Windows Management with Secure Scripting

Version 1.0

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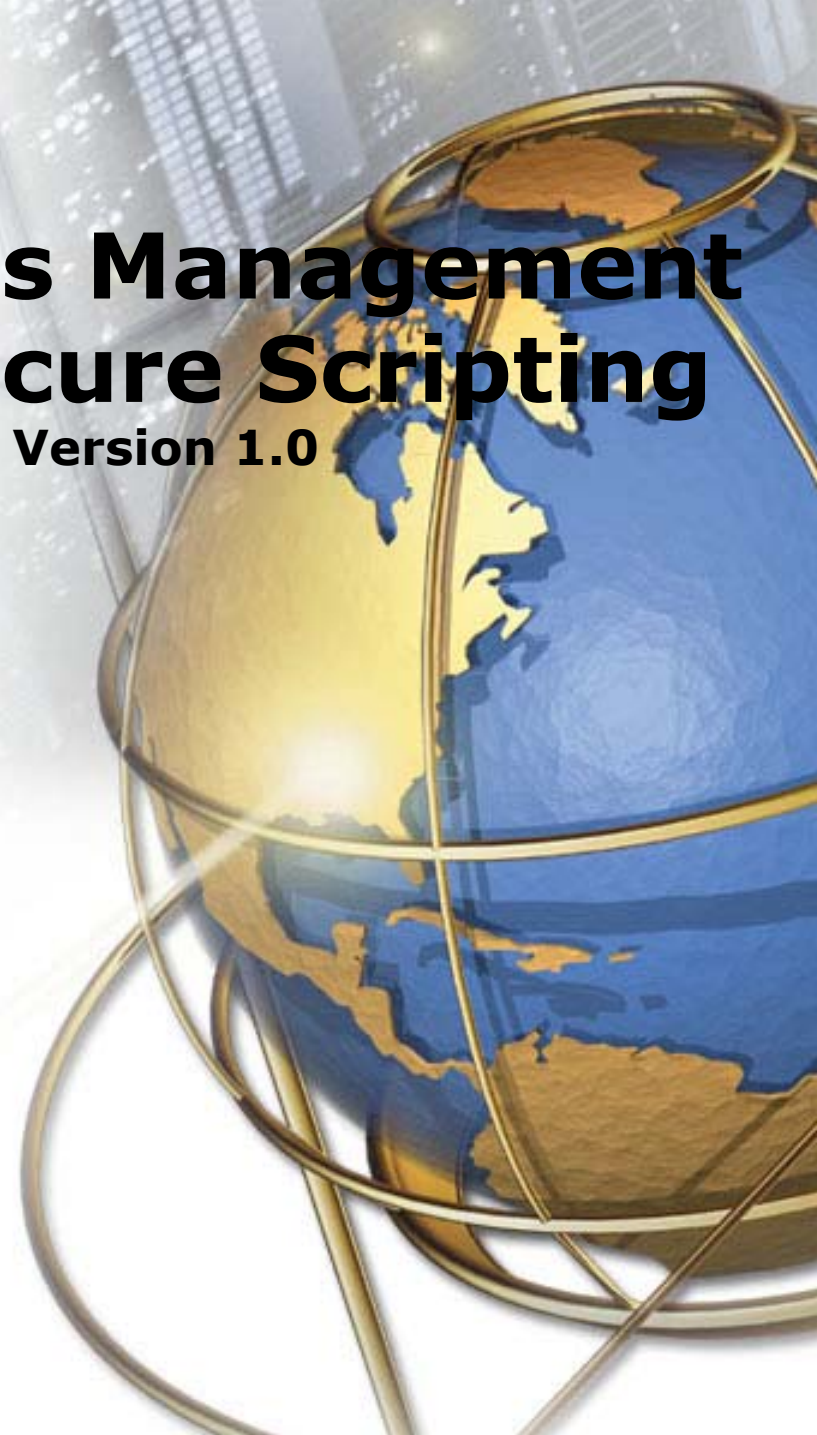
Technology Leadership Group



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Objectives

Running trusted scripts safely!

Features available in Windows to manipulate security related items.

- Security Descriptors
- Extended Rights
- NT Event Log
- System Monitoring
- System modifications
- Group memberships modifications

Topics

- WSH review
- ADSI review
  - ADSI NT Security Descriptor
  - Extended Rights
- What is WMI?
- Resources

A quick WSH review …

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WSH=Windows Scripting Host

Infrastructure to run scripts

First version (WSH 1.0) came with Option Pack 1.0

Support various languages
(by default: Jscript and VBScript)

Today WSH 5.6
(part of Windows XP/2003 and downloadable for Win9x, NT 4.0 and Win2K)

WSH features

- Information on the running script
- Digitally sign scripts (WinSAFER/SRP) (Support of policies to determine the system behavior) — New
- Create, retrieve and delete network drive connections
- Access the environment
- Access the registry
- Run external programs
- Drag and Drop support
- Manipulate Desktop objects
- Use scriptable COM objects (ADSI, CDOEX, CDOEXM, WMI, ...)
- Mix languages in a same script (XML)
- Standard Output/Input/Error support
- Windows Script Components (XML)
- Code reusability (XML)
- Run WSH scripts remotely — New
- Network information
- Command line argument reading (XML) — New

Signature samples …

VBScript (.vbs)

```
" SIG " Begin signature block
" SIG " MIIRKQYJKoZIhvcNAQcCoIIRGjCCERYCAQExCzAJBgUr
" SIG " DgMCGgUAMGcGCisGAQQBgjcCAQSgWTBXMDIGCisGAQQB
...:
" SIG " s1t8ocWlRUefHOdMIZ7Bssx+SOnf+PUv81Evl9+aZCxK
" SIG " tgqZ4DWO88c=
" SIG " End signature block
```

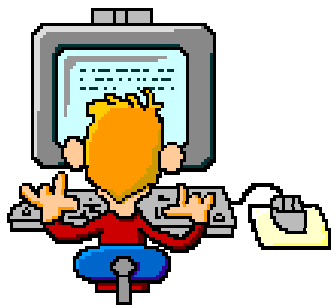
Jscript (.js)

```
// SIG // Begin signature block
// SIG // MIIRLQYJKoZIhvcNAQcCoIIRHjCCERoCAQExCzAJBgUr
// SIG // DgMCGgUAMGcGCisGAQQBgjcCAQSgWTBXMDIGCisGAQQB
...:
// SIG // a9TgqM7DGOOzKpaOUHodDDGxs71RqrGMU8rQO4f+6fF4
// SIG // g/quZ43MghAZ7/Sc
// SIG // End signature block
```

Windows Script File (.wsf)

```
<signature>
** SIG ** MIIIKgYJKoZIhvcNAQcCoIIIGzCCCBcCAQExDjAMBggq
** SIG ** hkiG9w0CBQUAMGYGCisGAQQBgjcCAQSgWDBWMDIGCisG
...:
** SIG ** IokduL7pJDvNTZQ419aNZ777bP68fZC7oG59u6w0ZrA3
** SIG ** Raa8LhWRtH5HO0lIRHEp
</signature>
```

Digitally Signing Scripts



Topics

- WSH review
- ADSI review
  - ADSI NT Security Descriptor
  - Extended Rights
- What is WMI?
- Resources

A quick ADSI review …

ADSI=Active Directory Service Interface

Abstracts the interface to the Directory Service

Windows NT 4.0
IIS 4.x, 5.x, 6.x
Site Server 3.0
Exchange 5.5
Netware 3.x, 4.x, 5.x

Able to reach more than Active Directory

WSH + ADSI

- Provide the tools needed for unattended/remote administration

ADSI features

- Bind to a Directory Object
- Submit queries
- Enumerate objects
- Manage security
- Move objects
- Read/write properties
- Rename objects
- ADSI can be extended (CDOEXM, WMI)

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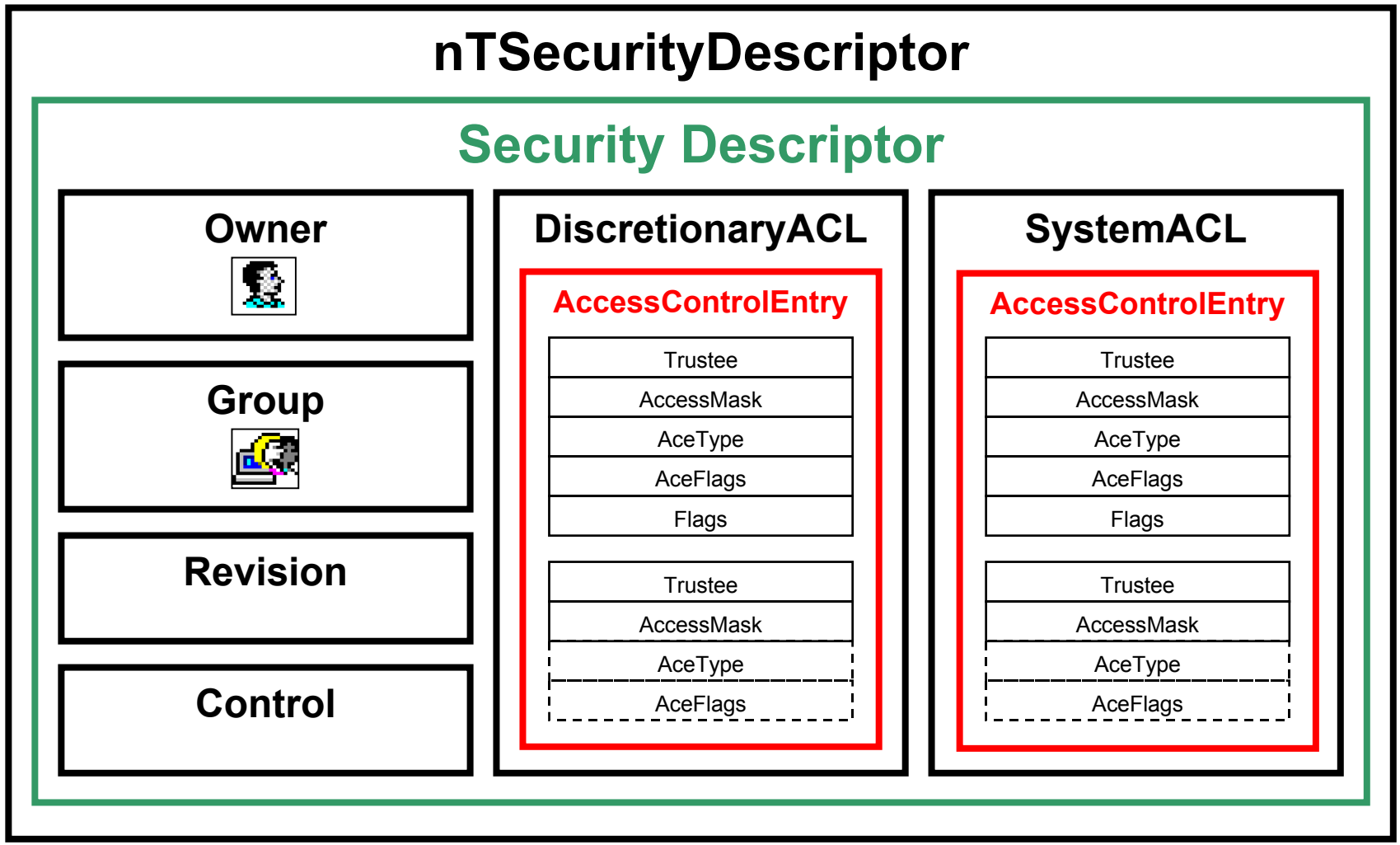
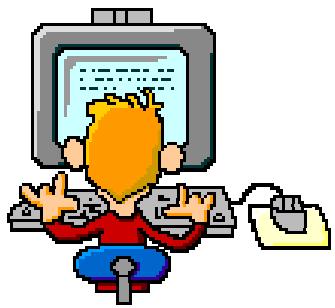
The ADSI NT Security Descriptor



ADSI Security Descriptor



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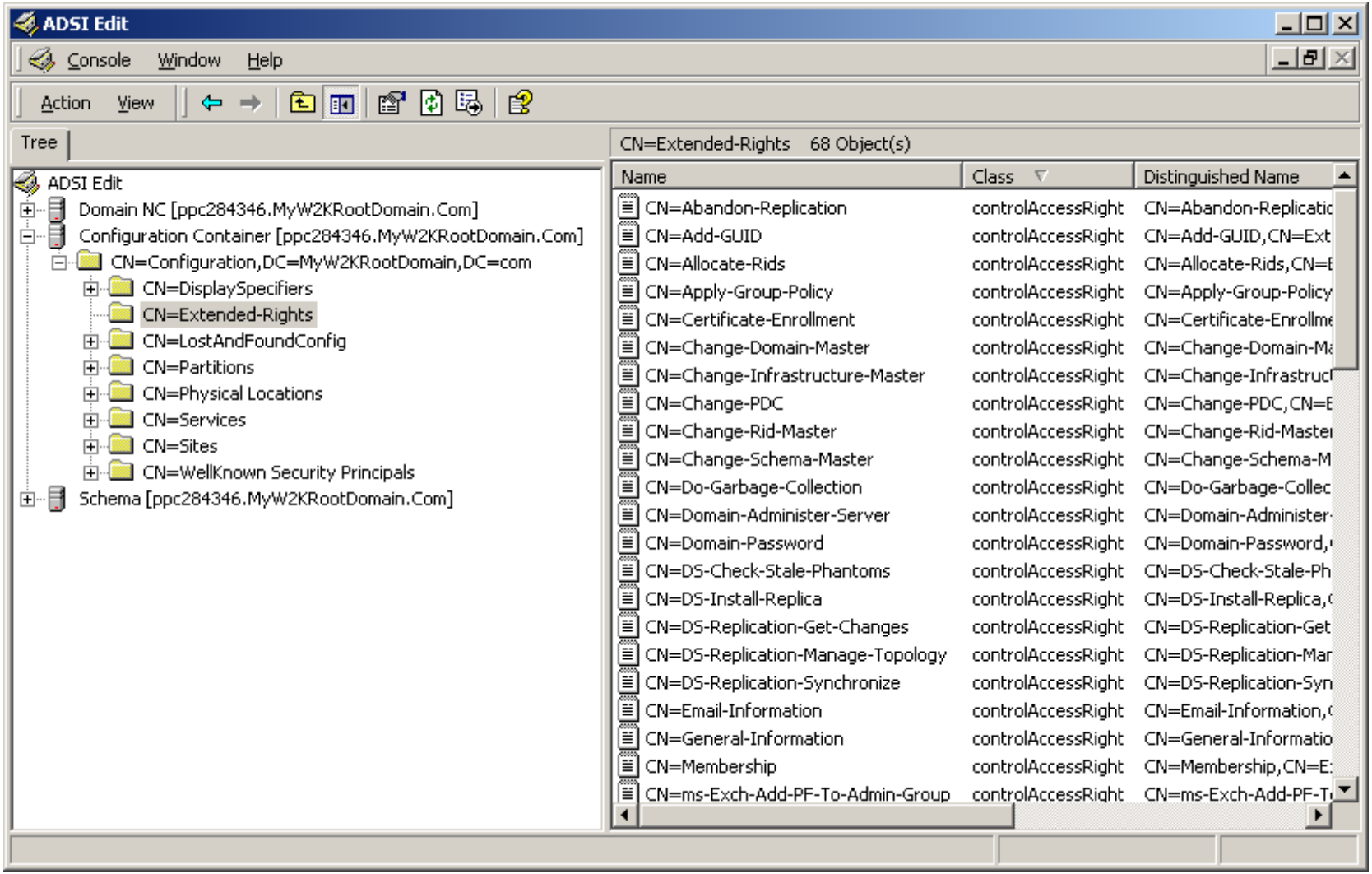
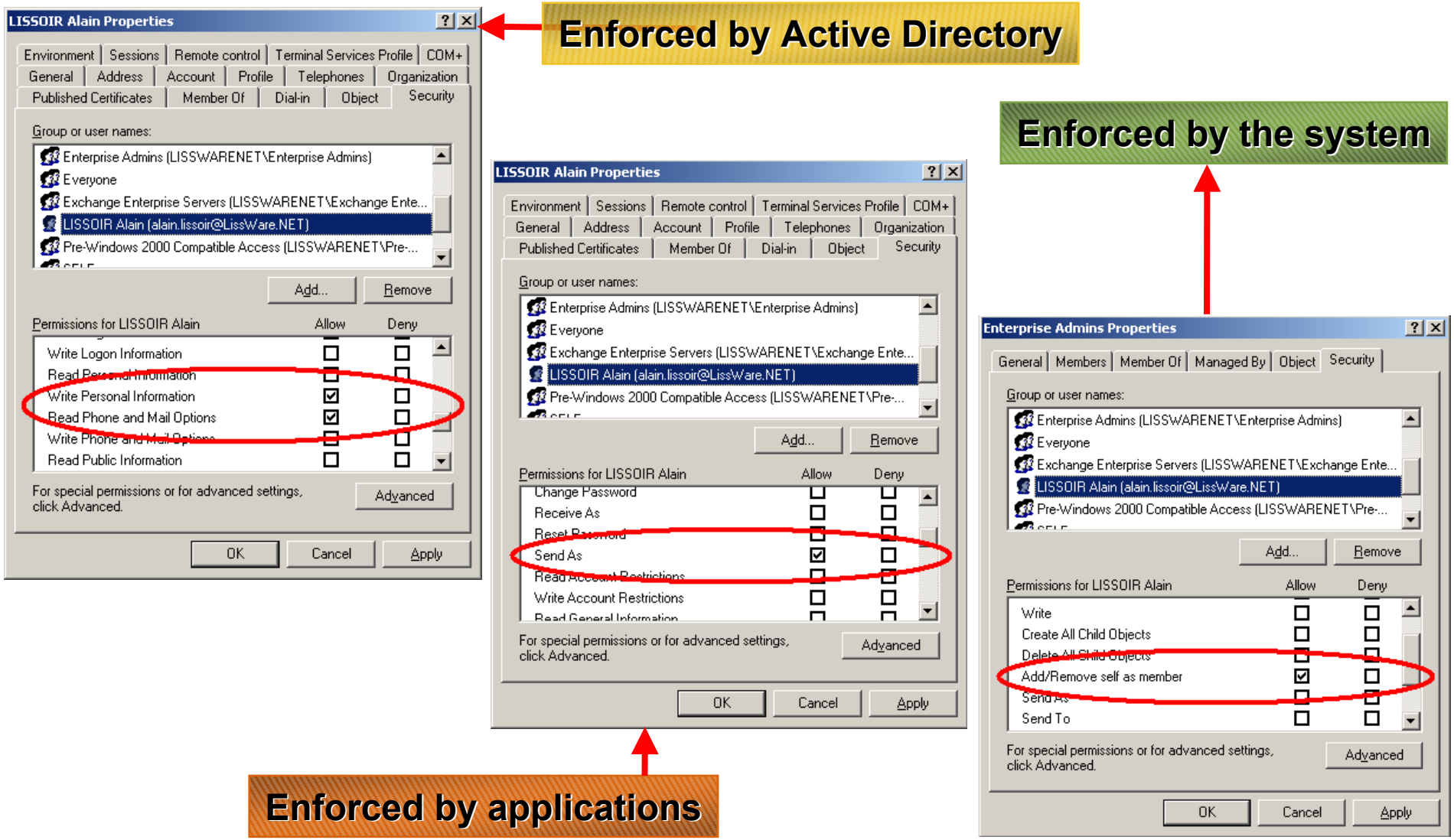
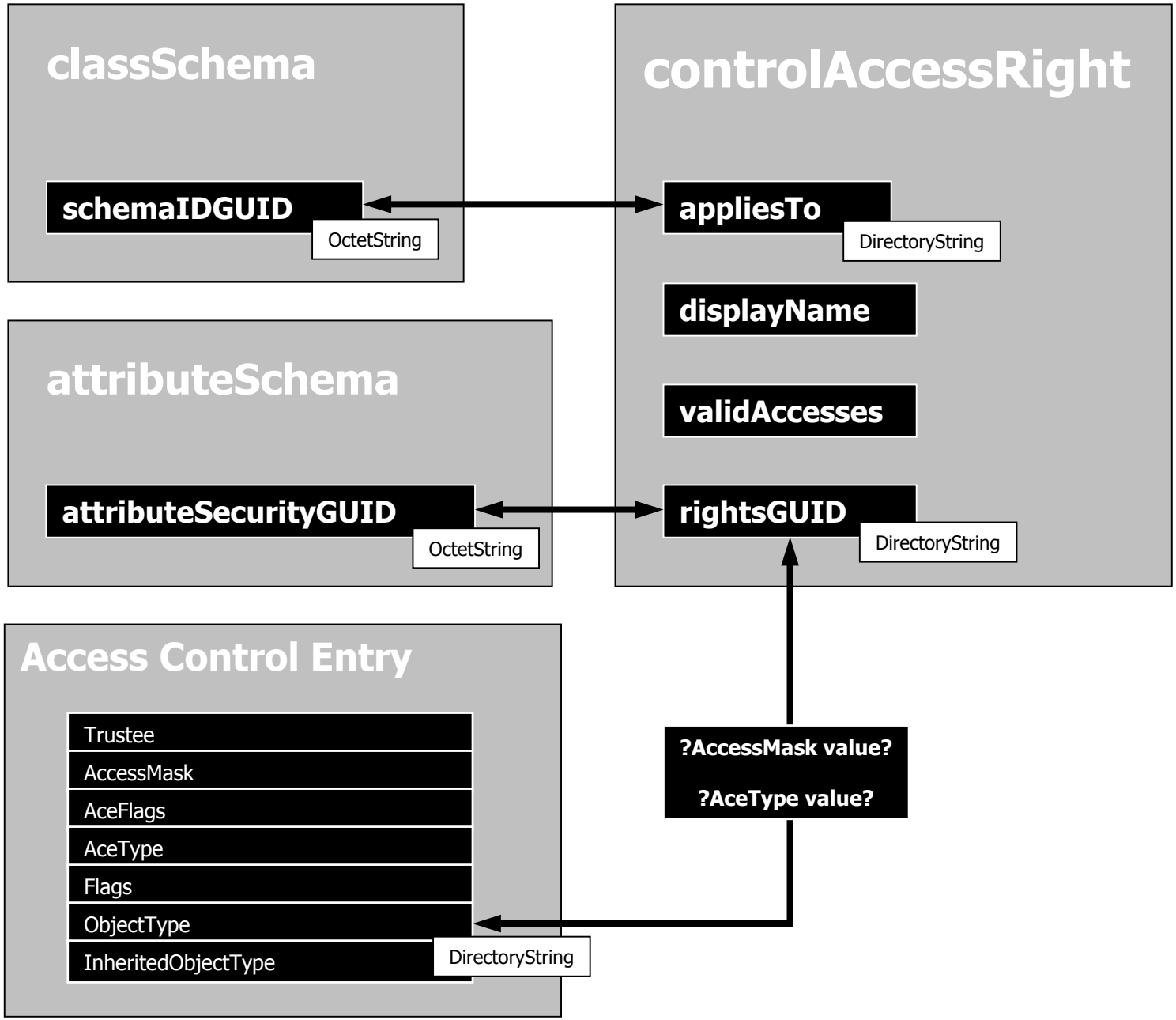
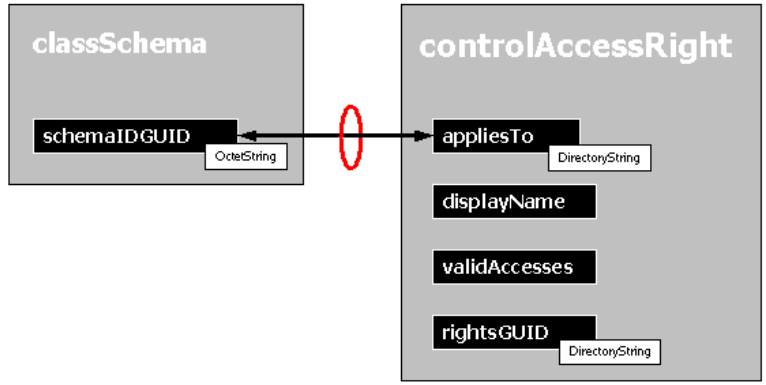
Extended Rights overview

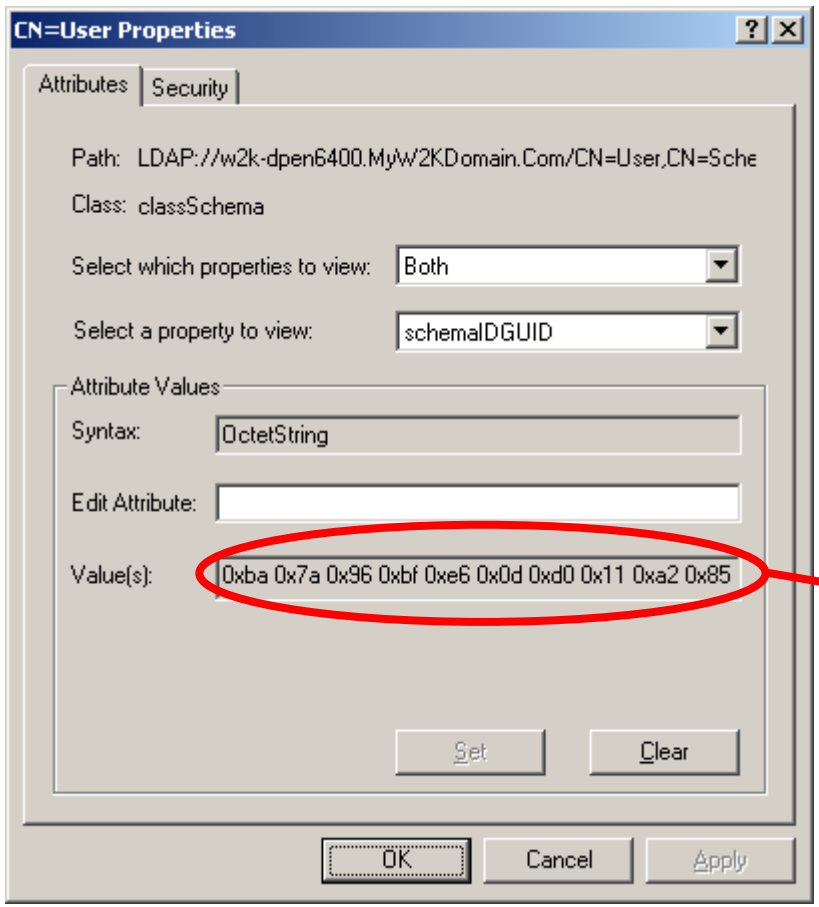


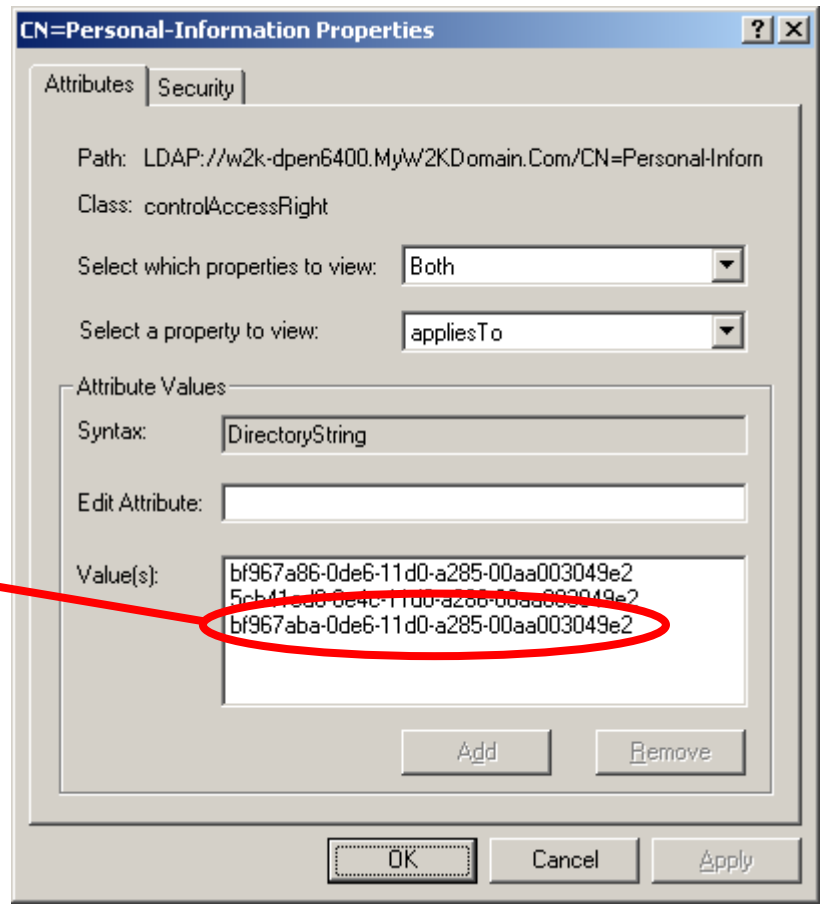
Extended Right types

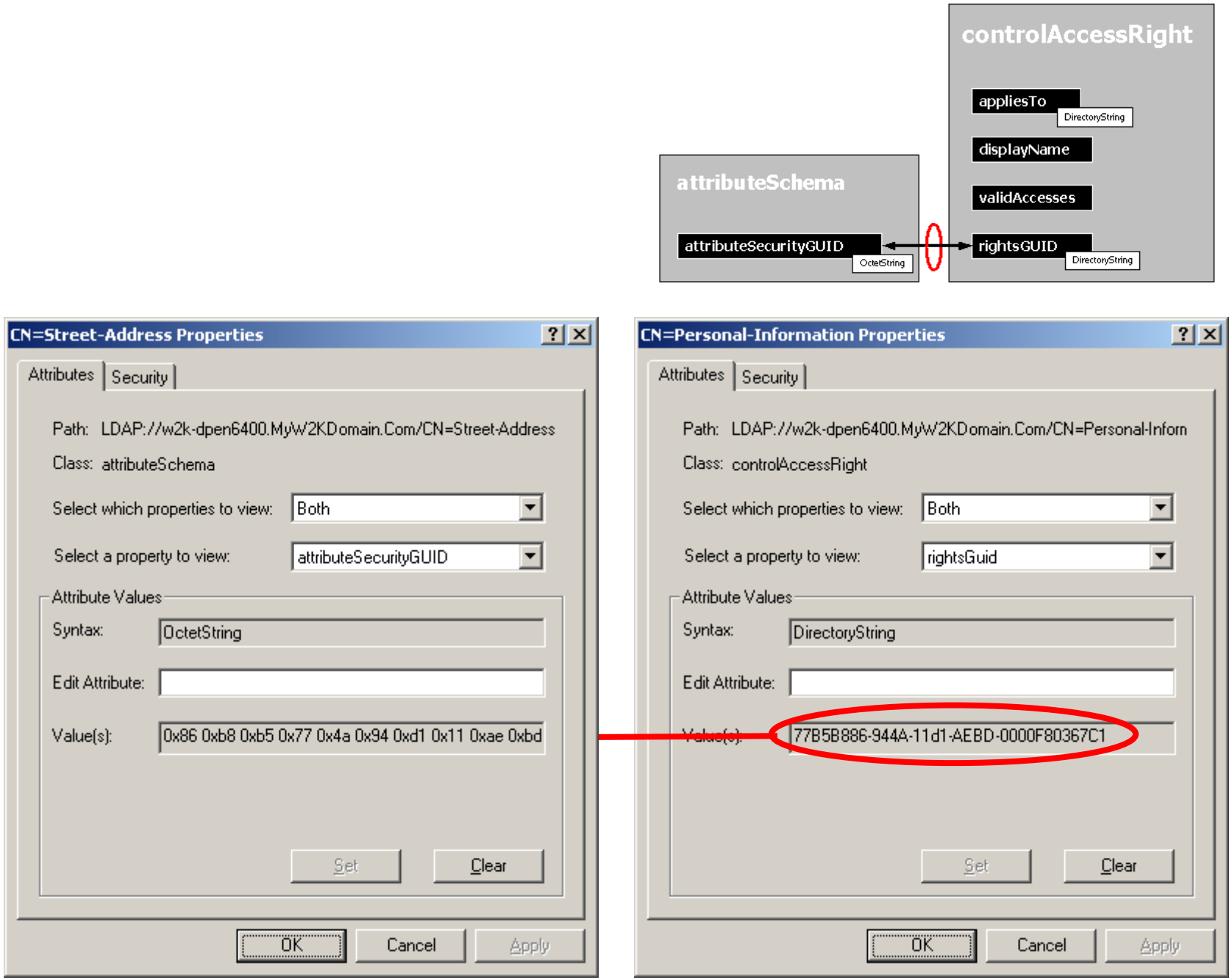


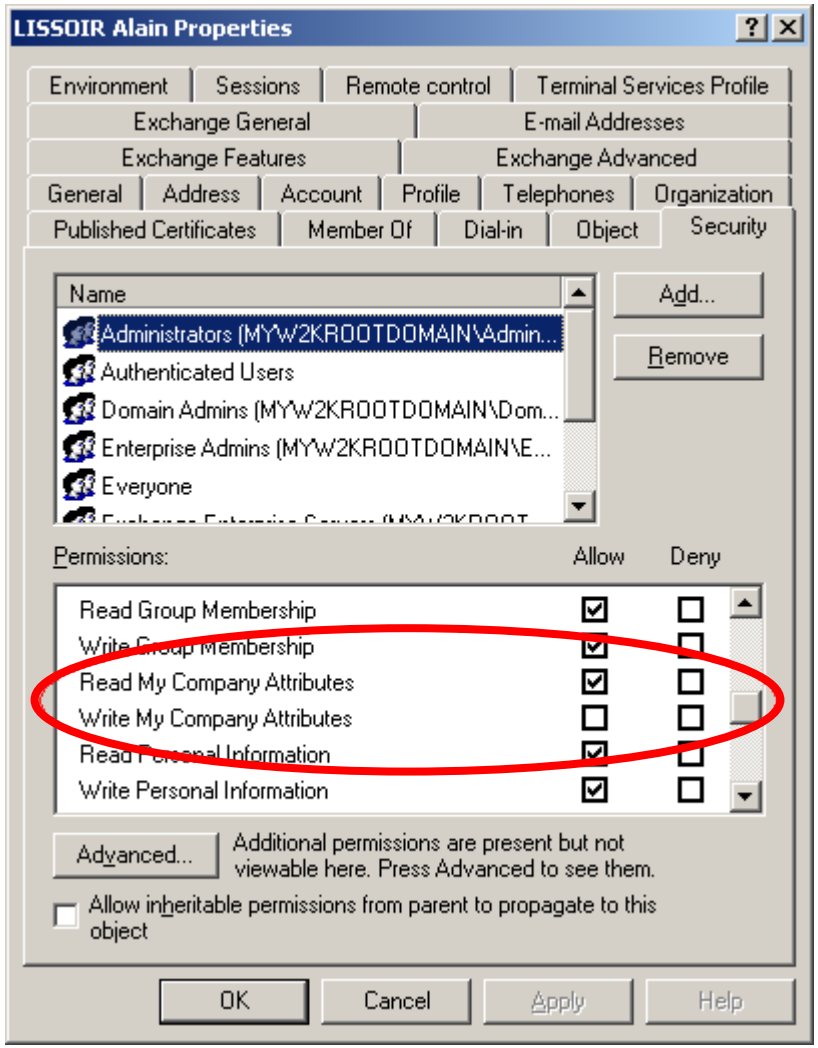

classSchema
schemaIDGUID
OctetString
controlAccessRight
appliesTo
DirectoryString
displayName
validAccesses
attributeSchema
attributeSecurityGUID
OctetString
rightsGUID
DirectoryString
Access Control Entry
Trustee
AccessMask
AceFlags
AceType
Flags
ObjectType
InheritedObjectType
DirectoryString
?AccessMask value?
?AceType value?


classSchema
schemaIDGUID
OctetString
controlAccessRight
appliesTo
DirectoryString
displayName
validAccesses
rightsGUID
DirectoryString


CN=User Properties
Attributes
Security
Path: LDAP://w2k-dpen6400.MyW2KDomain.Com/CN=User,CN=Sche
Class: classSchema
Select which properties to view: Both
Select a property to view: schemaIDGUID
Attribute Values
Syntax: OctetString
Edit Attribute:
Value(s): 0xba 0x7a 0x96 0xbf 0xe6 0x0d 0xd0 0x11 0xa2 0x85
Set
Clear
OK
Cancel
Apply


CN=Personal-Information Properties
Attributes
Security
Path: LDAP://w2k-dpen6400.MyW2KDomain.Com/CN=Personal-Inform
Class: controlAccessRight
Select which properties to view: Both
Select a property to view: appliesTo
Attribute Values
Syntax: DirectoryString
Edit Attribute:
Value(s): bf967a86-0de6-11d0-a285-00aa003049e2
bf967aba-0de6-11d0-a285-00aa003049e2
Add
Remove
OK
Cancel
Apply

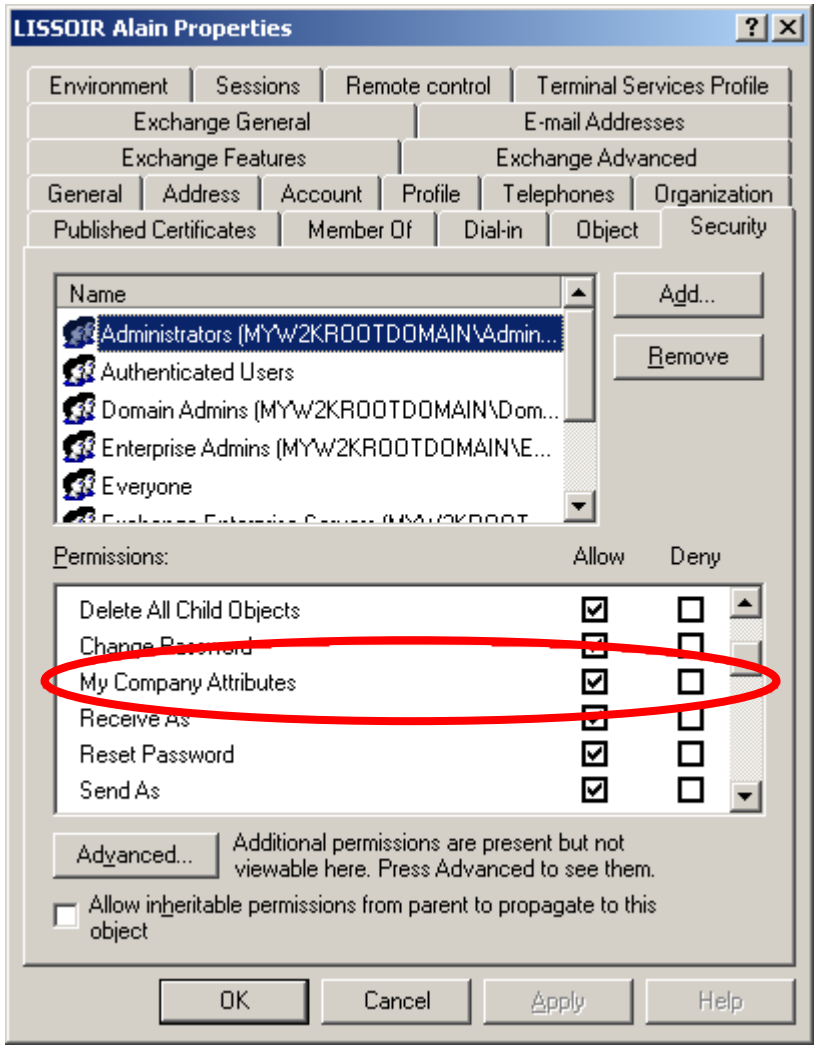

controlAccessRight
appliesTo
DirectoryString
displayName
validAccesses
rightsGUID
DirectoryString
attributeSchema
attributeSecurityGUID
OctetString
CN=Street-Address Properties
Attributes
Security
Path: LDAP://w2k-dpen6400.MyW2KDomain.Com/CN=Street-Address
Class: attributeSchema
Select which properties to view: Both
Select a property to view: attributeSecurityGUID
Attribute Values
Syntax: OctetString
Edit Attribute:
Value(s): 0x86 0xb8 0xb5 0x77 0x4a 0x94 0xd1 0x11 0xae 0xbd
Set
Clear
OK
Cancel
Apply
CN=Personal-Information Properties
Attributes
Security
Path: LDAP://w2k-dpen6400.MyW2KDomain.Com/CN=Personal-Inform
Class: controlAccessRight
Select which properties to view: Both
Select a property to view: rightsGuid
Attribute Values
Syntax: DirectoryString
Edit Attribute:
Value(s): 77B5B886-944A-11d1-AEBD-0000F80367C1
Set
Clear
OK
Cancel
Apply



This type of right is enforced by Active Directory.

controlAccessRight

- **appliesTo** — DirectoryString
- **displayName** ← My Company Attributes
- **validAccesses** ← 0x30
- **rightsGUID** — DirectoryString

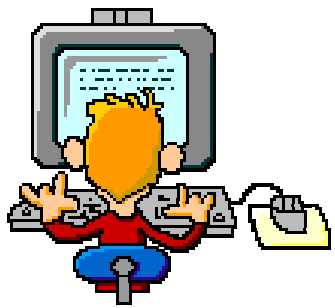


This is the application responsibility to validate the right.

controlAccessRight

- **appliesTo** — DirectoryString
- **displayName** ← My Company Attributes
- **validAccesses** ← 0x100
- **rightsGUID** — DirectoryString

Extended Rights Creation and Assignments



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Origin

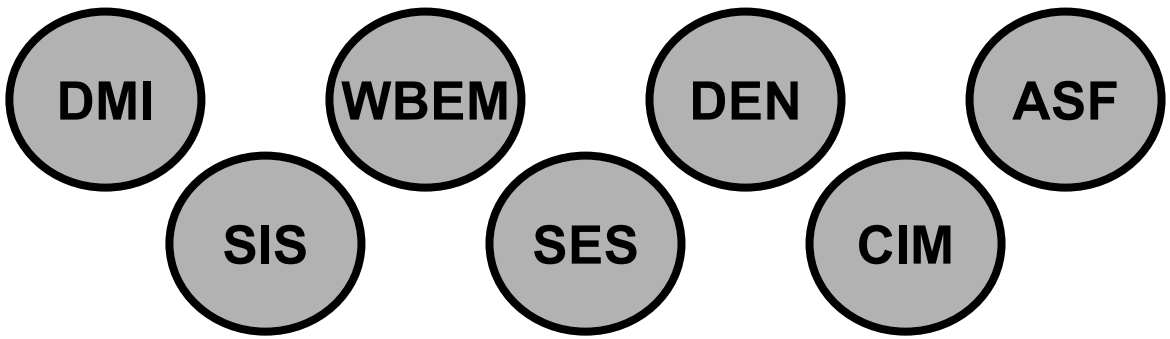
DMTF=Distributed Management Task Force

Originates from DMTF founded in 1992

DMTF members

http://www.dmtf.org

Provides a standard for enterprise system managers.



DMTF initiatives

DMI=Desktop Management Interface
(Standard for managing and tracking components in a PCs)

WBEM=Web-Based Enterprise Management
(Unify the management of enterprise computing environments)

CIM=Common Information Model
(Implementation-neutral schema to describe overall management information)

DEN=Directory Enabled Network
(Specification designed to provide building blocks for intelligent networks)

ASF=Alert Standard Forum
(Defining management that best serve clients' OS-absent environments)

SIS=Service Incident Standard and SES=Solution Exchange Standard
(Standards for customer support and helpdesk applications)

DMTF initiatives

WBEM=Web-Based Enterprise Management
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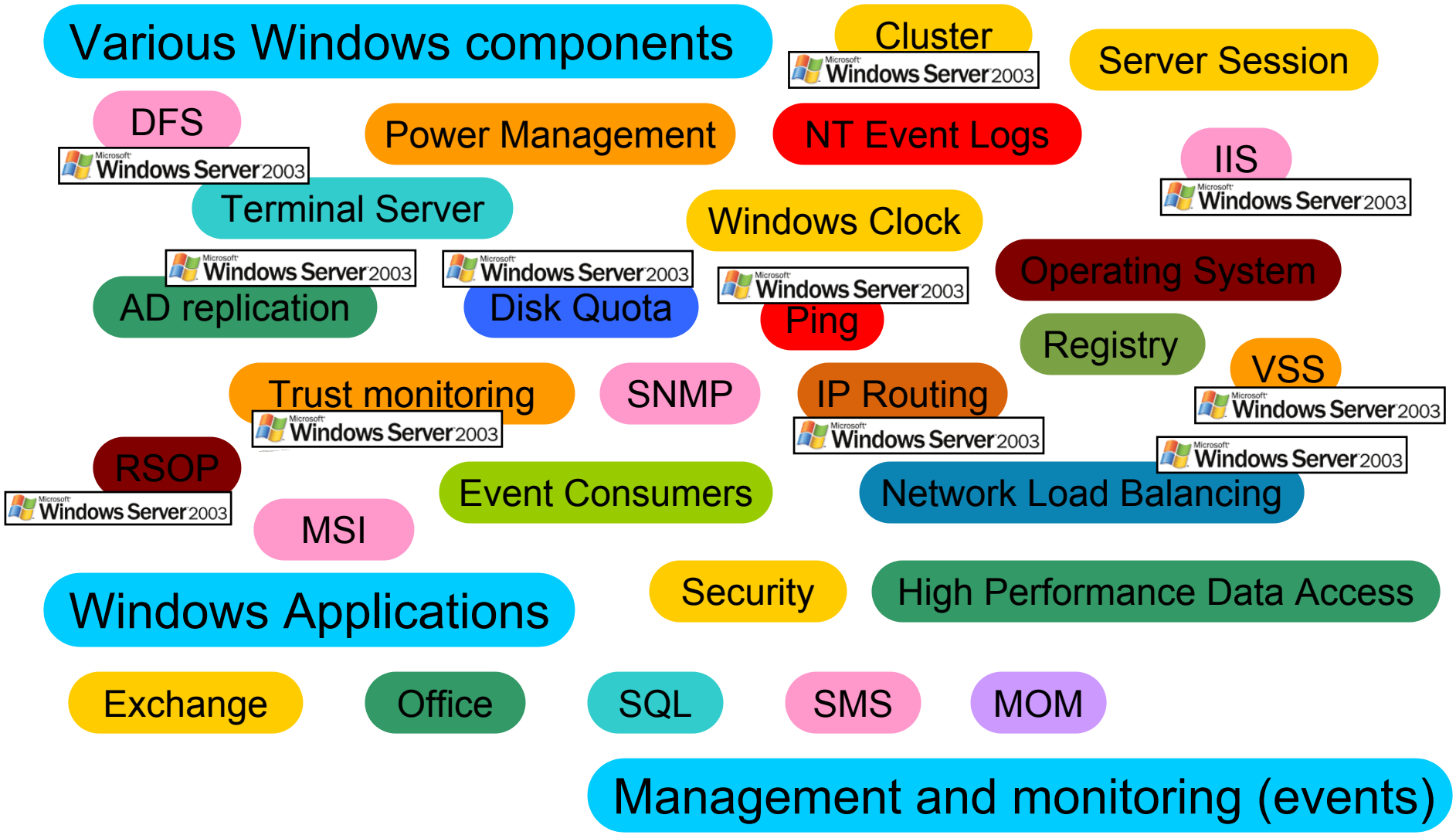
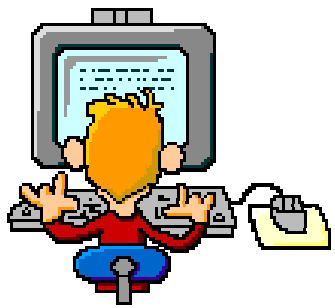
(Implementation-neutral schema to describe overall management information)

WMI features

Windows NT 4.0: ± 15 WMI providers
Windows 2000: ±29 WMI providers
Windows Server 2003: ± 84 WMI Providers



WMI Security Group Monitoring Demo



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Windows & .NET Magazine

- Diving into the Active Directory Schema
  http://www.winnetmag.com/Articles/Index.cfm?ArticleID=21839
- Extending the Active Directory Schema
  http://www.winnetmag.com/Articles/Index.cfm?ArticleID=22540
- Secure Script Execution with WSH 5.6
  http://www.winscriptingsolutions.com/Articles/Index.cfm?ArticleID=25644
- Exchange 2000 SP2 CDOEXM updates
  http://www.exchangeadmin.com/Articles/Index.cfm?ArticleID=27211
- Exchange 2000 SP2 WMI updates
  http://www.exchangeadmin.com/Articles/Index.cfm?ArticleID=38190

Microsoft MSDN

- Microsoft ADSI MSDN Library (SDK)

  http://msdn.microsoft.com/library/en-us/netdir/adsi/active_directory_service_interfaces_adsi.asp

  - Active Directory Access Control

    http://msdn.microsoft.com/library/en-us/netdir/ad/controlling_access_to_active_directory_objects.asp

- Microsoft WMI MSDN Library (SDK)

  http://msdn.microsoft.com/library/en-us/wmisdk/wmi/wmi_start_page.asp

Microsoft TechNET

- Automating Exchange 2000 Management with Windows Script Host

  http://www.microsoft.com/technet/treeview/default.asp?url=/technet/prodtechnol/exchange/exchange2000/maintain/featusability/ex2kwsh.asp

Compaq/HP White Papers

- Compaq Active Answers

(Alain Lissoir – Hewlett Packard)

Part 1 - Understanding Microsoft WSH and ADSI in Windows 2000.

Part 2 - The powerful combination of WSH and ADSI under Windows 2000.

Part 1 - Introduction to the use of Exchange 2000 with Windows Script Host.

Part 2 - Managing Exchange with Scripts - Advanced Topics.

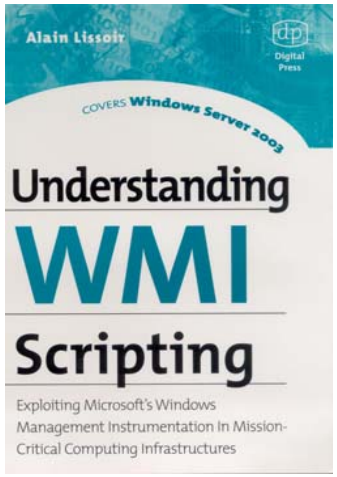
http://activeanswers.compaq.com/ActiveAnswers/Render/1,1027,2366-6-100-225-1,00.htm

Under the « Available Information » selection box,

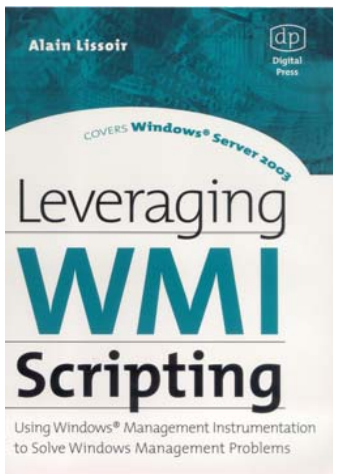
select the « Technology » section ,

next, select « Windows 2000 and Exchange ».

WMI Books covering Windows Server 2003 (from NT 4.0)



- Understanding WMI Scripting (Volume 1)
  - ISBN 1555582664 – Digital Press
    (Alain Lissoir – Hewlett Packard)
  - April 2003
  - More on http://www.LissWare.Net



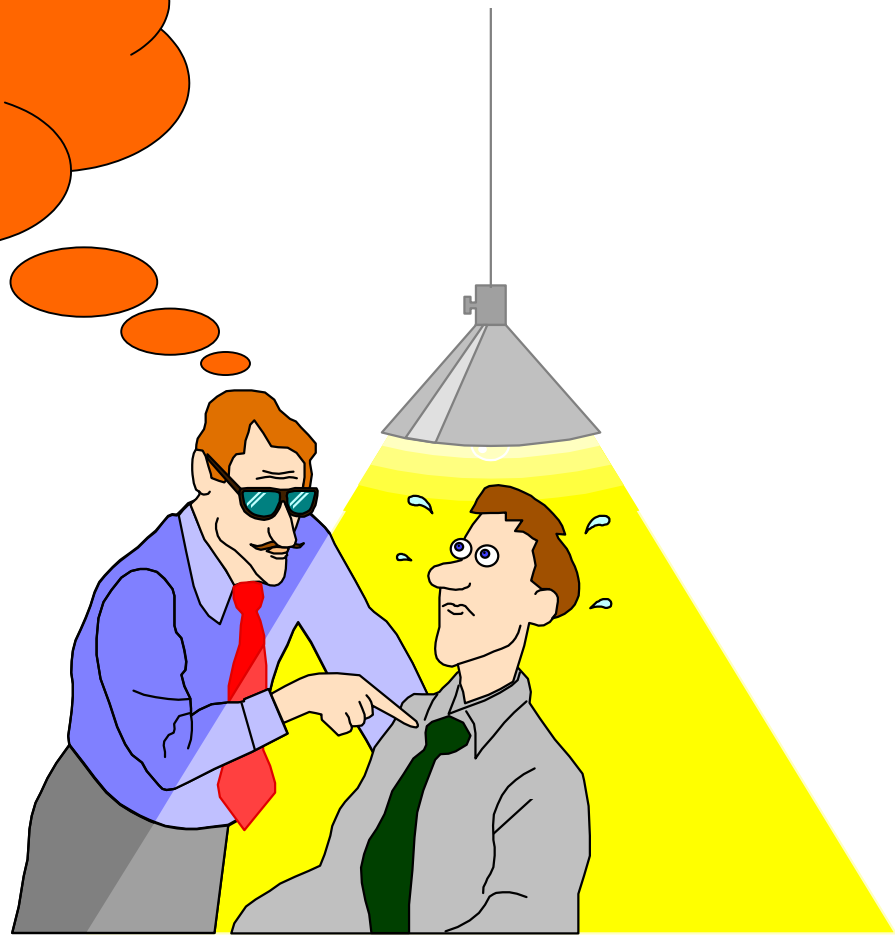
- Leveraging WMI Scripting (Volume 2)
  - ISBN 1555582990 – Digital Press
    (Alain Lissoir – Hewlett Packard)
  - June 2003
  - More on http://www.LissWare.Net

Demonstration scripts

- Demo Kit available at:

  http://users.skynet.be/alain.lissoir/conferences/Managing%20Windows%20with%20Secure%20Scripting%20(ScriptKit).zip

Any questions?

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