Active Directory Implementation

For PowerBuilder, Appeon Web & Appeon Mobile
An Actual Implementation Case Study!

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Single Signon and Application Security!
User identification and access rights are managed through the Active Directory system within the Microsoft Windows operating system. The auditing tools part of the Active Directory and other similar tools are able to track IT activity performed by various network users.

Mandated use by the GOC!
Major Active Directory Vendors

- **Active Directory**: Microsoft's modern directory service for Windows, originating from the X.500 directory and supports LDAP.
- **Apache Directory Server**: Directory service written in Java, supporting LDAP, Kerberos 5 and the Change Password Protocol.
- **eDirectory**: This is NetIQ's implementation of directory services. It supports multiple architectures including Windows, NetWare, Linux and several flavours of Unix. Previously known as Novell Directory Services.
- **Oracle Internet Directory**: (OID) is Oracle Corporation's directory service, which is compatible with LDAP version 3.
- **Sun Java System Directory Server**: Sun Microsystems' current directory service offering.
- **OpenDS**: An open source directory service implementation from scratch in Java, backed by Sun Microsystems.
- **IBM Tivoli Directory Server**: It is a customized build of an old release of OpenLDAP.
Microsoft provides the Active Directory Service Interfaces (ADSI) for developing client-side directory service applications.

ADSI consists of a directory service model and a set of COM interfaces.

The Lightweight Directory Access Protocol (LDAP) API provides a mechanism for connecting to, searching, and modifying Internet directories. LDAP is a directory service protocol that runs directly over the TCP/IP stack.

Active Directory API’s
LDAP/ADSI is **not** supported in PowerBuilder Classic or PB.NET

LDAP is **partially** supported in Appeon
- English *only* Appeon interface.
- Cryptic non-controllable messages.
- *No support for Impersonation.*
- *Can not tie a Group/Role to application functionality*
  - (ie: menu, button, column, etc ... enable/disable/visible)

ADSI is **not** supported in Appeon

LDAP/ADSI are **fully supported** in the Software Tool & Die (STD) Foundation Classes (**free**)!

⇒ Multilingual
⇒ 100% GUI Configurable
⇒ Supports Impersonation
⇒ Fully programmable Group/Role interaction
⇒ Supports PB & Appeon applications
⇒ Etc ...
Part A - ADSI Client
• Actual Active Directory login web page from the PCI Human Redaction web application (built in PowerBuilder 12.5.1 and deployed to Appeon 2013R2)!

• Application was completely built using the STD Foundation Classes.
Legend

- Developed using PowerBuilder + Appeon Web.
+ MS-Windows “PowerShell” operating system API.
@ Open Source GNU/GPL Integrated framework (STD Foundation Classes)
X Appeon Corporation (appcelerator)

ADSI: Active Directory Services Interface
Client: Active Directory information captured by the STD Integrated Framework using ADSI calls.

Server: Web Service brokers validation with actual Active Directory server (STD Web Service Framework using various LDAP calls)

ADSI
**Legend**

* - Web Service developed in PowerBuilder 12.x  
+ - MS-Windows “PowerShell” operating system API  
@ - Open Source GNU/GPL Web Service framework (STD Foundation Classes)  
LDAP: Lightweight Directory Access Protocol

**N-Tier SOA Architecture**
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**PB / Appeon SOA**

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### No PBVM (run-time DLL’s)

<table>
<thead>
<tr>
<th>Technology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C++</td>
<td>Win32/64 EXE</td>
</tr>
<tr>
<td>C#</td>
<td>.NET EXE</td>
</tr>
<tr>
<td>C# .NET Assembly</td>
<td></td>
</tr>
</tbody>
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**PowerBuilder Classic IDE**

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**IIS Application Server**

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**O/S**

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**WWW**
Legend

* - Developed using PowerBuilder/Apeon
+ - MS-Windows “PowerShell” API
@ - PowerBuilder Web Service Framework
   (STD Foundation Classes)
LDAP: Lightweight Directory Access Protocol

Part B

Active Directory Server

LDAP (Login/Group/Role)

Command Shell (+)

Framework (@)

Web Service *

IIs

Application *

Active Directory

Server

No Access!

Requires raised privileges!

{LDAP://CN=DHCP1,CN=Computers,DC=FX,DC=LAB}

WSDL

Legend

* - Developed using PowerBuilder/Apeon
+ - MS-Windows “PowerShell” API
@ - PowerBuilder Web Service Framework
   (STD Foundation Classes)
LDAP: Lightweight Directory Access Protocol
Step#1 – Create Application Pool & assign Active Directory account

Step#2 – Assign Application Pool to Web Service (appears as an IIs Application)

Raised Privileges – IIs Manager
Use PB Script to code Web Service interaction
- Or -
Use a Web Service DataWindow!

Making it work
Use Appeon’s Application Enterprise Manager to remap the DW’s WSDL URL for the various environments (Dev, QA, SI, Prod)!
Why?
- Q.A. Testing
- Support Personnel
- Employee Vacation
- Manager Over-Ride

Impersonation
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AD Tool Kit => (Integrated Framework) + (Web Service Framework) + LDAP

STD Foundation Classes
Object oriented framework for PowerBuilder, Appeon, IIs & EAServer
Brought to you by: cpollach

STD Foundation Classes

New 2015 ... LDAP =>
A Plug & Play Active Directory PowerBuilder Web Service. Just Deploy it – its ready to go!
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Questions?

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Have you hugged your DataWindow today?