Authentication	
 Appliance Network Sessions Virtual Media Authentication Users SNMP Traps Servers SMs Cascade Devices PDUs Outlets Versions SM Versions 	Authentication Settings Use Local Authentication Use LDAP Authentication Use LDAP Authentication Use LDAP Authentication Use LDAP First Authentication Parameters Use LDAP for Authentication Only Server Search Query Mode Appliance Basic User Attribute Group Container KVM Group Container Mask Target Mask Access Control Attribute	
	Save	Restore

IMPORTANT: This query mode should be used to test your LDAP configuration only. After the basic LDAP communications configuration is successfully tested, change the query mode because Basic mode gives full administration authorization to all IP KVM switches and all attached servers.



Test the basic LDAP Authentication

🕑 A	🕲 Appliance Login - Mozilla Firefox						
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	Hi <u>s</u> tory	<u>B</u> ookmarks	<u>T</u> ools	<u>H</u> elp	
4	-	- (2 😣	a	https://	192. 168	.5.11/login.asp?language=en-US

Username:	kvmldap		
Password:	*******		

OK	Cancel
----	--------

Log out of the APC Web Interface and go back to the login prompt. Log in as: kvmldap with the password Password1

(the user you created earlier to browse the network.) It should load the APC Management Page if the switch can communicate to the Directory.

You should also be able to log in with any user name and password that exists in the Directory



Basic Summary

- Very basic
- Quick to set up
- All users have administrator rights
- Use the "Search Base" in the "LDAP Parameters" to limit user access by adding an OU such as "MIS" or "Administrators"
- Ideal for smaller customers



Group Based Authentication



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Change LDAP Query to Group

pliance Configuration	Authentication			
Appliance Network Sessions Writeal Mardia	Authentication Settings	Authentication Settings Image: Construction Image: Construction Image: Construction Image: Construction Image: Construction Image: Construction Image: Construction Image: Construction		
Authentication Users SNMP	Authentication Parameters	Dnly		
Traps Servers SMs Cascade Devices PDUs	Server Se Query Mode Appliance O Basic O Server O Basic O	User Attribute () Group Attribute () Group Attribute () Group Attribute		
- Outlets - Versions - SM Versions	Group Container	IPKVM		
	Group Container Mask	ou=%1		
	Target Mask	cn=%1		
	Access Control Attribute	into		

After the basic I DAP communication test succeeds, Log off, then log in to the IP KVM switch as apc with apc as the password. Click on Configure Click Global>Authentication. On the Query Parameters tab, click Group Attribute for **Query Mode (IP KVM** Switch) and Group **Attribute for Query Mode** (Server). Enter the Group Container **IPKVM** and test again



🐳 Active Directory Users and Computers						
🌍 Eile <u>A</u> ction <u>V</u> iew <u>W</u> indow <u>H</u> e	elp			_ 8 ×		
Active Directory Users and Computers IPKVM 2 objects						
⊡ Saved Queries ⊡ Saved Queries	Name	Туре	Description			
i ⊕ ⊡ Builtin	KVMSwitchAdministration	Security Group - Global				
⊡ Computers	**************************************	Security Group - Global				
Oomain Controllers ForeignSecurityPrincipals	L			_		
Users						
•						

To add or take away rights, just add the Server Module Computer Objects and the Users as members of the respective group. Be sure to include the computer object for the IP KVM Switch as well.



Group Summary

- Highly granular security
- Port level control
- Attributes set to groups rather than individual users
- Hugely scalable
- Ideal for Enterprise customers



Conclusion

• LDAP allows you to integrate your KVM with your security infrastructure to provide an easy to use yet powerful management tool to keep your servers up and running



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