



*Kerberos for Windows and  
OpenAFS for Windows  
User Interface Futures*

Asanka Herath  
Jeffrey Altman

# Three types of user interface requirements

---

- General user interface
  - Notification Tools
  - Explorer Shell Extensions
- Individual User configuration
  - Control Panels
- Local Machine configuration
  - Microsoft Management Console

# Problems with the Existing User Interfaces

---

- Operations from different layers are mixed in a single tool
  - Users are confused by features they cannot use
  - Tools do not support privilege separation
- Operations do not exist where users expect to find them

# Microsoft Vista User Account Control

---

- Vista does not permit unprivileged processes to modify machine configuration
  - Shadow copies are provided for the current logon session
  - Modifications are lost when the session ends
- UAC requires privilege separation
  - A privileged sub-process or secondary service must be used to modify machine configuration

# What We Propose?

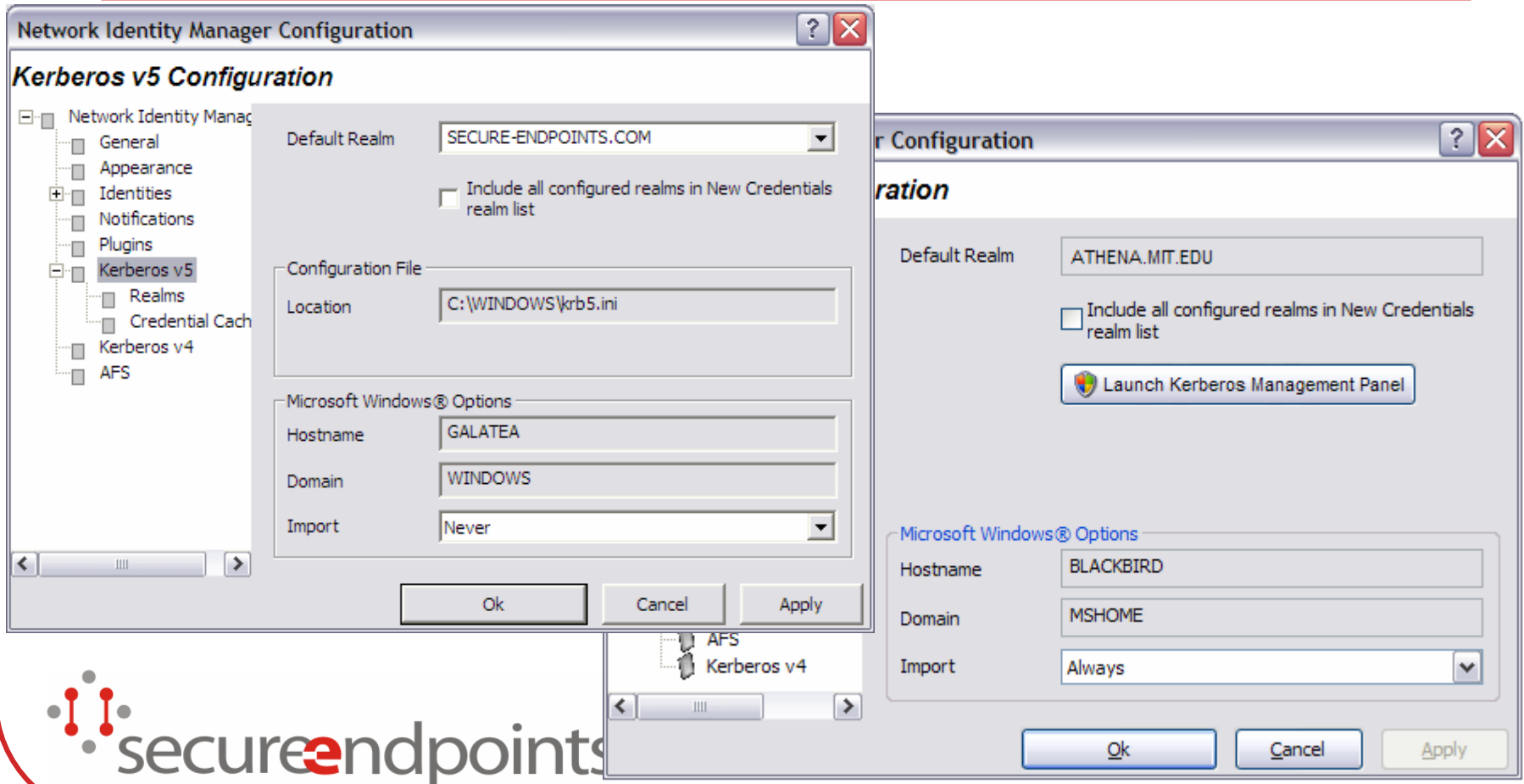
---

- Remove privileged operations from user tools and move them to Microsoft Management Console
  - Network Identity Manager
  - Get rid of AFS Creds Manager
- Replace AFS Control Panel with NIM Options Panels
- Redesign the Explorer Shell Extension

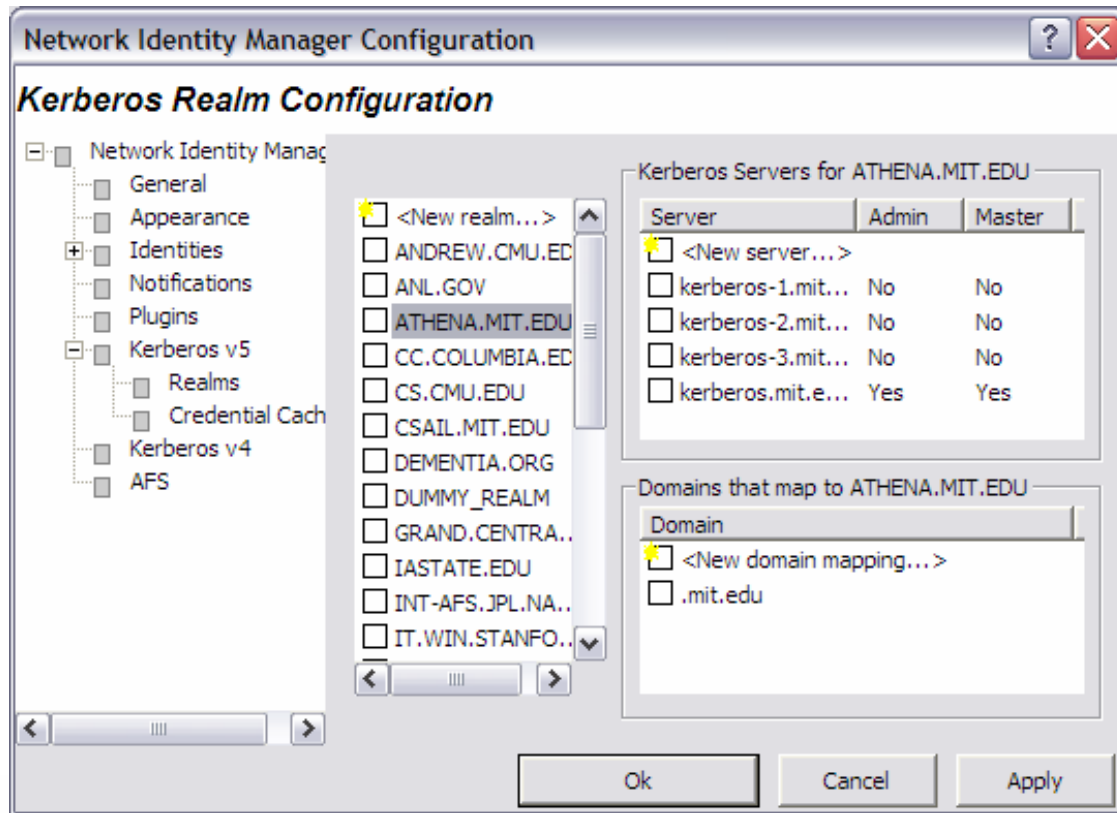
# Network Identity Manager Configuration Options

---

# Changes to NIM Options: Kerberos v5

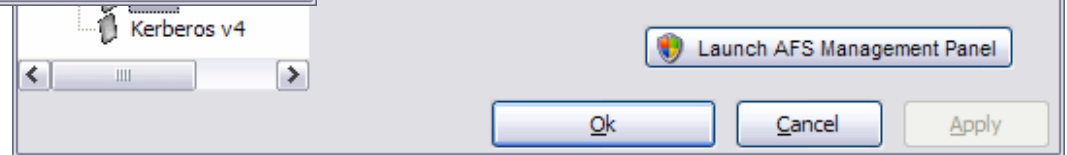
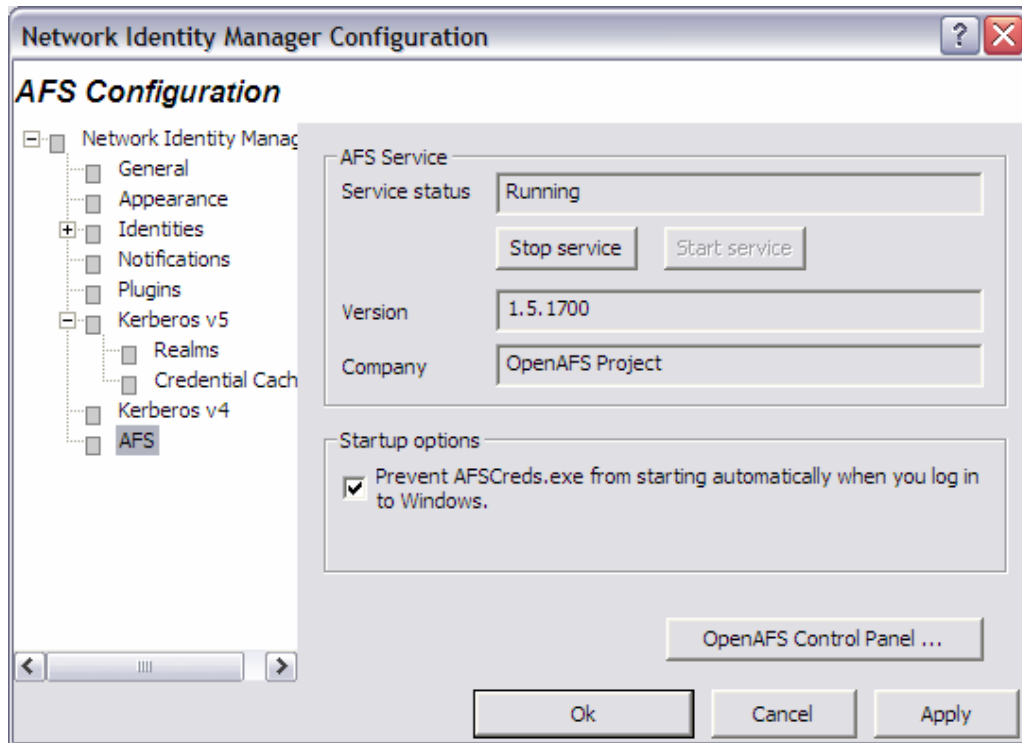


# Changes to NIM Options: Remove Kerberos v5 Realm Editing

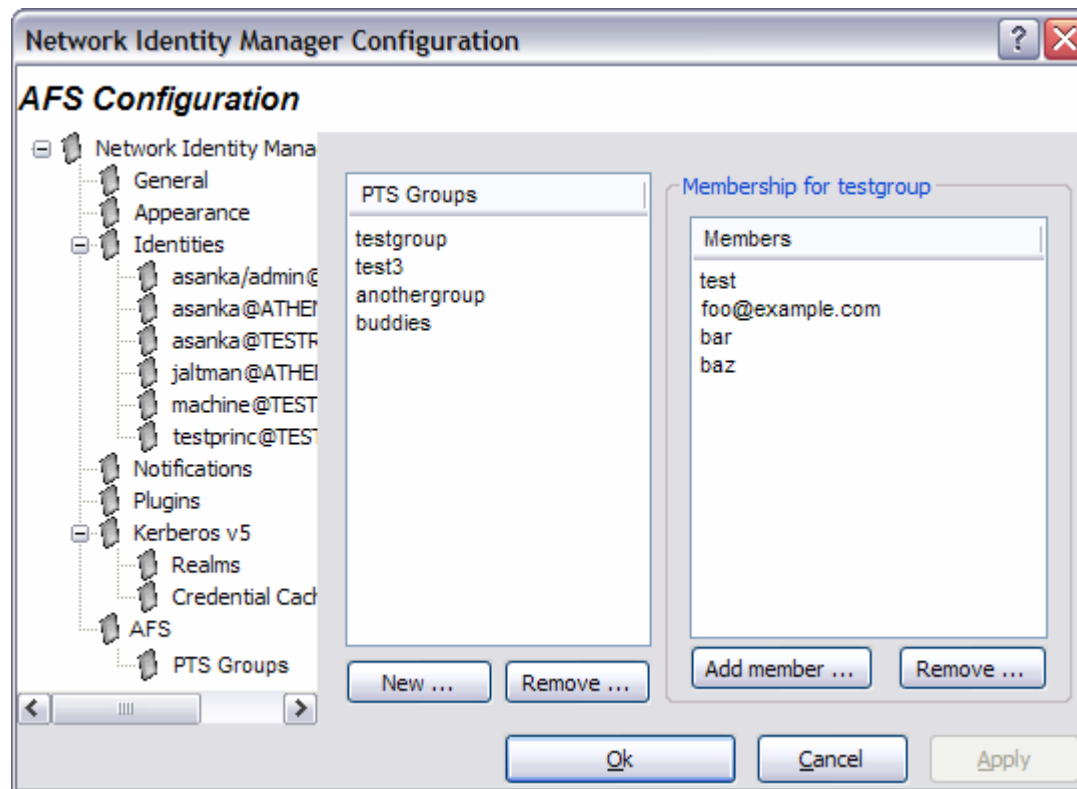




# Changes to NIM Options: AFS



# Changes to NIM Options: Add AFS PTS Group Management



# Control Panels

---

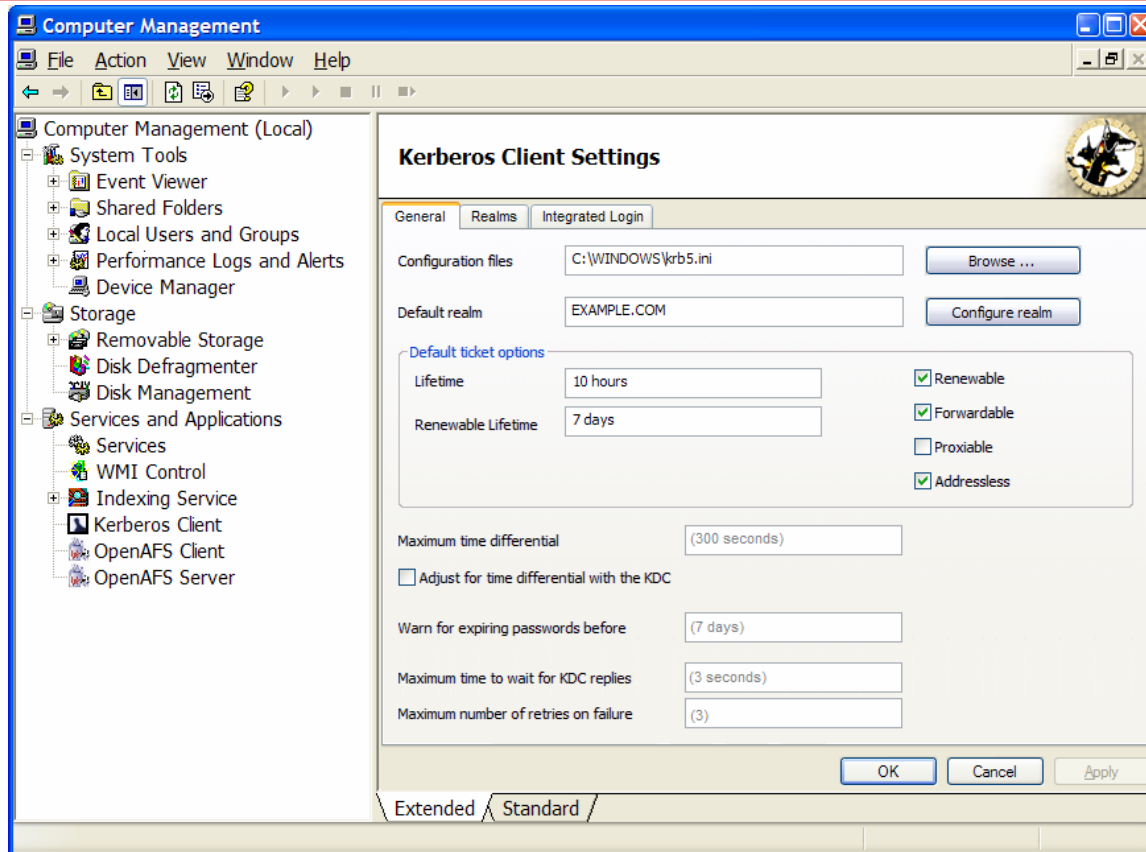
- Kerberos and OpenAFS Control Panels access Network Identity Manager Options Panels

# Microsoft Management Console

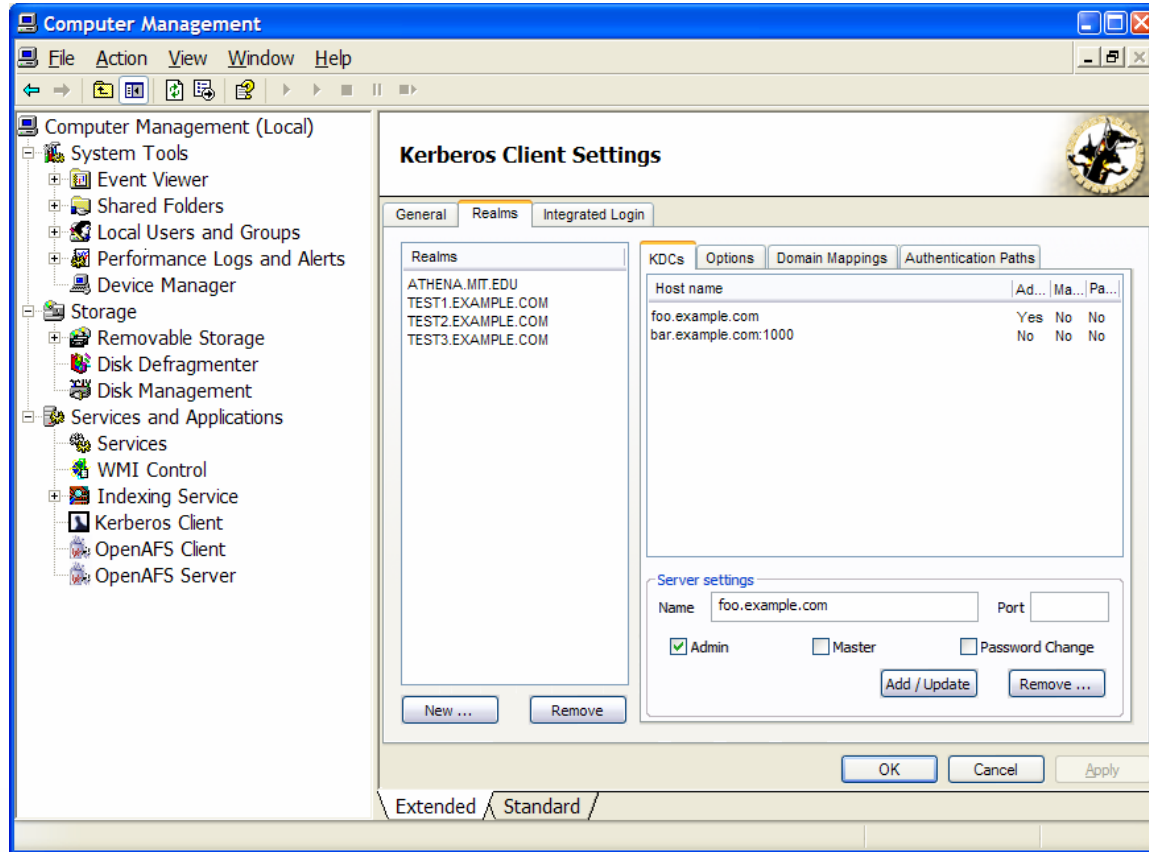
---



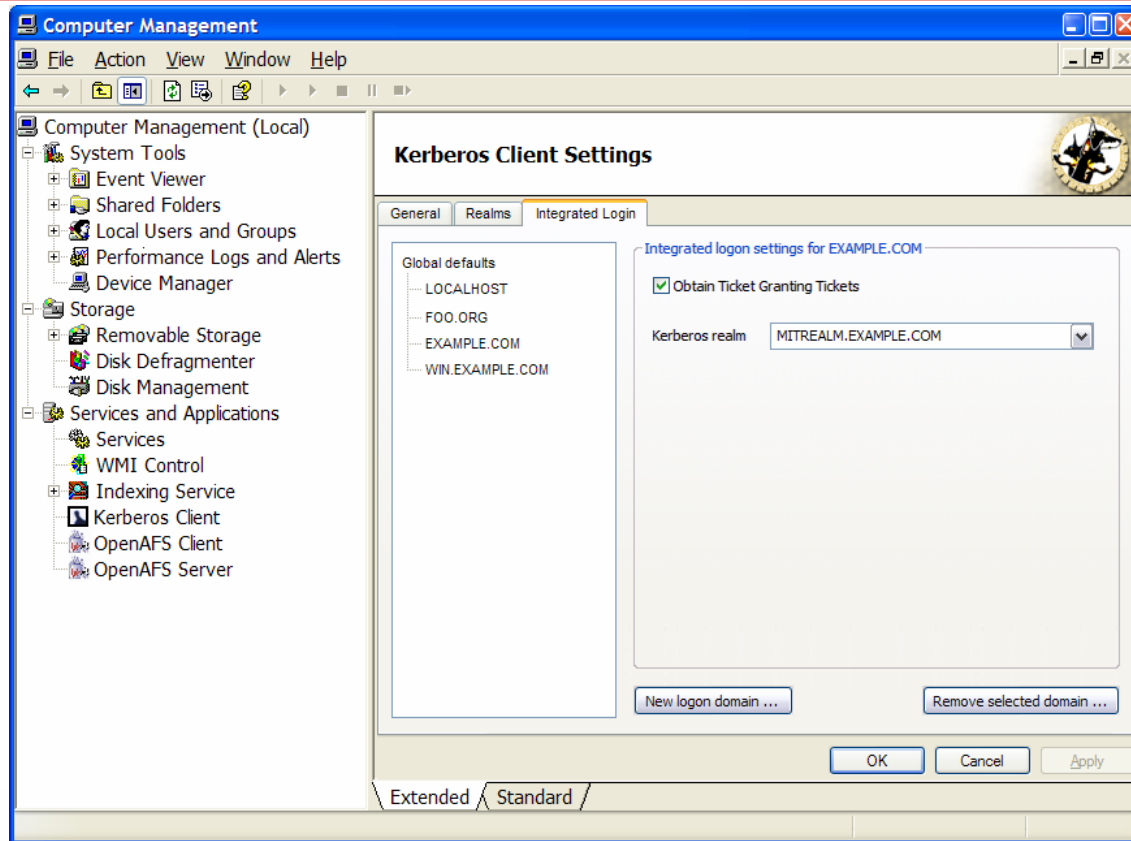
# Microsoft Management Console: Kerberos - General



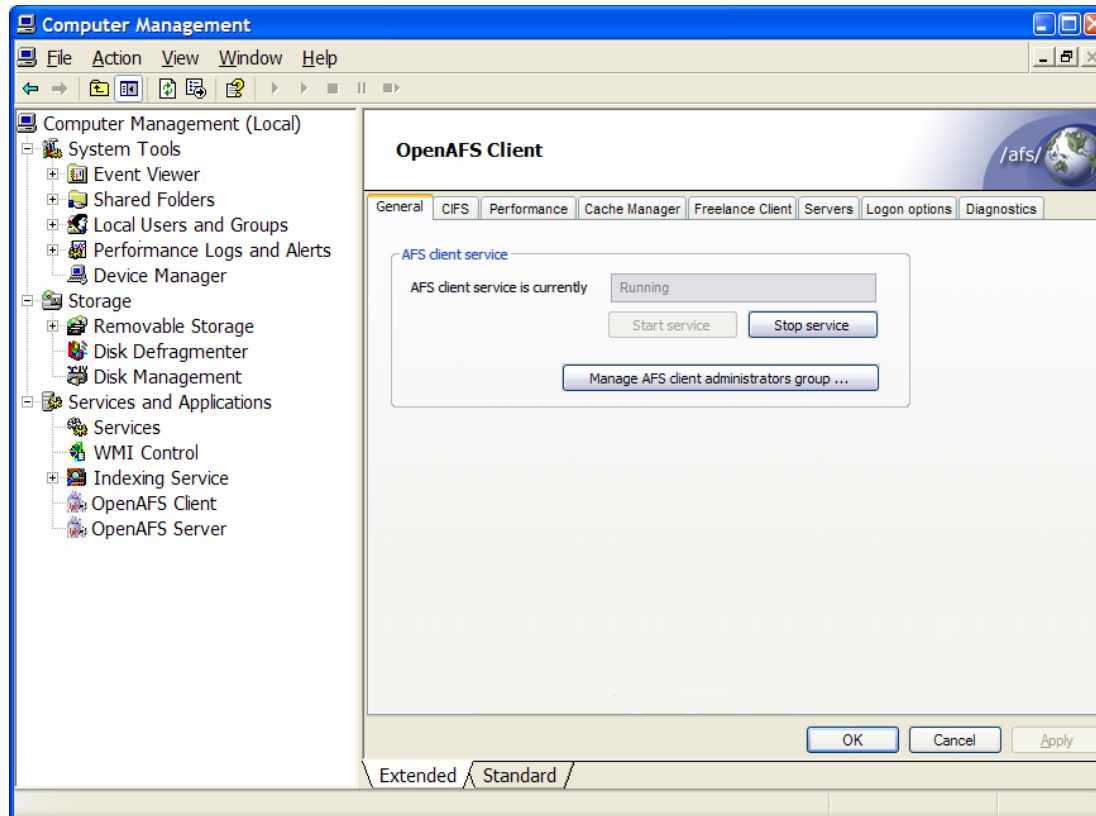
# Microsoft Management Console: Kerberos – Realm Configuration



# Microsoft Management Console: Kerberos – Integrated Login

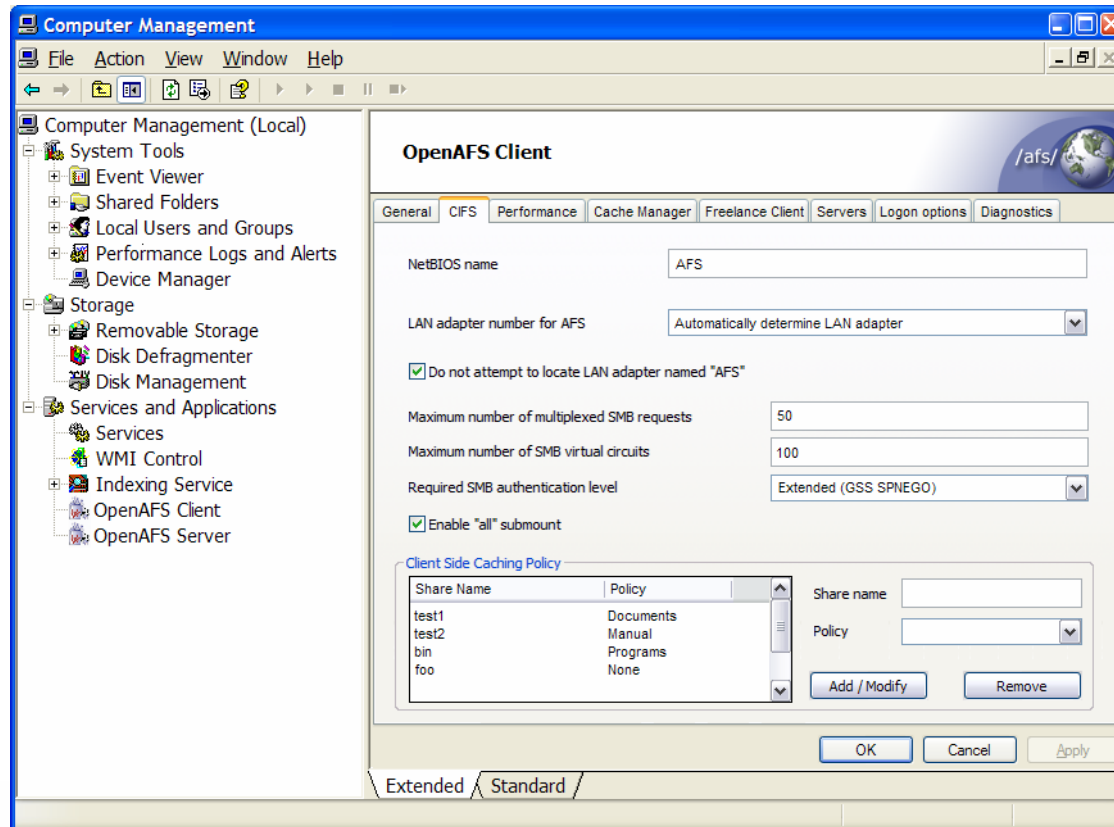


# Microsoft Management Console: OpenAFS - General

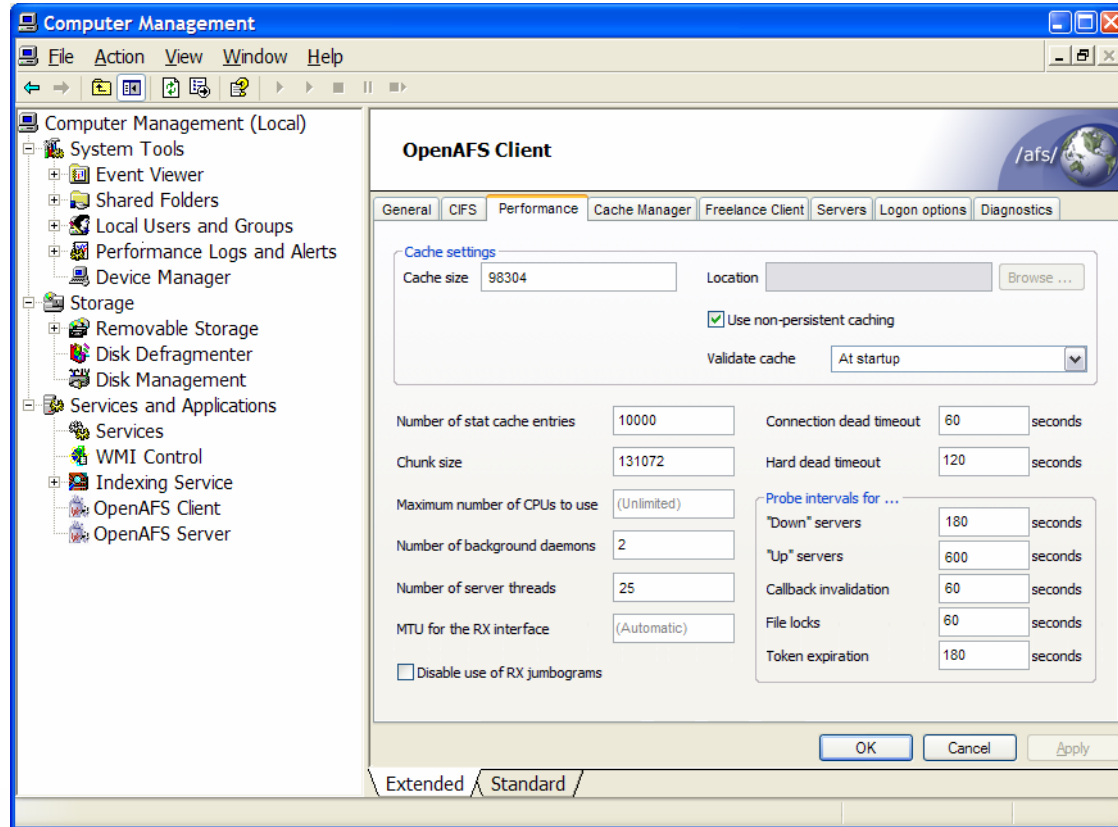




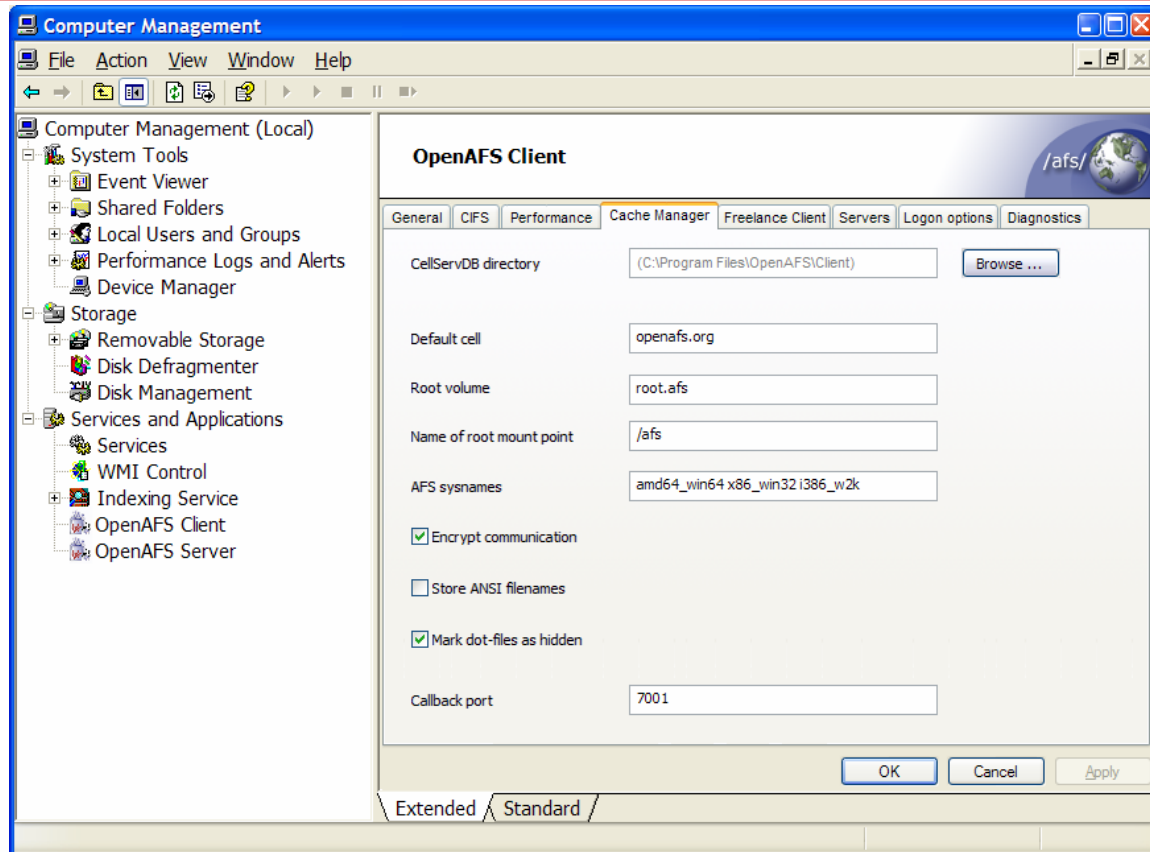
# Microsoft Management Console: OpenAFS - CIFS



# Microsoft Management Console: OpenAFS – Performance



# Microsoft Management Console: OpenAFS – Cache Manager



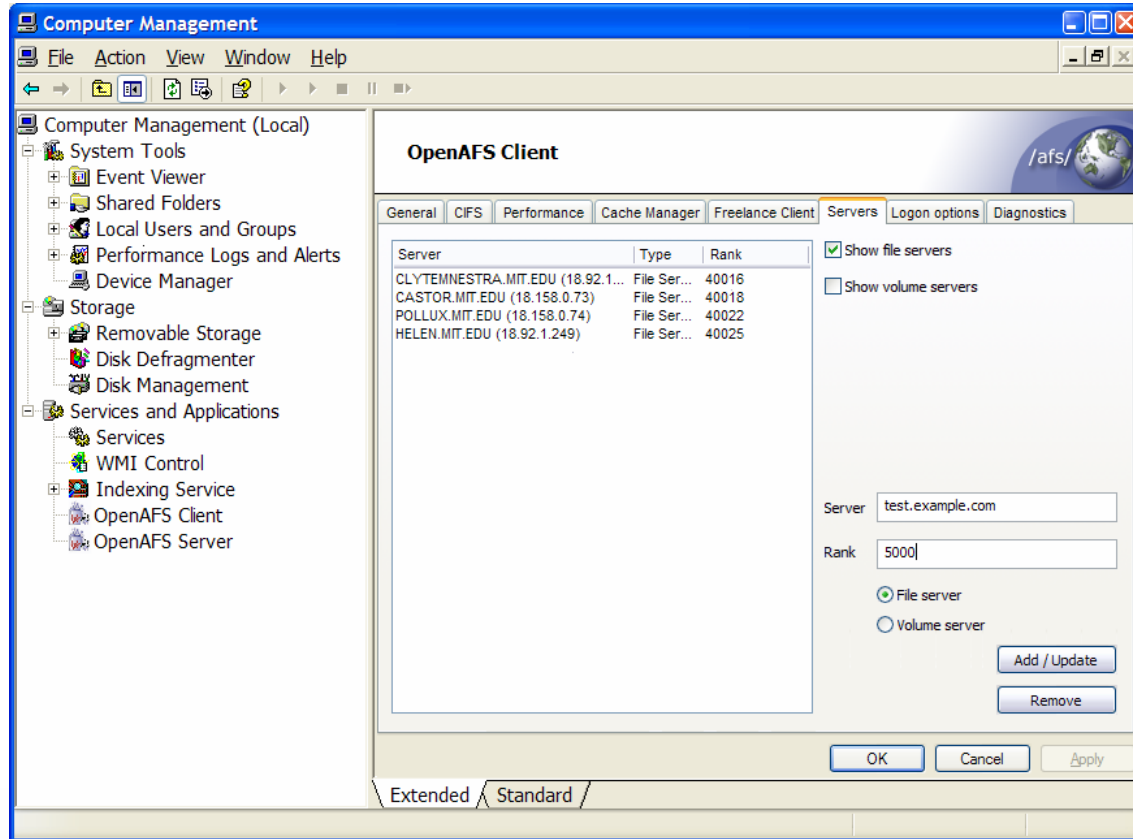
# Microsoft Management Console: OpenAFS – Freelance Mode

The screenshot displays the Microsoft Management Console (MMC) interface for the OpenAFS Client. The left-hand tree view shows the hierarchy: Computer Management (Local) > System Tools > OpenAFS Client. The main pane is titled "OpenAFS Client" and has several tabs: General, CIFS, Performance, Cache Manager, Freelance Client (selected), Servers, Logon options, and Diagnostics. The "Freelance Client" tab is active, showing a checked "Enable Freelance client" option. Below this is a table with columns for Name, Type, and Target. The table contains the following entries:

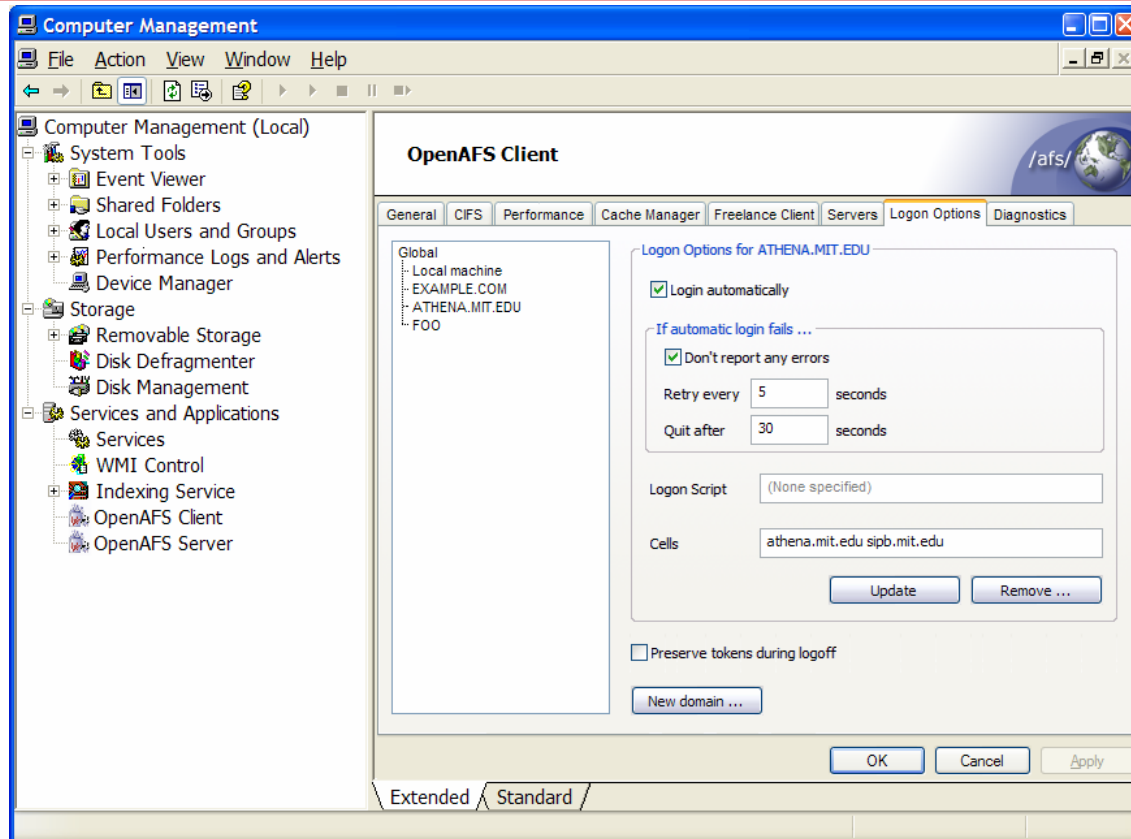
Name	Type	Target
example	Mount point (RW)	example.com:root.cell
example2	Symbolic link	example.com/path/to/file
home	Mount point (RO)	athena.mit.edu:user.asanka
home2	Symbolic link	athena.mit.edu/user/as/asanka
jaltman	Symbolic link	athena.mit.edu/user/ja/jaltman
mit	Mount point (RO)	athena.mit.edu:root.cell

Below the table are input fields for "Name" and "Target", and three radio button options: "Symbolic link" (selected), "Read-only mount point", and "Read-write mount point". There are "Add / modify" and "Remove" buttons. At the bottom of the dialog are "OK", "Cancel", and "Apply" buttons. The "Extended" and "Standard" views are visible at the bottom of the MMC window.

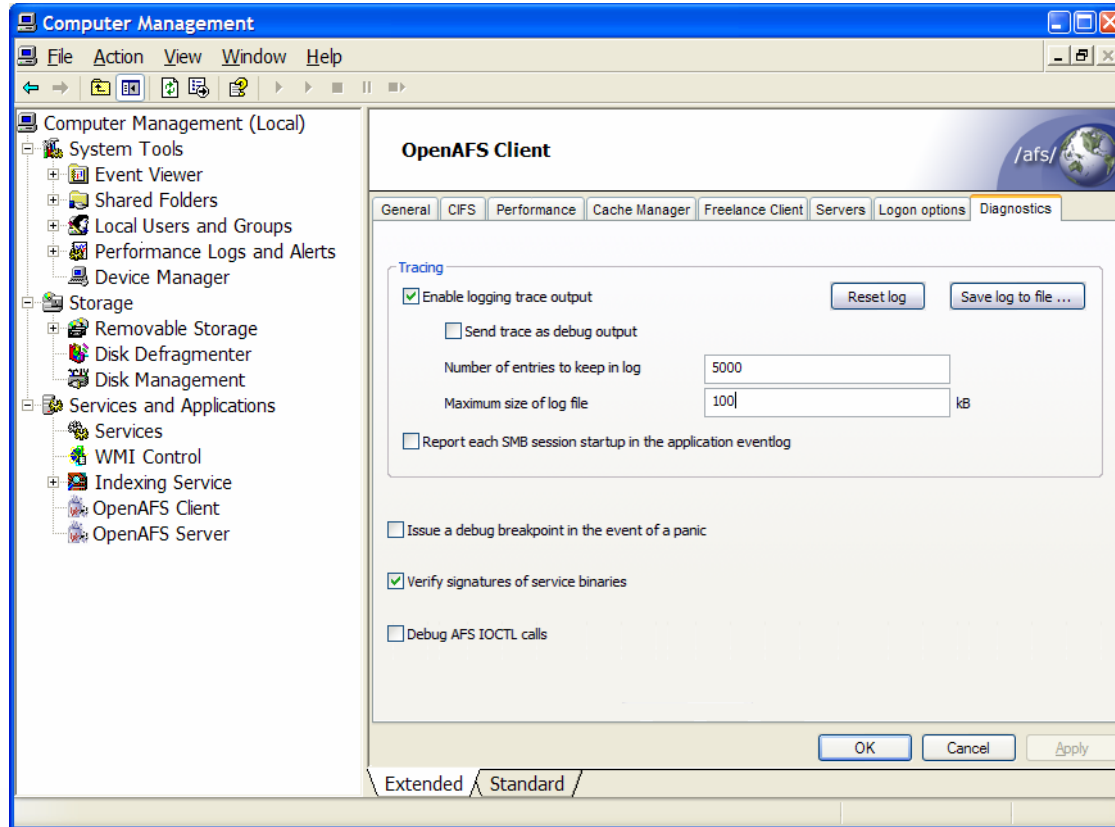
# Microsoft Management Console: OpenAFS – Servers



# Microsoft Management Console: OpenAFS – Logon Options



# Microsoft Management Console: OpenAFS - Diagnostics

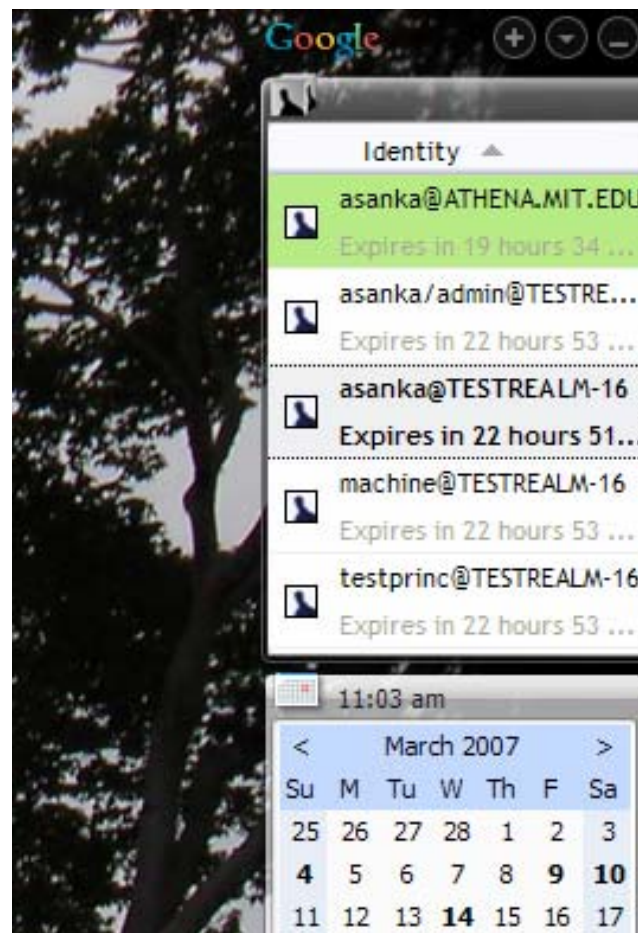
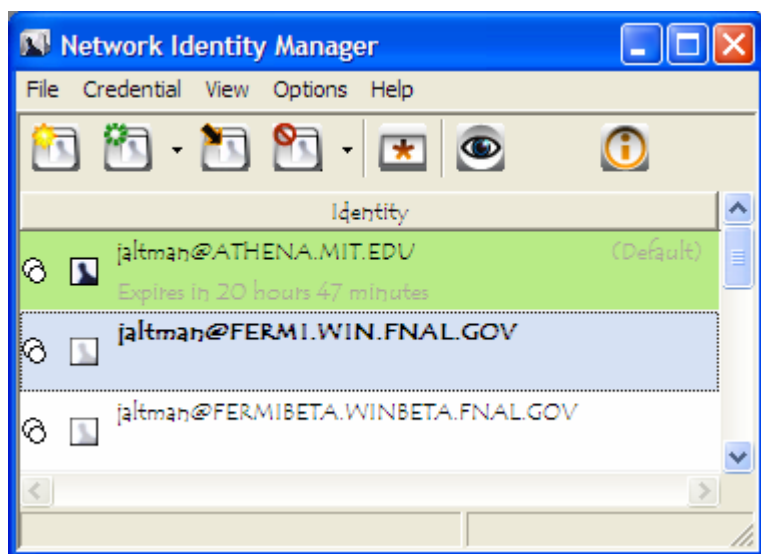


# Desktop Integration

---



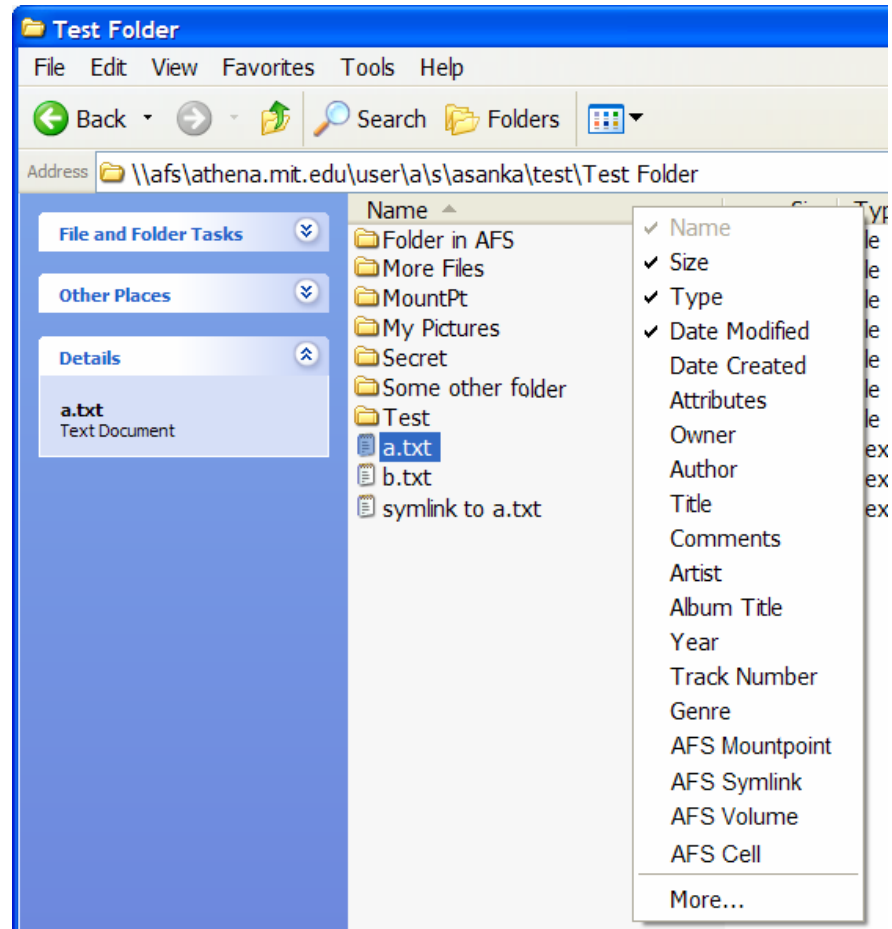
# Google Desktop Integration



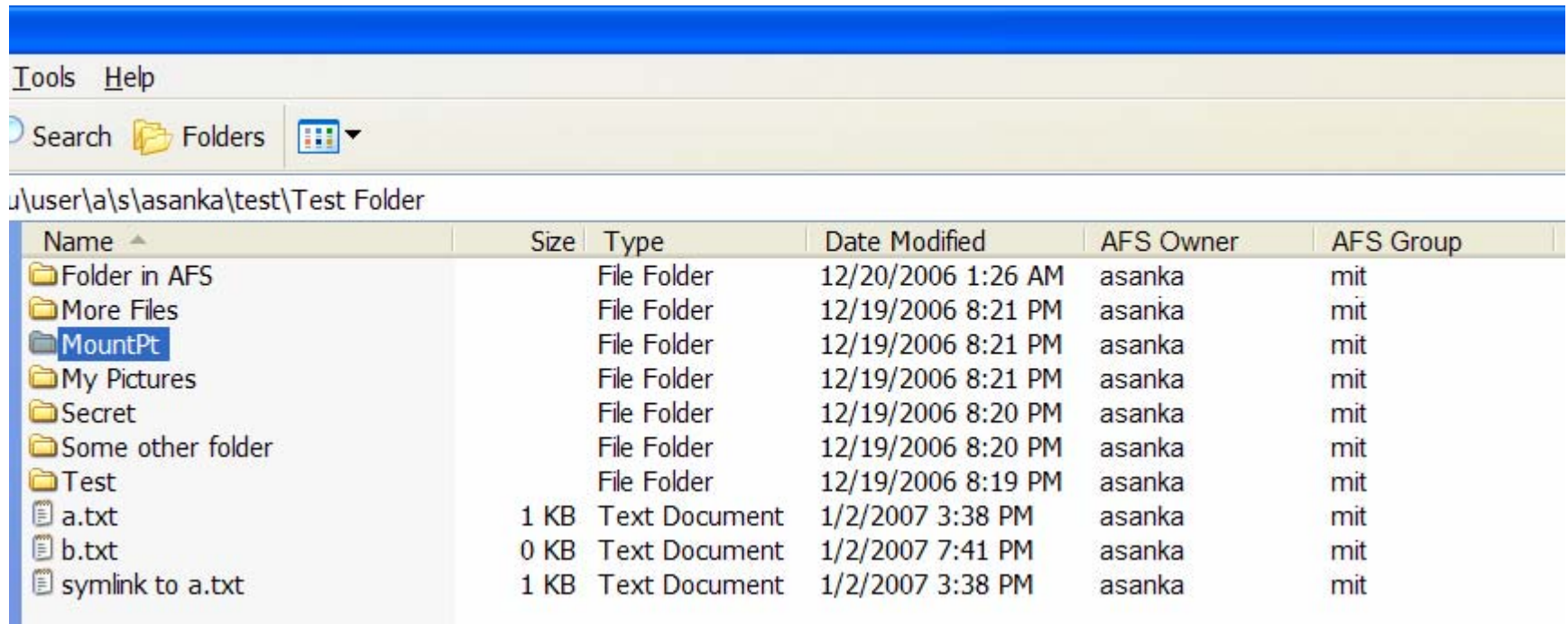
# Explorer Shell Integration

---

# Explorer Shell Integration: AFS Column Selection



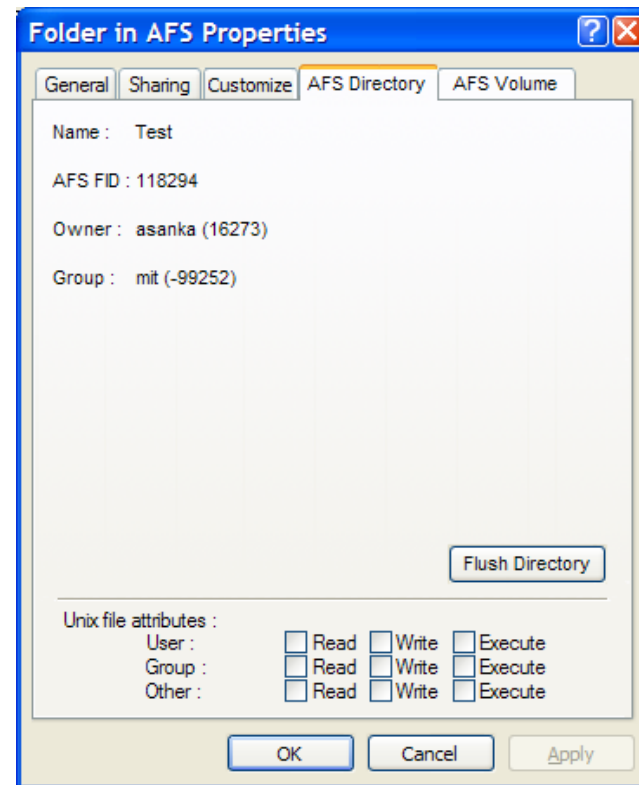
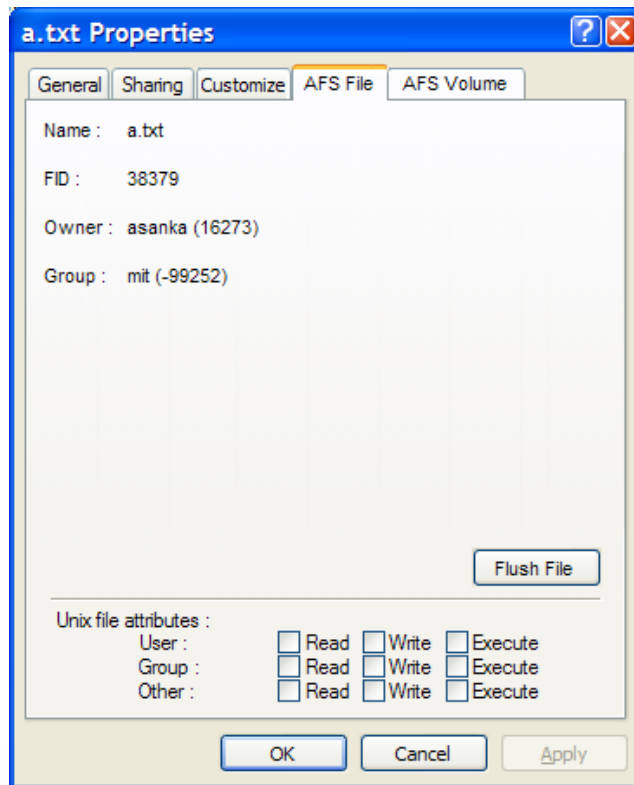
# Explorer Shell Integration: AFS MetaData within Columns



The screenshot shows a Windows Explorer window with the address bar set to `u:\user\as\asanka\test\Test Folder`. The left sidebar shows a tree view with folders like 'Folder in AFS', 'More Files', 'MountPt', 'My Pictures', 'Secret', 'Some other folder', and 'Test', along with files 'a.txt', 'b.txt', and 'symlink to a.txt'. The main pane displays a table of these items with columns for Name, Size, Type, Date Modified, AFS Owner, and AFS Group.

Name ^	Size	Type	Date Modified	AFS Owner	AFS Group
Folder in AFS		File Folder	12/20/2006 1:26 AM	asanka	mit
More Files		File Folder	12/19/2006 8:21 PM	asanka	mit
MountPt		File Folder	12/19/2006 8:21 PM	asanka	mit
My Pictures		File Folder	12/19/2006 8:21 PM	asanka	mit
Secret		File Folder	12/19/2006 8:20 PM	asanka	mit
Some other folder		File Folder	12/19/2006 8:20 PM	asanka	mit
Test		File Folder	12/19/2006 8:19 PM	asanka	mit
a.txt	1 KB	Text Document	1/2/2007 3:38 PM	asanka	mit
b.txt	0 KB	Text Document	1/2/2007 7:41 PM	asanka	mit
symlink to a.txt	1 KB	Text Document	1/2/2007 3:38 PM	asanka	mit

# Explorer Shell Integration: File and Directory Properties



# Explorer Shell Integration: Volume and ACL Properties


**Folder in AFS Properties**

General | Sharing | Customize | AFS Directory | **AFS Volume**

Volume : user.asanka  
Cell : athena.mit.edu

Read/write ID : 537259287  
Backup ID : 537259289

Used space: 73,000,000 bytes 73 MB  
Free space: 27,000,000 bytes 27 MB  
Capacity: 100,000,000 bytes 100 MB



Creation : Fri Aug 20 10:56:37 1999  
Copy : Thu Dec 07 07:04:22 2006  
Backup : Wed Jan 03 03:22:56 2007  
Last Update : Wed Jan 03 08:01:09 2007

OK Cancel Apply

**Folder in AFS Properties**

General | Sharing | Customize | **AFS ACL** | AFS Volume

Normal permissions

ld	system:expunge
rl	system:anyuser
rlidwka	asanka

Negative permissions

Name

Search ...

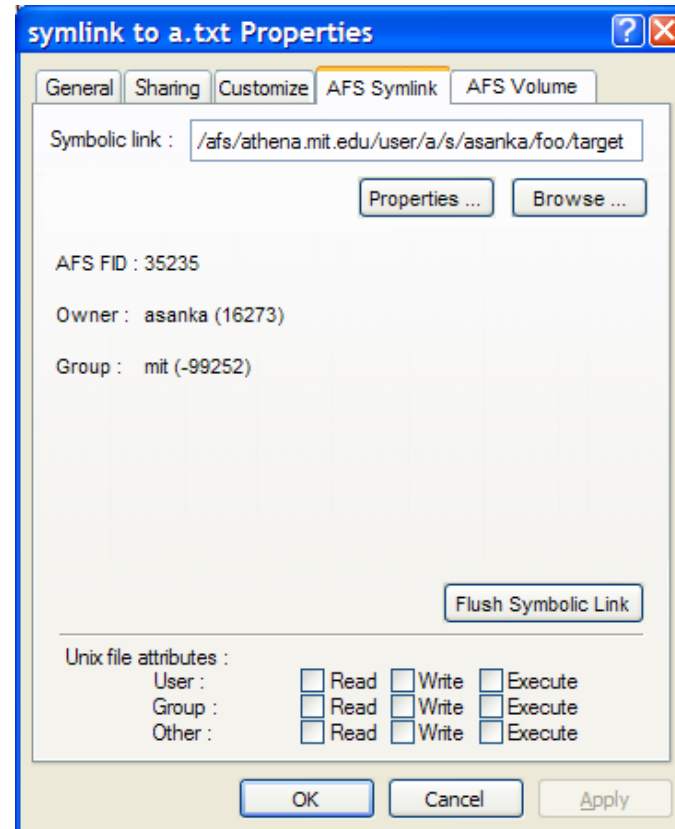
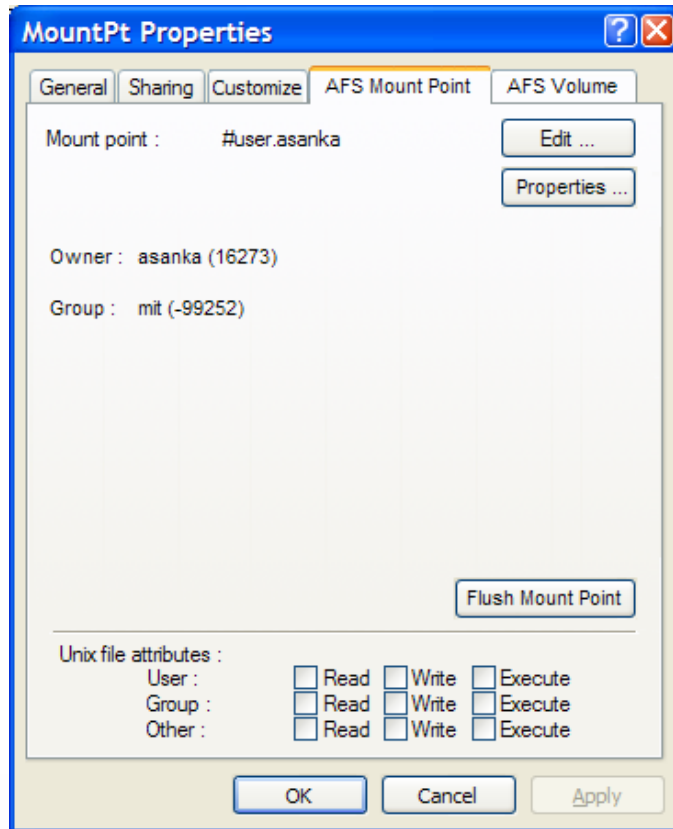
- r read
- l lookup
- i insert
- d delete
- w write
- k lock
- a administer

Add  
Remove ...  
Copy ...

Clean ...

OK Cancel Apply

# Explorer Shell Integration: Mountpoint and Symlink Properties



# Explorer Shell Integration: Meta Data Display

The image shows a Windows Explorer window titled "Test Folder" with the address bar set to `\\afs\athena.mit.edu\user\as\asanka`. The main pane displays a directory listing:

- Some other folder
- Test
- a.txt
- b.txt
- symlink to a.txt

The "Details" pane for "symlink to a.txt" shows:

File Folder	
File Folder	
1 KB	Text Document
0 KB	Text Document
1 KB	AFS Symbolic Link

A tooltip for the symbolic link displays the following metadata:

Type : AFS Symbolic Link  
Target : .\a.txt

The left sidebar shows the "MountPt" details for the AFS Mount Point:

MountPt  
AFS Mount Point  
Mount point for: #user.asanka  
Cell: athena.mit.edu

The right sidebar shows the "Details" for the selected file:

symlink to a.txt  
AFS Symbolic Link  
Target :  
/afs/athena.mit.edu/user/as/asanka/test/Test Folder/a.txt



# Road Map Web Pages

---

- Kerberos for Windows
  - <http://www.secure-endpoints.com/netidmgr/roadmap.html>
- OpenAFS for Windows
  - <http://www.secure-endpoints.com/openafs-windows-roadmap.html>



## *Contact Information*

Jeffrey Eric Altman

jaltman \*at\* secure-endpoints \*dot\* com

Asanka Herath

asanka \*at\* secure-endpoints \*dot\* com