IBM TRAINING

Secure Perspective

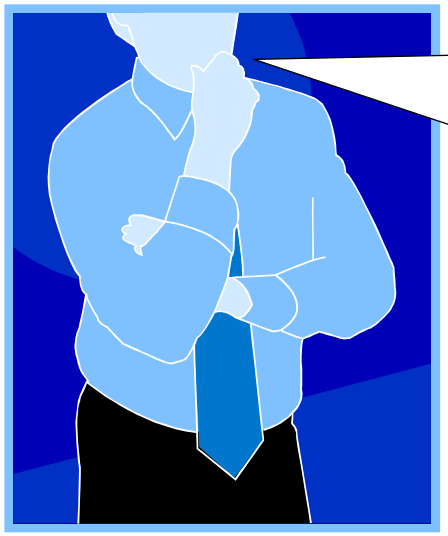
Fred Robinson - fdrobin@us.ibm.com

Dan Kolz - kolz@us.ibm.com

http://ibm.com/systems/i/security/rethink_security_policy.html

The Problem

Auditor:



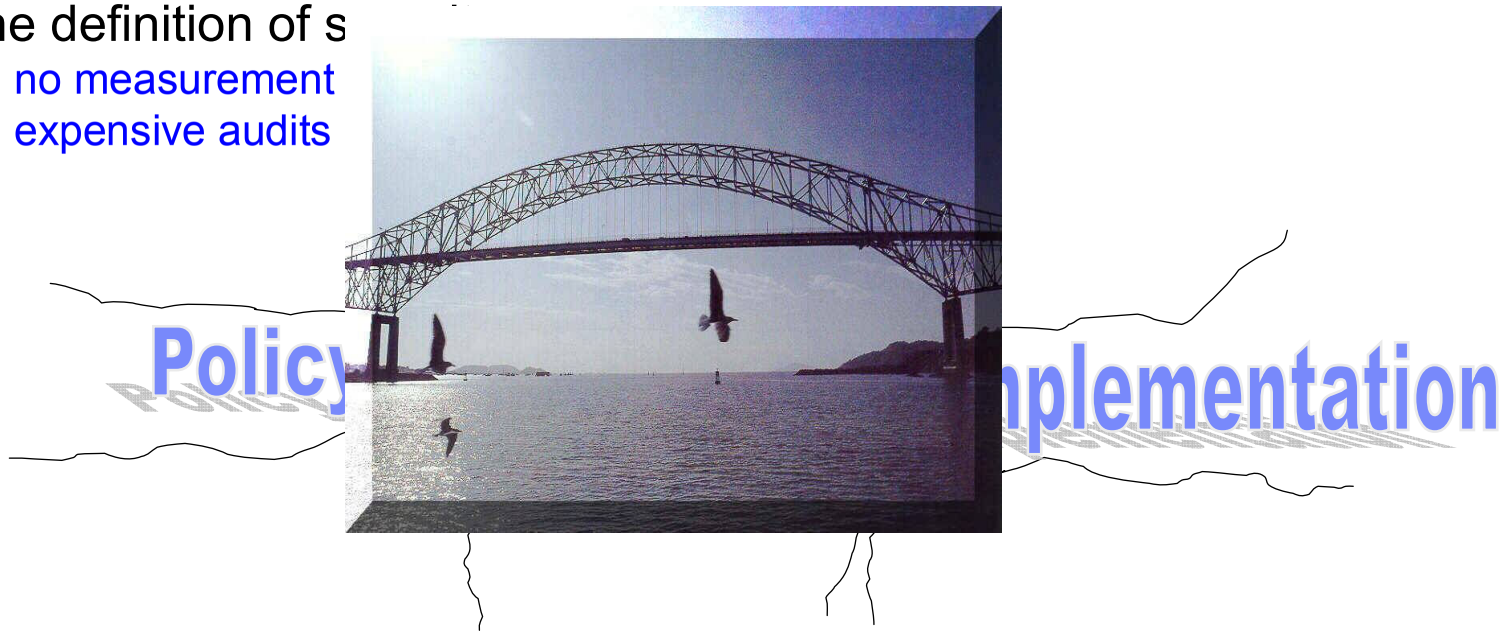
So … why is CustUsgFile.dat secured as 753?

Administrator:

Well ... group mx52b needs to read it. I've got a note from bsmith@us.ibm.com right here that says he does.

The Underlying Problem

- Security policy is currently driven by the IT staff
- Corporate officers are legally responsible for IT security
  - Business leaders must decide who is allowed access to digital assets
- Policy is the definition of s
  - No policy, no measurement
  - No policy, expensive audits



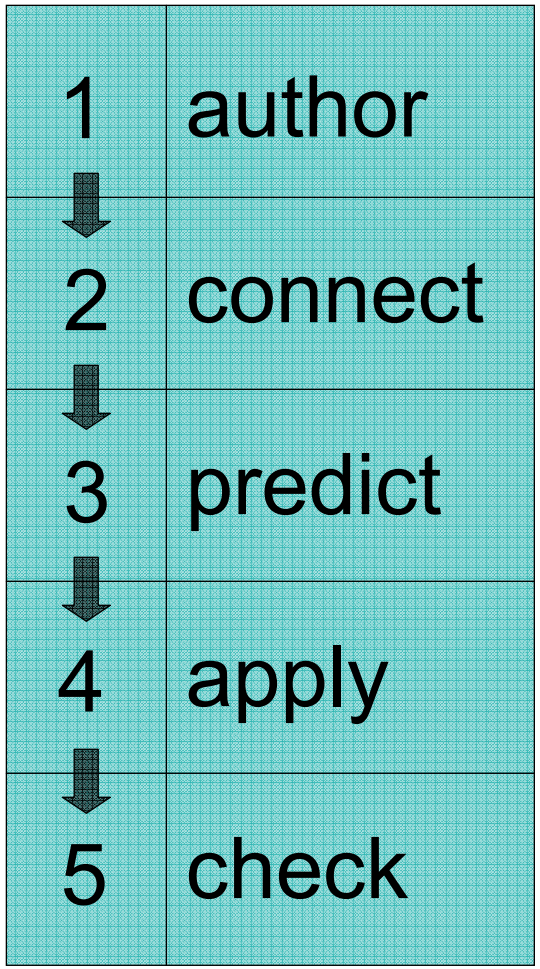
Compliance with Security Audit Requirements is difficult to prove!

IBM Secure Perspective

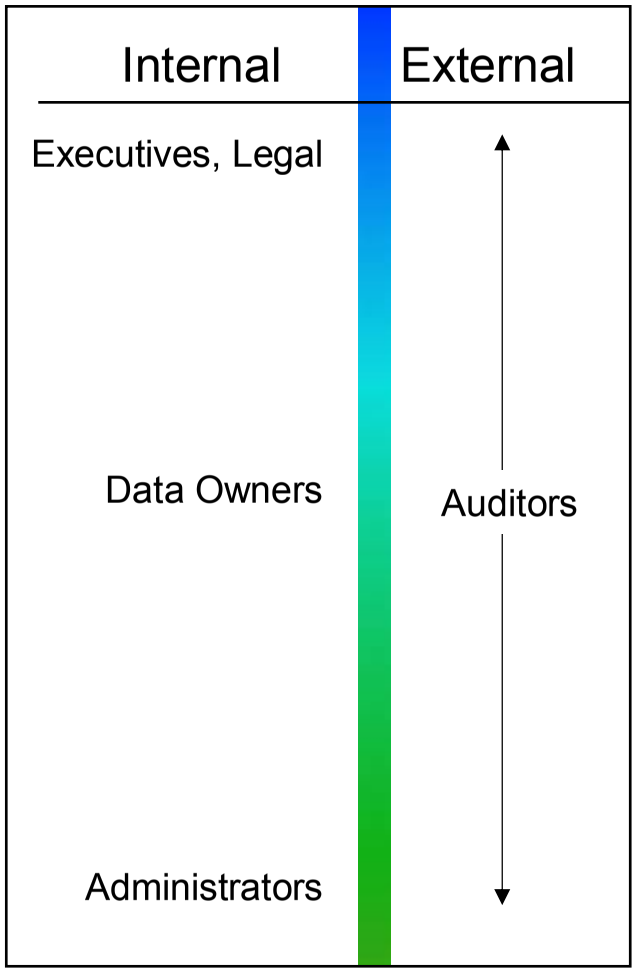
- Security Policy Implementation Facility
  - Based on Sparcle IBM Research Project
- Product – 5733-PS1
  - Hardware – System i
  - Operating System - i5/OS V5R3 V5R4 V6R1
- Availability May 2007 (English Only)
- Price
  - Per processor approx US$1500 (one time charge)
- November 2007
  - Security Policy management of of Windows, AIX, DB2 Servers
  - Windows in addition to i5/OS as a Managing System

http://www-03.ibm.com/systems/i/security/rethink_security_policy.html

The Solution - Secure Perspective



- Create meaningful policy
- connected to digital assets
- analyzed for problems
- Modifying systems
- checked for compliance



Secure Perspective

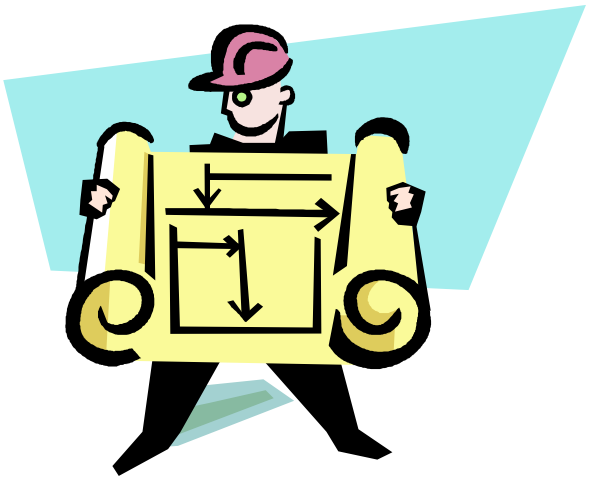
- Author
  - Specify Policy Statement
  - Use
    - Actors, Resources, Actions, Purpose
- Connect
  - Map
    - Actors to user IDs
    - Resources to files, directories, and tables
    - Map Actions to system control mechanisms
- Predict
  - Problems with Policy implementation
- Apply
  - Change System
  - Report Changes
- Check
  - Compliancy validation – at anytime

Benefits of Secure Perspective

- Policies are written in natural language
- Mapped data is managed by the tool
- Easy Policy applications or compliance checks
- Reports saved
  - Policy application
  - Compliance checks
- Review effect of security policy on business processes

Secure Perspective - Process

- Develop “Blueprint” of strategy
  - Know your objectives – What do you want to accomplish?
  - Know your scope – What/Who has to be covered?
  - Know your data – What is being secured?
- Follow a method
  - Repeatable process
  - Complete Security Policy
  - Reduce risk



Author Security Policy

- Assemble stakeholders
  - Business leaders
  - Data owners
  - System administrators
  - Legal analysts
  - Internal auditors
- Consider legal/audit requirements
- Identify Key Assets/Resources to be managed
  - Enter Data Types
- Identify Roles/Responsibilities of Users (actors)
  - Enter Users identified in roles/responsibilities
- Enter Data Interactions
  - Enter Actions
- Establish Policy
  - Plain Language

Connect

- Identify the Systems
  - Add to the System Configuration List
- Connect Policy terms to Business Assets

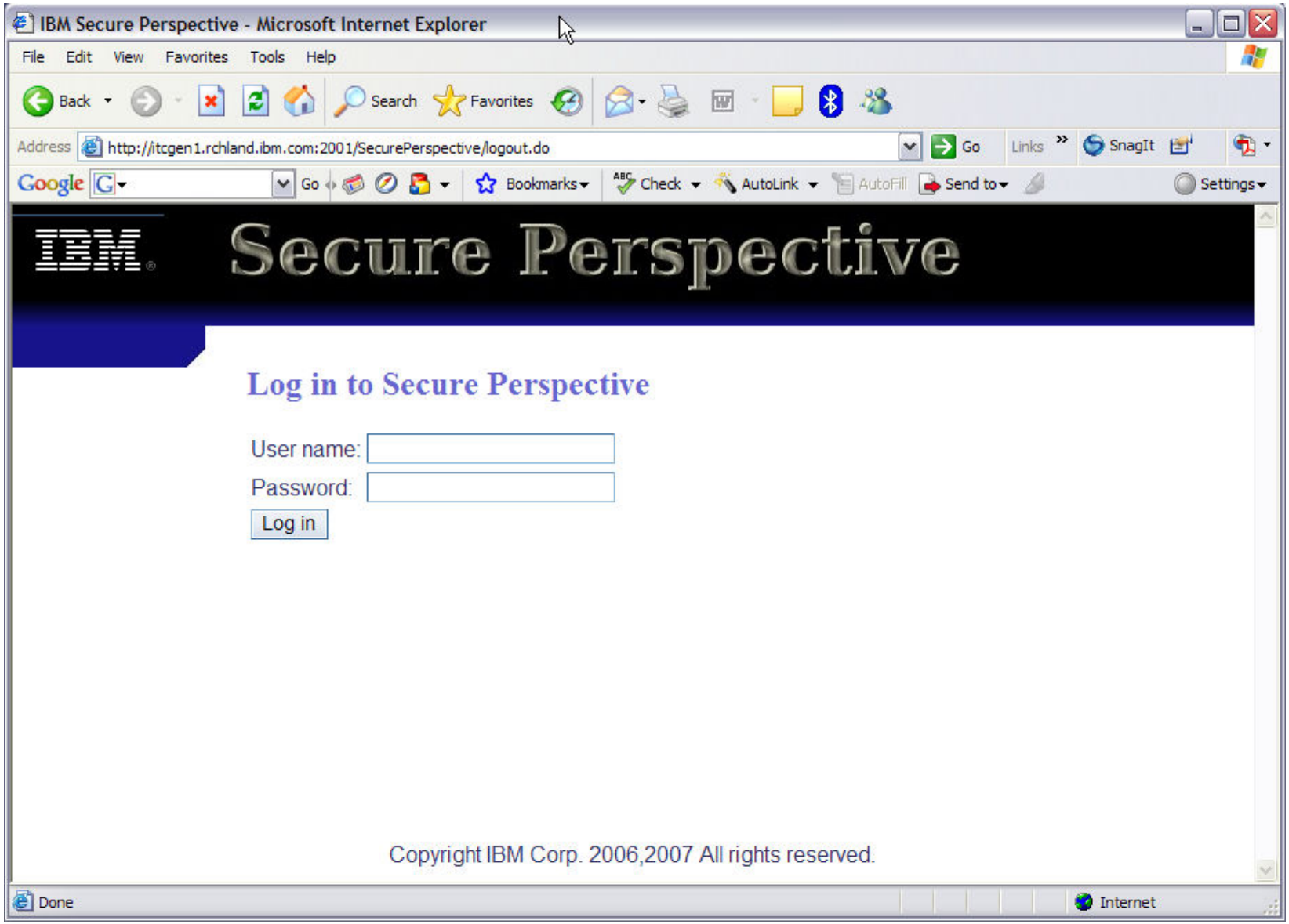
Predict Problems

- Validate Result against Policy
  - Meets compliance standards?
- Make changes
  - Rerun compliance check
- Ensure Procedures are unaffected

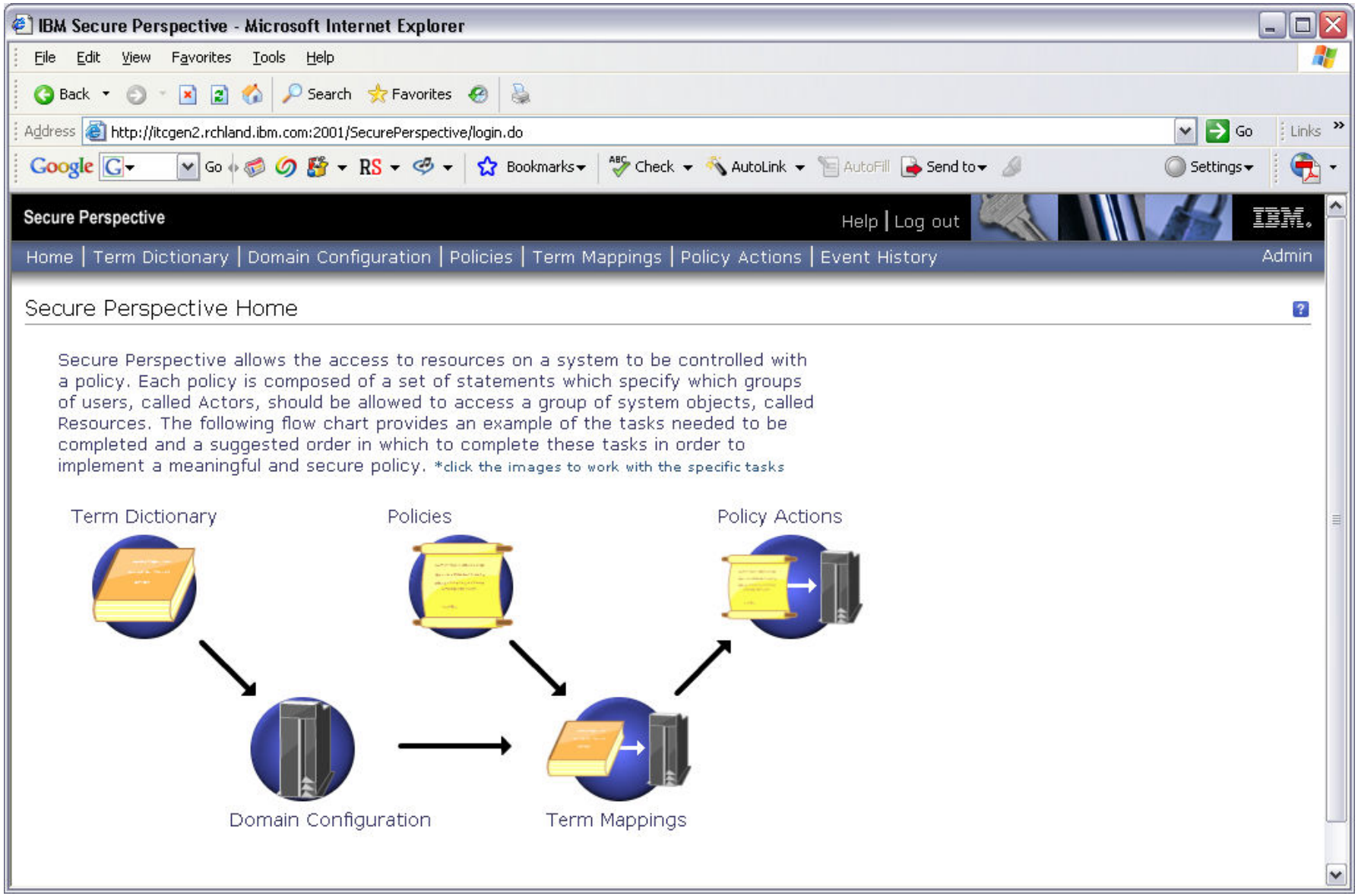
Apply the Policy

- Only ONE Security Policy is CURRENT
- Modify the System
  - Create/Change
    - User profiles
    - Object authorities
- Optional “undo”
- Manage Policy
  - Routine compliance checks
  - Control Administration
    - Designate Policy Administrators
- Export the applied Policy
  - “Backup”
  - Maybe Imported
- Print Policy Summary
  - Future Review
  - Audit

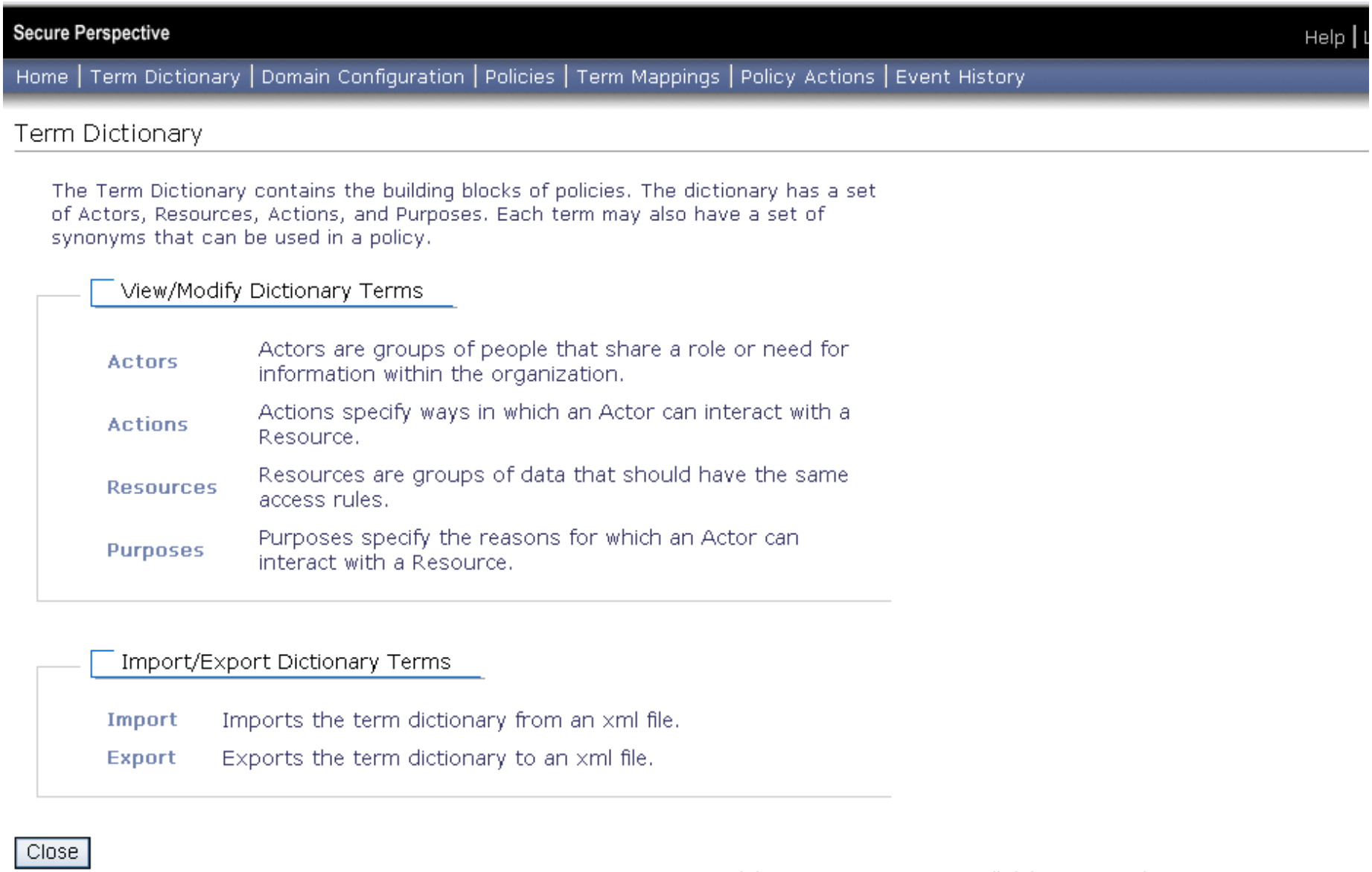
Login



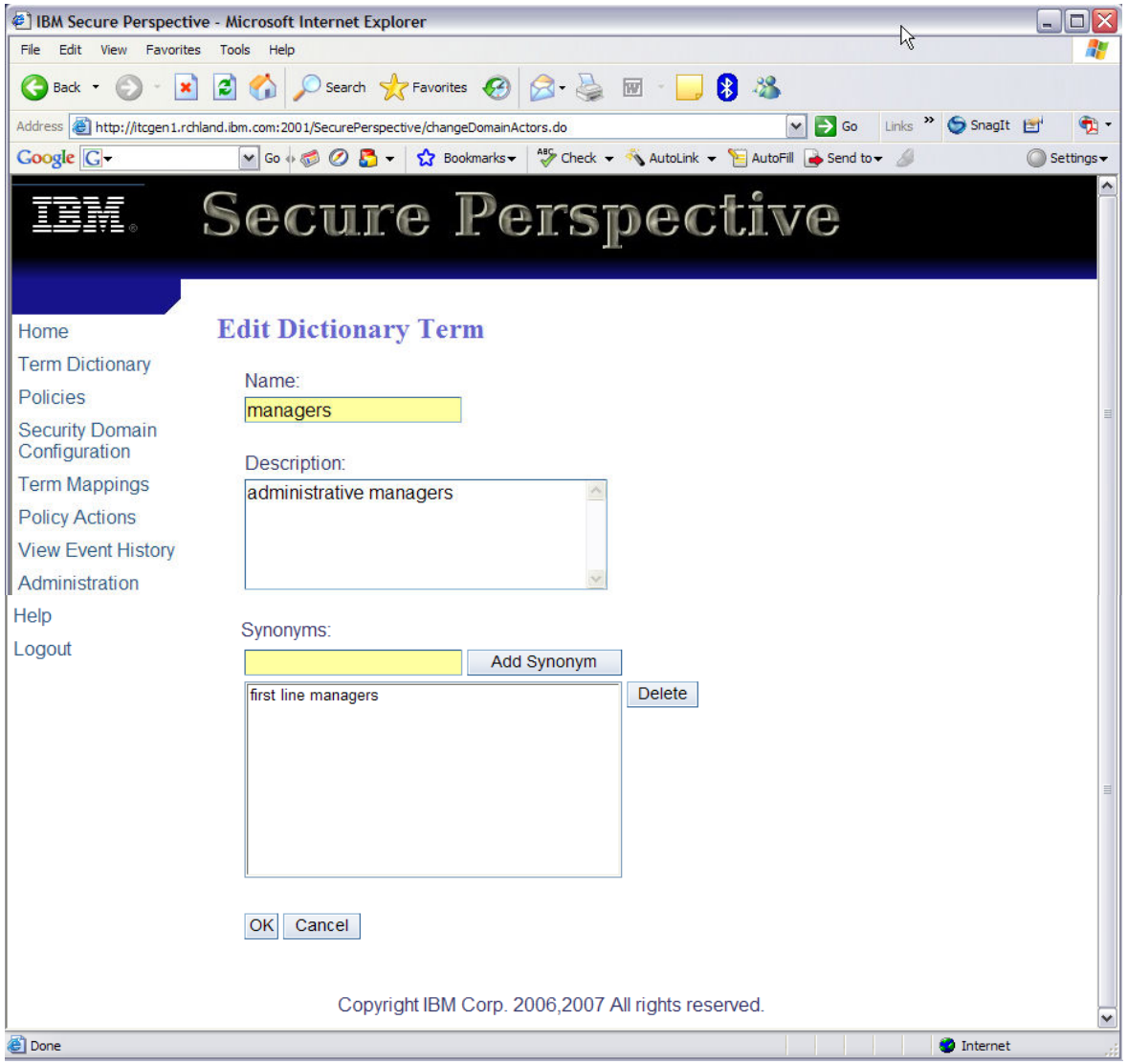
Home Page



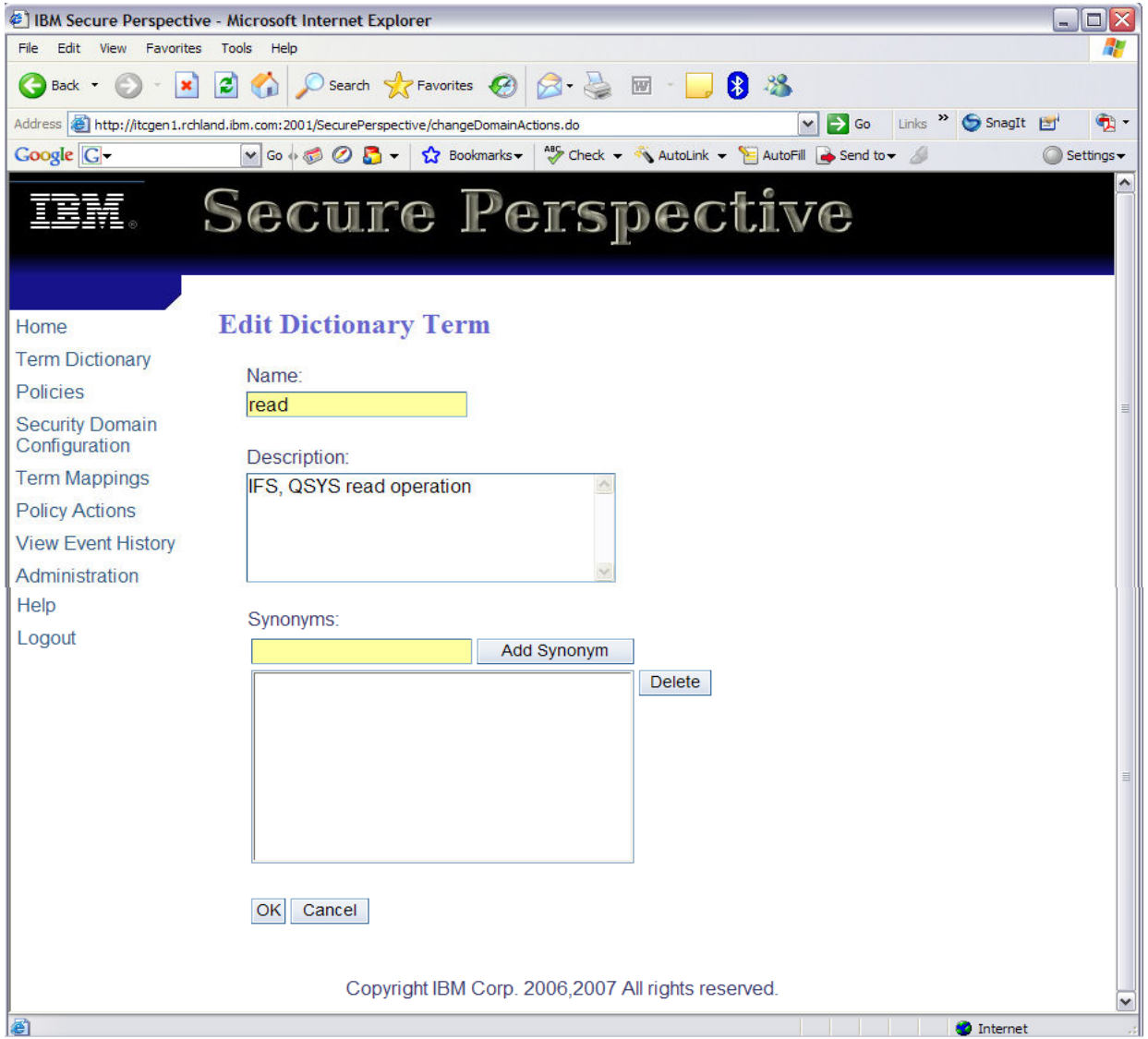
Term Dictionary



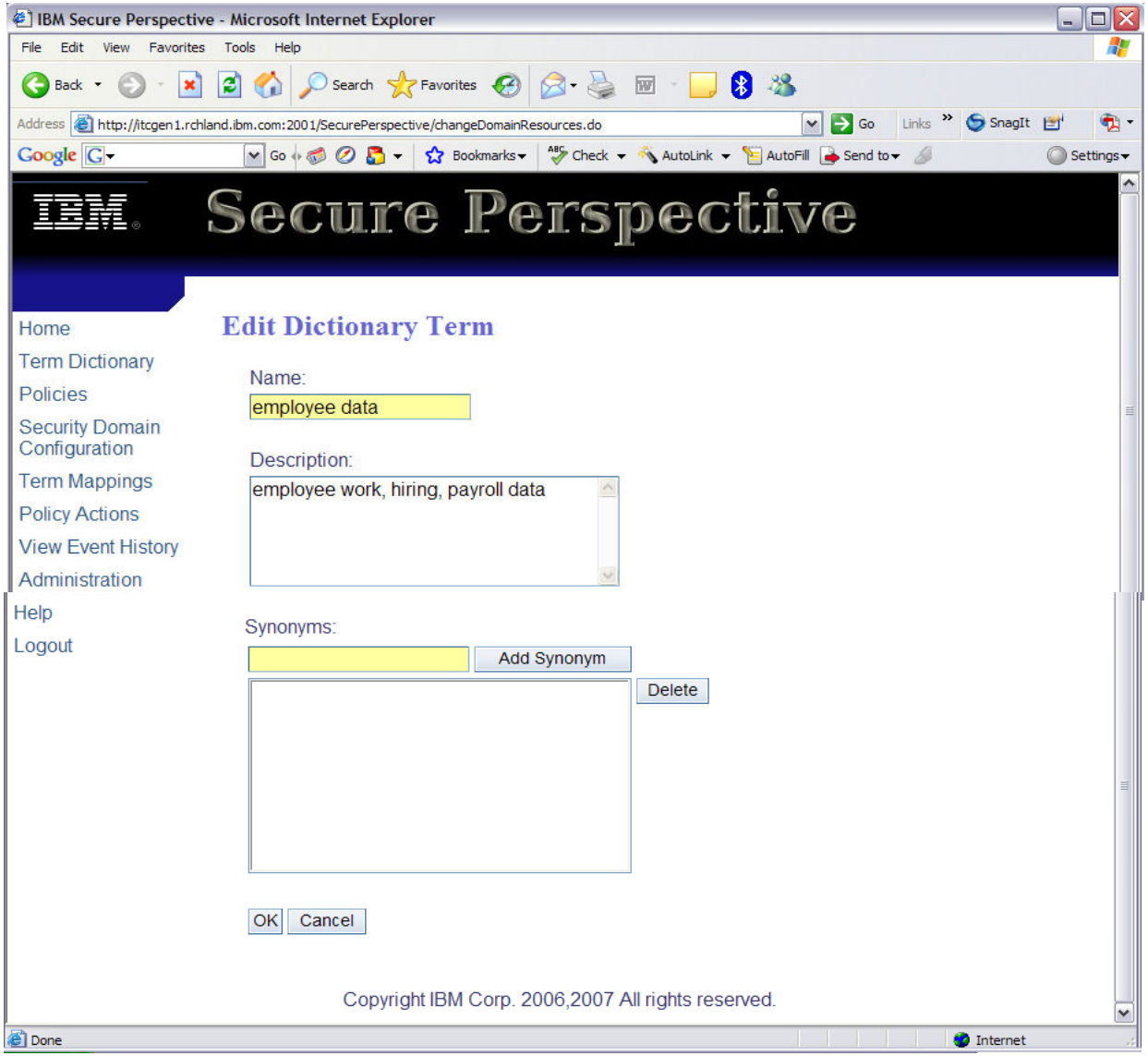
Actors – Who?



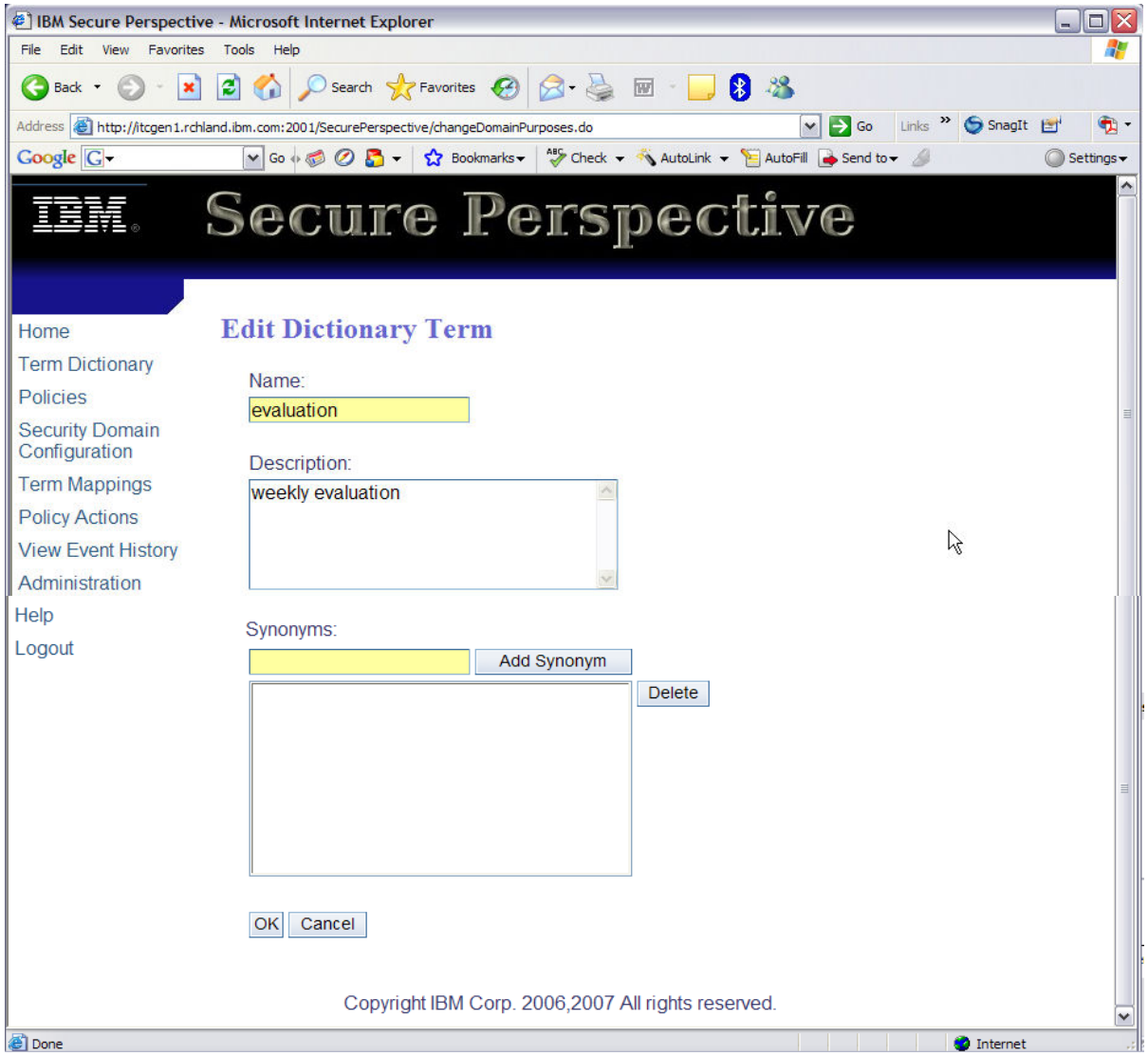
Actions – How?



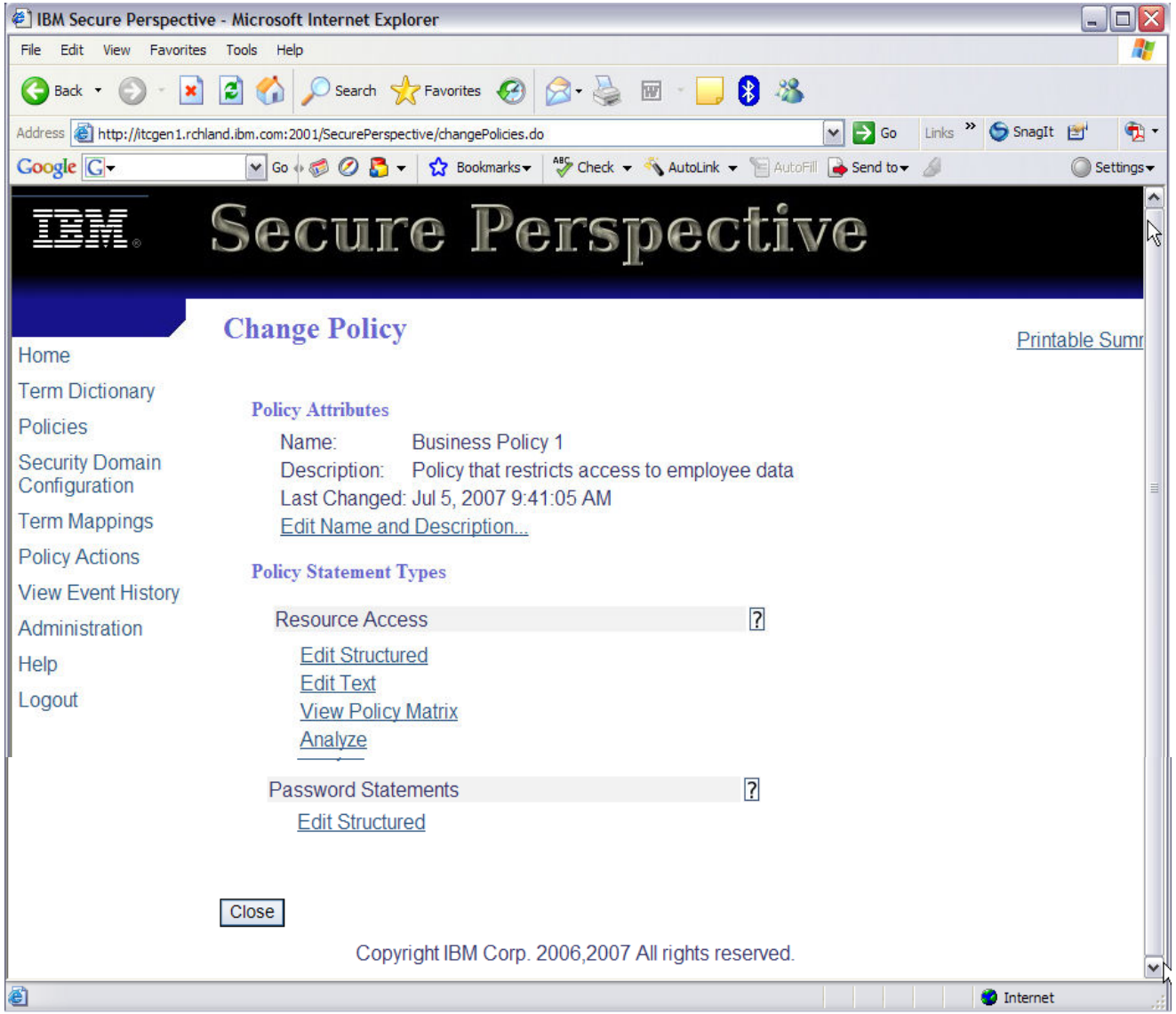
Resources – What?



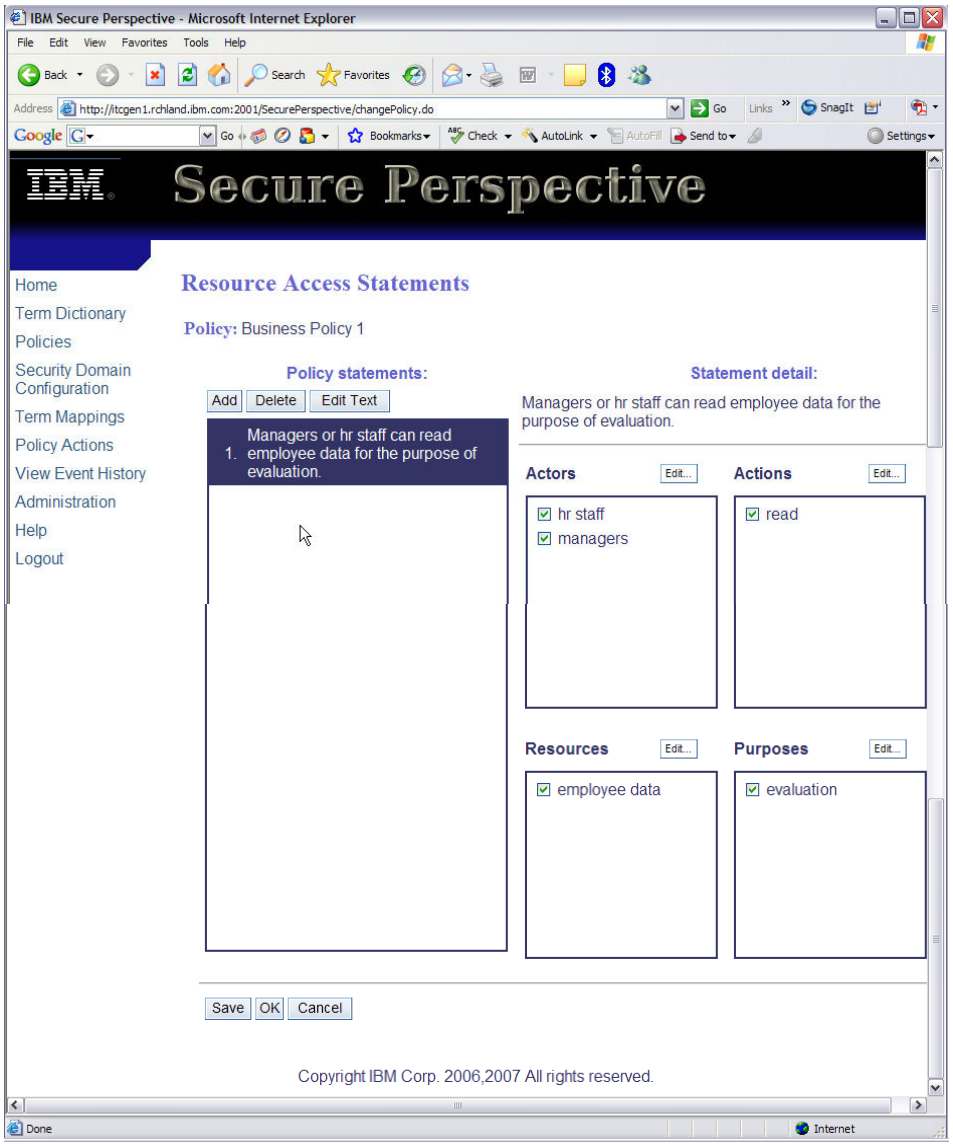
Purposes – Why?

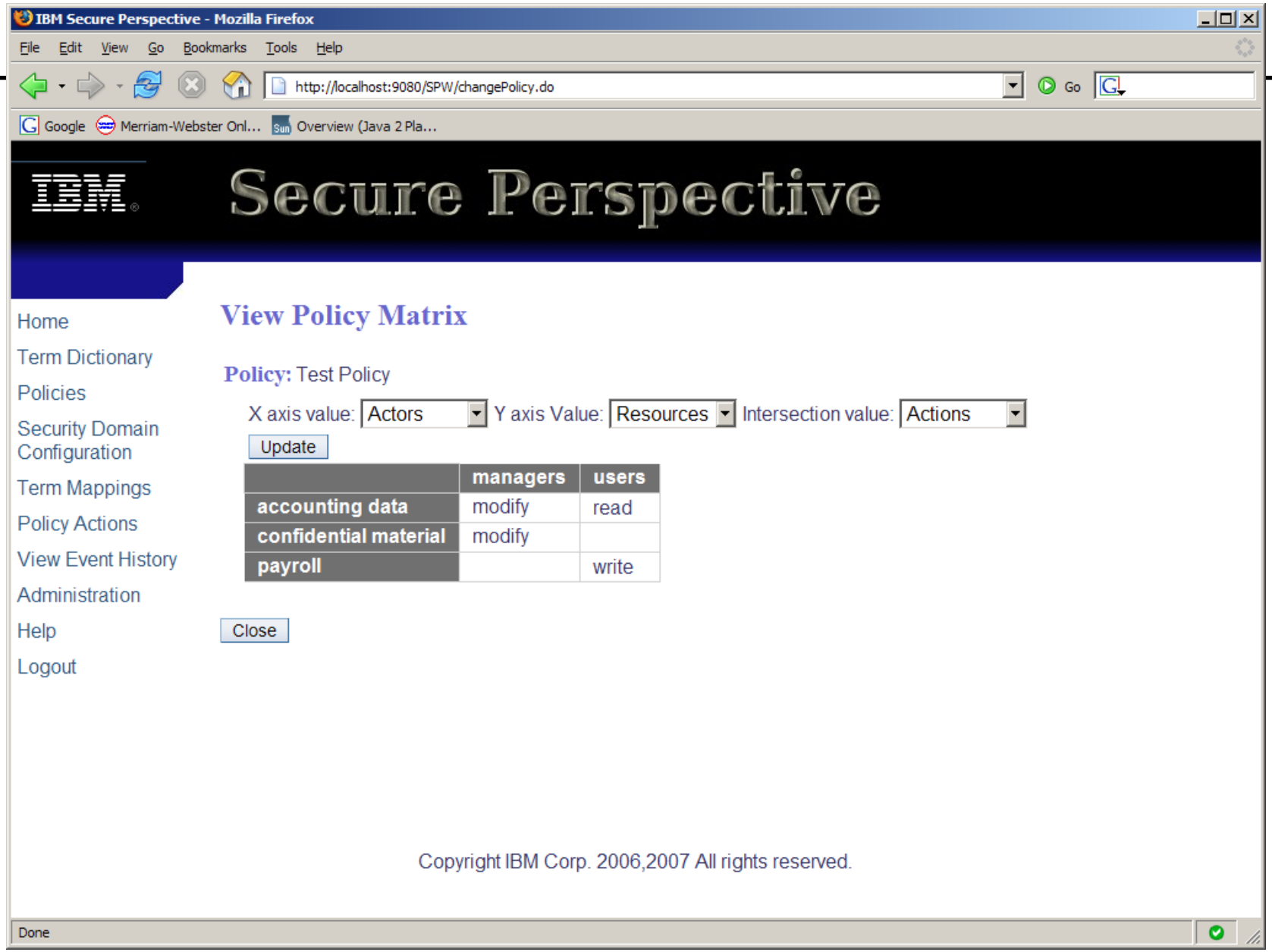


Policy Title



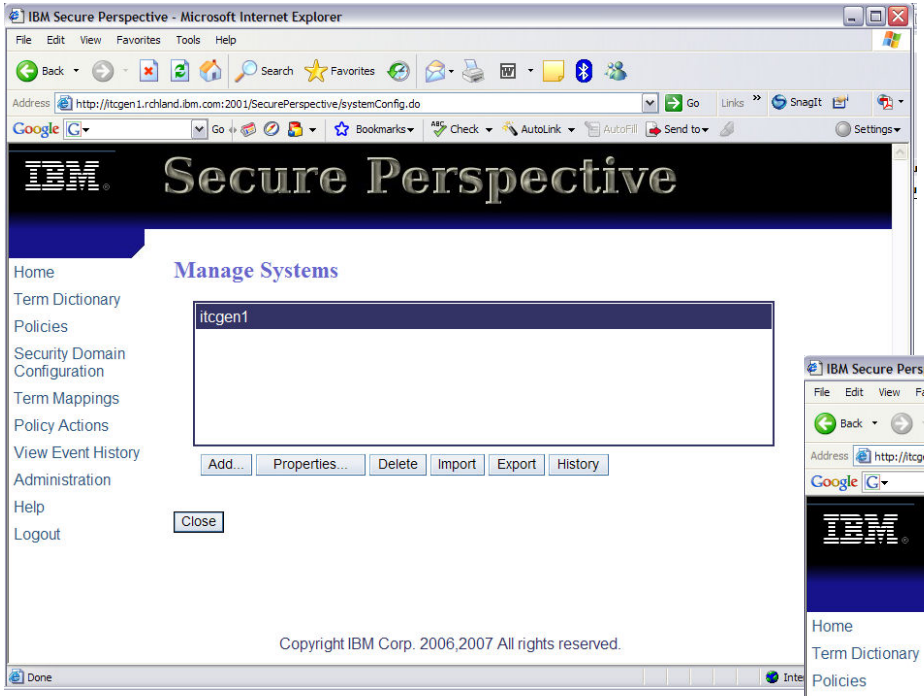
Policy Structure

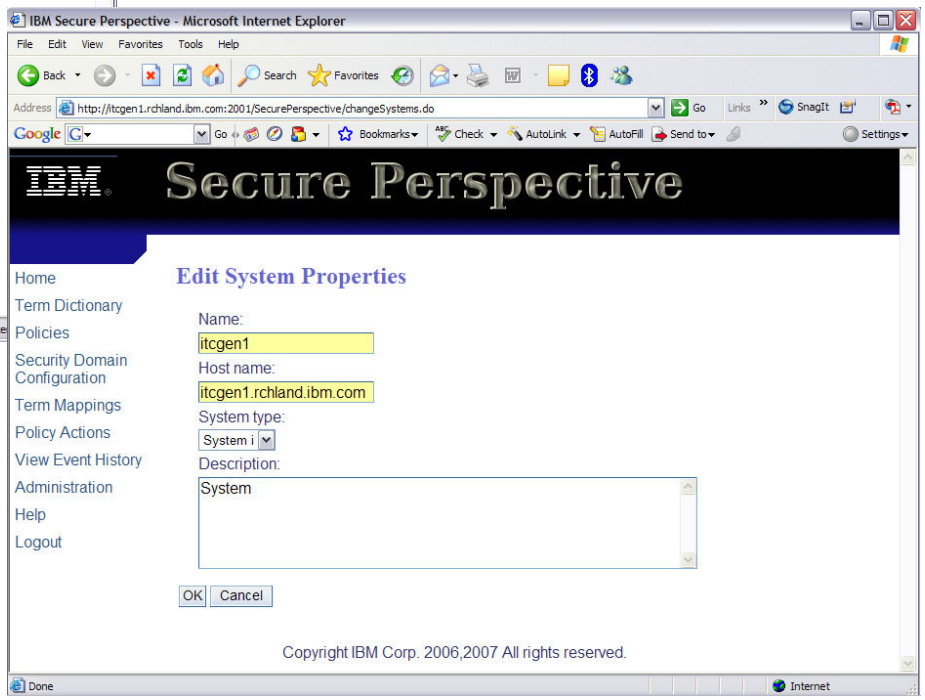




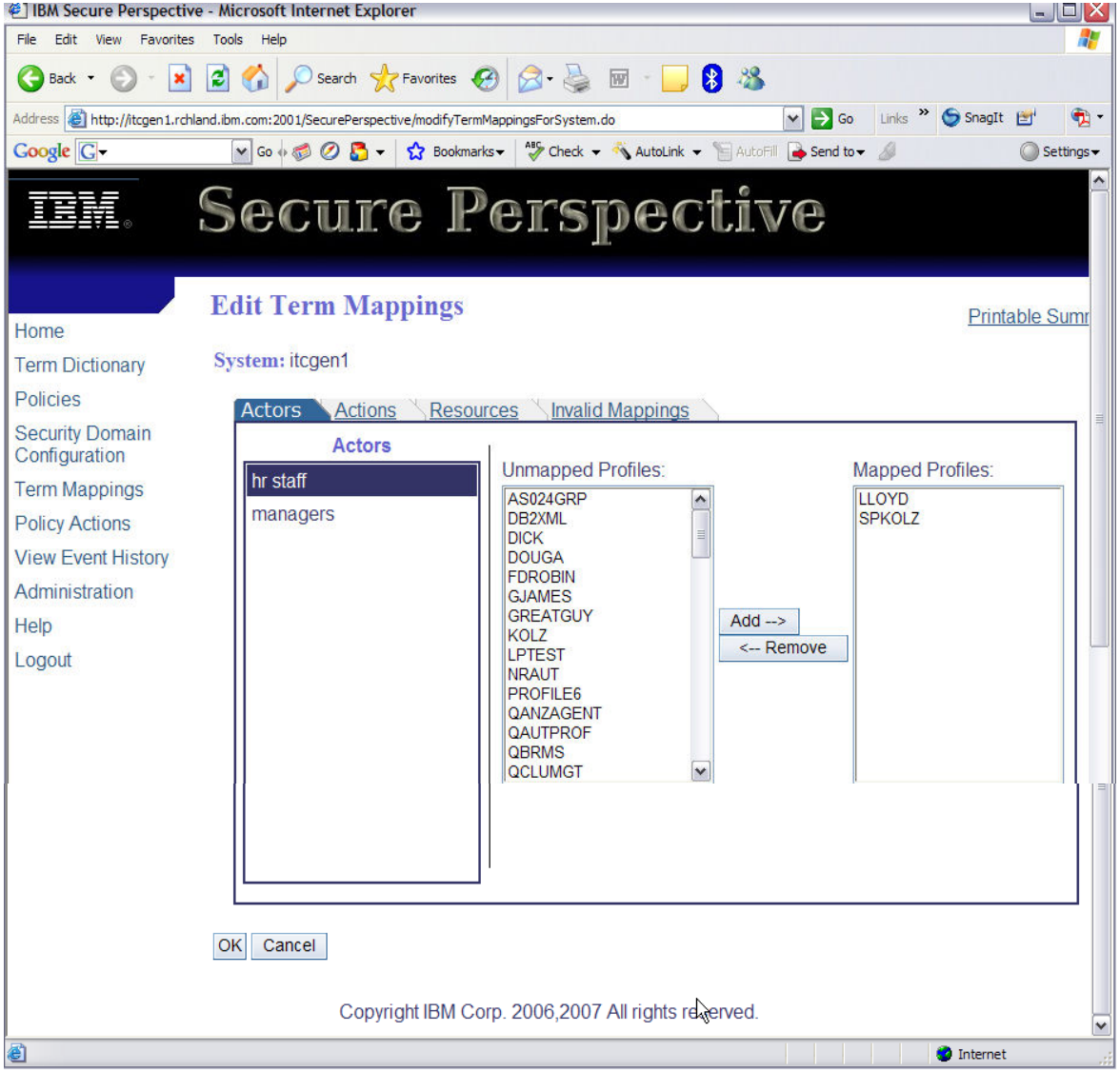
Password Policy

Security Domain

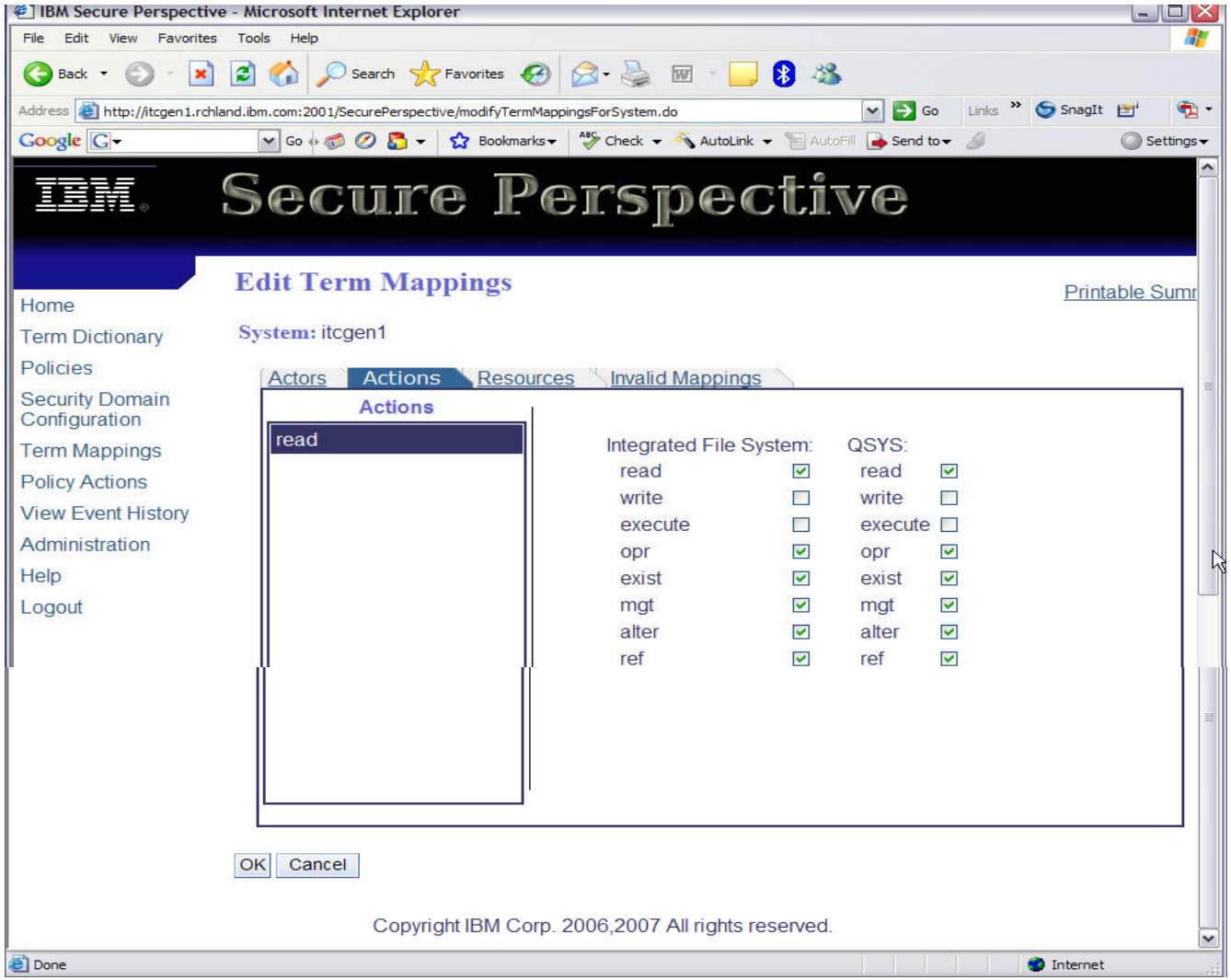




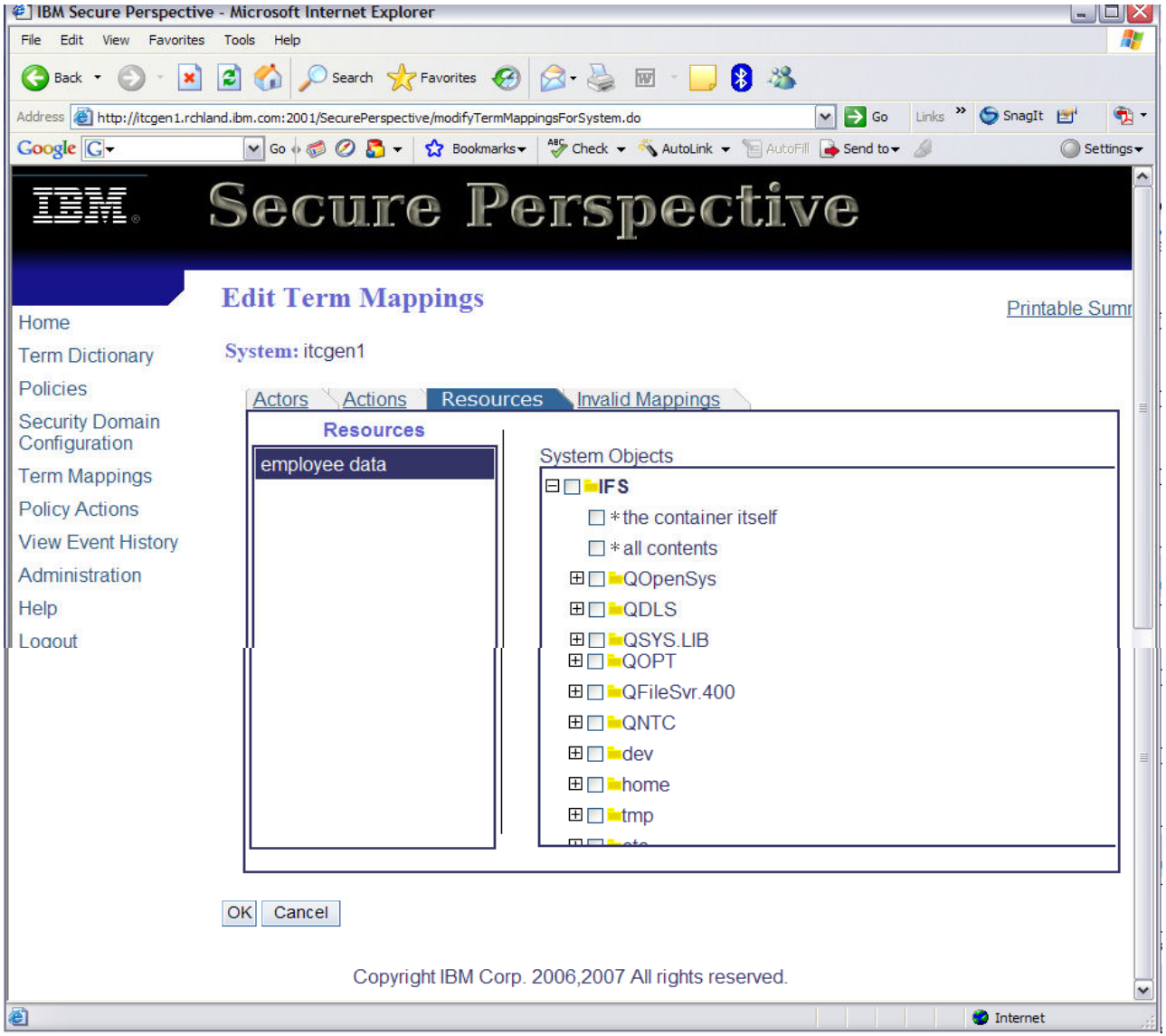
Term Mapping-Actors



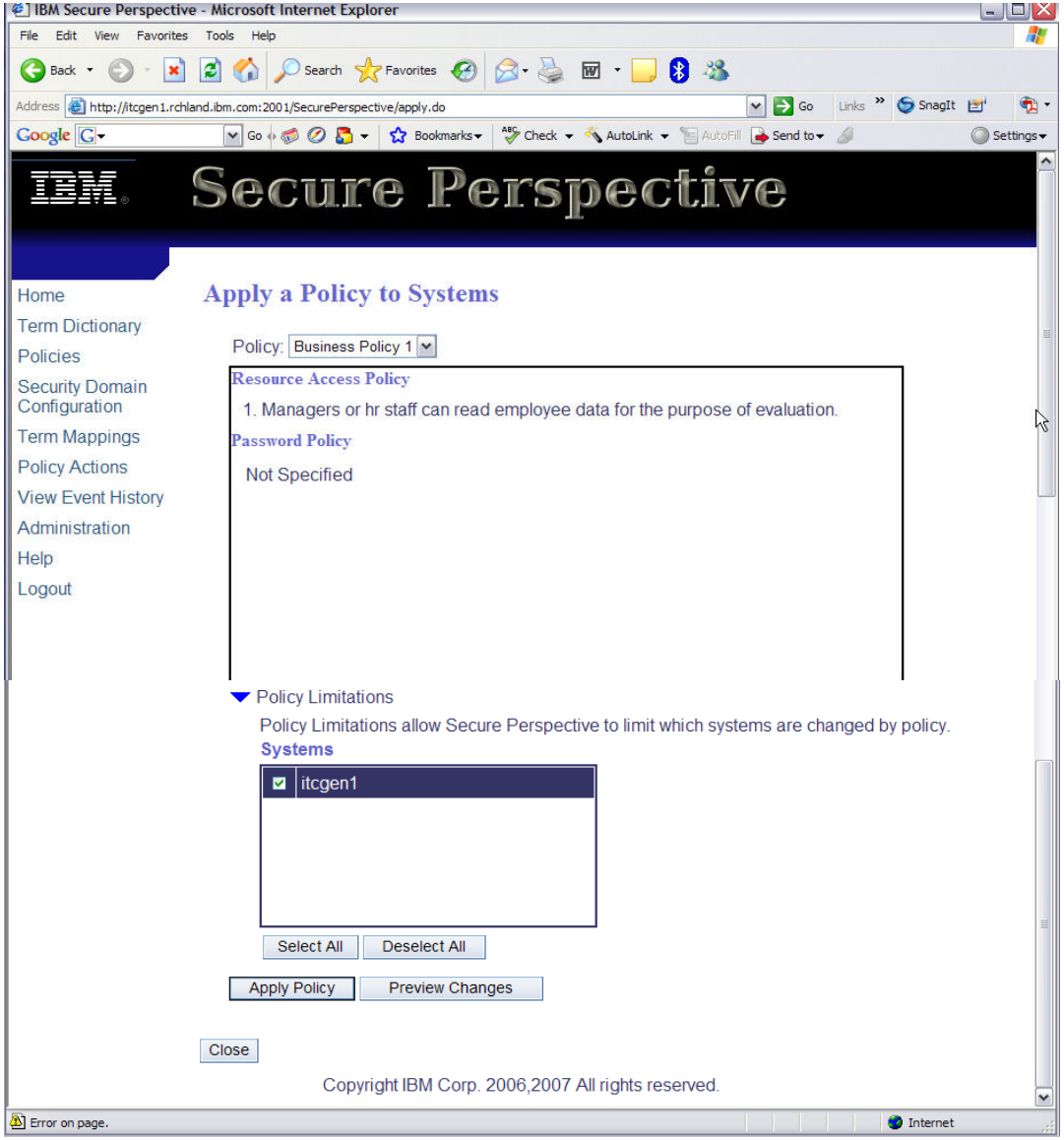
Term Mapping-Actions



Term Mapping-Resources



Apply Policy

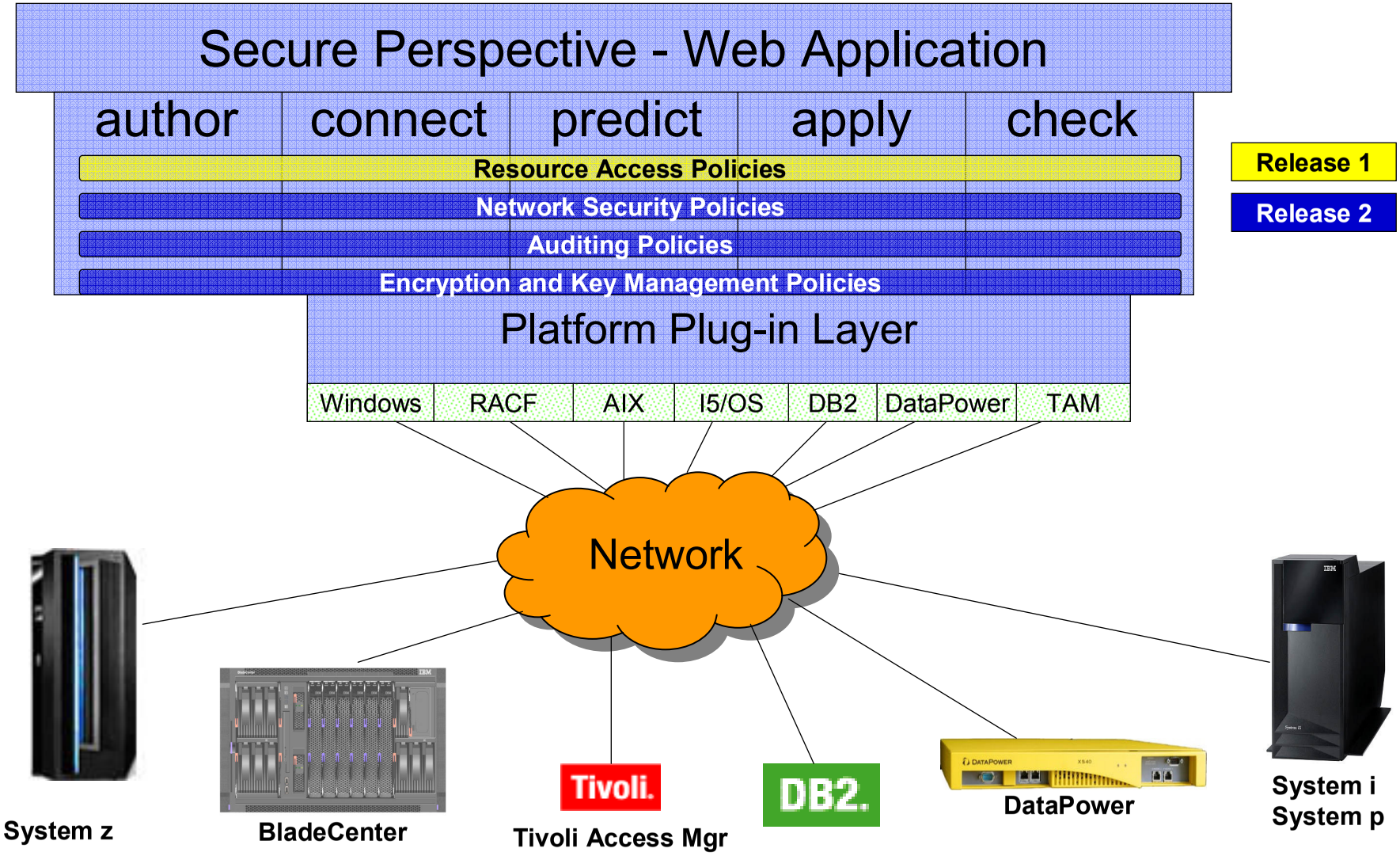


i5/OS Security Policy Commands

Change statements for system: Business System 1

Status	Statement
success	CHGAUT OBJ('/Education/Labs/test1.txt') USER(*PUBLIC) DTAAUT(*EXCLUDE) OBJAUT(*NONE)
success	CHGAUT OBJ('/Education/Labs/test1.txt') USER(KSHIM) DTAAUT(*NONE) OBJAUT(*NONE)
success	CHGAUT OBJ('/Education/Labs/test2.txt') USER(*PUBLIC) DTAAUT(*EXCLUDE) OBJAUT(*NONE)
success	CHGAUT OBJ('/Education/Labs/test2.txt') USER(KSHIM) DTAAUT(*NONE) OBJAUT(*NONE)
success	CHGAUT OBJ('/Education/Labs/test1.txt') USER(*PUBLIC) DTAAUT(*EXCLUDE) OBJAUT(*NONE) SUBTREE(*ALL)
success	CHGAUT OBJ('/Education/Labs/test1.txt') AUTL(*NONE) SUBTREE(*ALL)
success	CHGAUT OBJ('/Education/Labs/test2.txt') USER(*PUBLIC) DTAAUT(*EXCLUDE) OBJAUT(*NONE) SUBTREE(*ALL)
success	CHGAUT OBJ('/Education/Labs/test2.txt') AUTL(*NONE) SUBTREE(*ALL)
success	CRTAUTL AUTL(QSY1000002) TEXT('employee data') AUT(*EXCLUDE)
success	CHGAUT OBJ('/Education/Labs/test1.txt') AUTL(QSY1000002) SUBTREE(*ALL)
success	CHGAUT OBJ('/Education/Labs/test2.txt') AUTL(QSY1000002) SUBTREE(*ALL)
success	ADDAUTLE AUTL(QSY1000002) USER(SPJOHN) AUT(*READ)
success	ADDAUTLE AUTL(QSY1000002) USER(SPJANE) AUT(*READ)

Secure Perspective Architecture



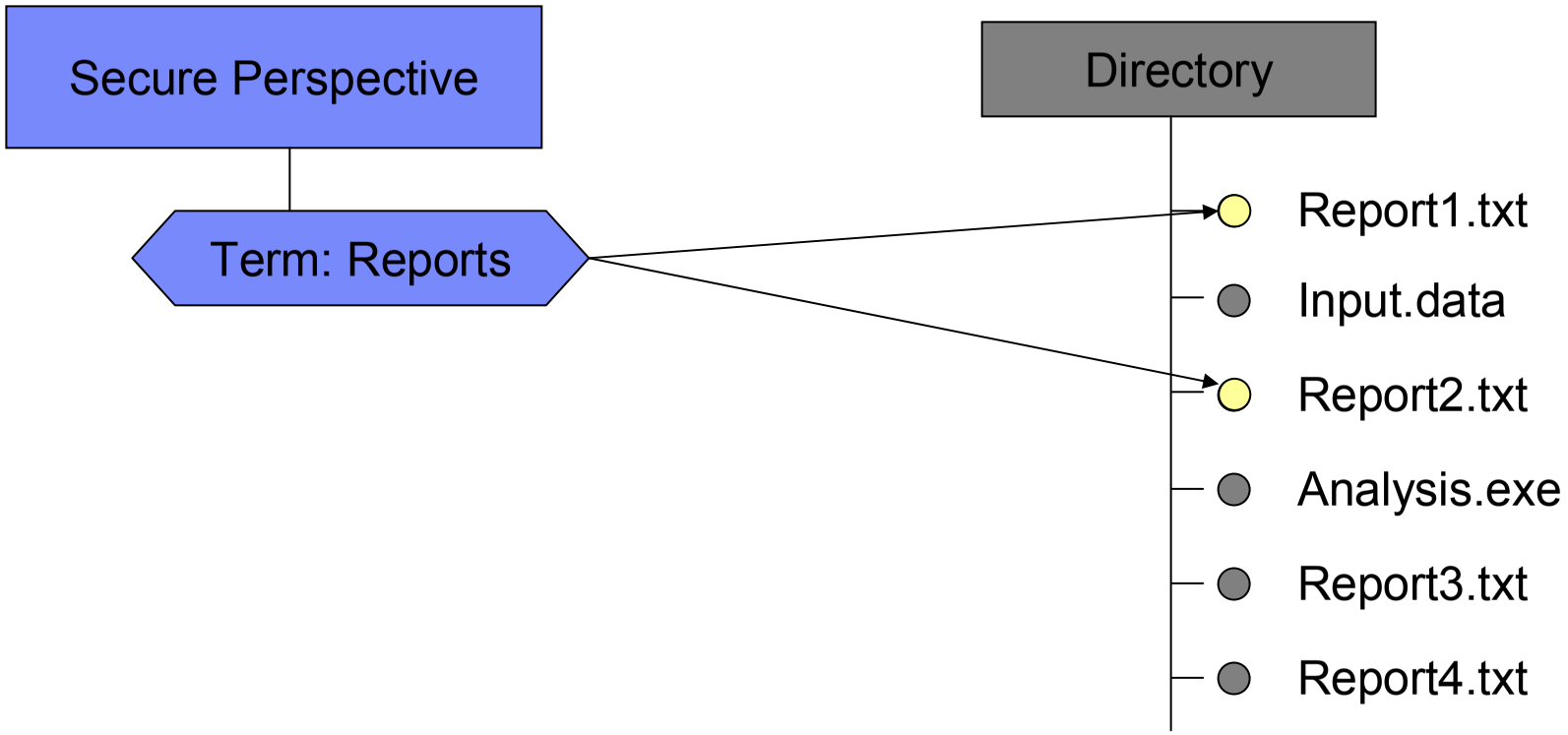
New/Improved GUI features – November 2007

- Homepage
- Menu bar
- Term mappings
  - List / tree views
  - Filterable
- General look & feel
- Improved event history
- Help

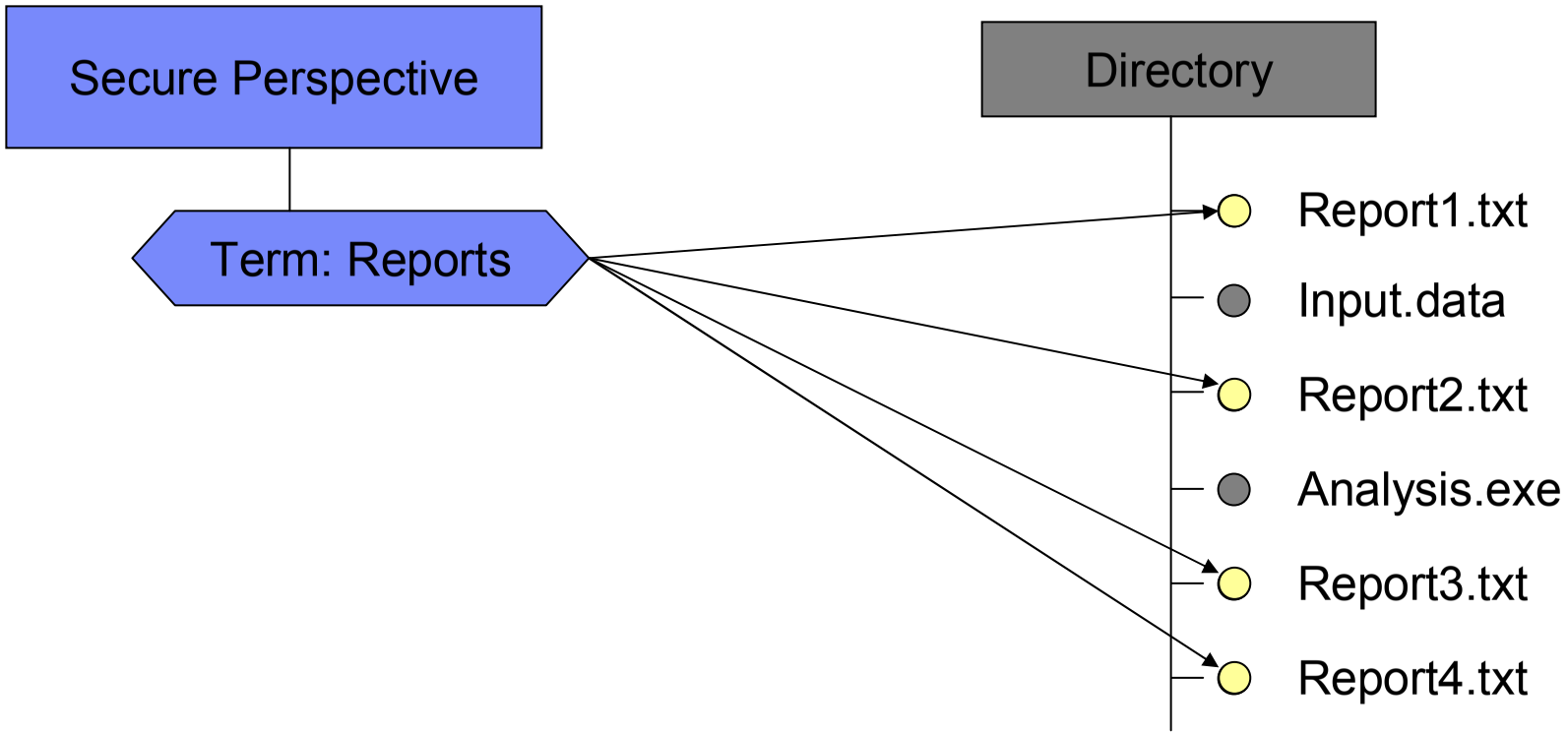
New Wildcard Mapping

- Example problem
  - You need to map several shell scripts in a directory to the same resource
  - These scripts change frequently and may not be the same at apply time as they were at map time
- Solution: Create a wildcard filter
  - Create filename-based filters (*e.g.*, *.sh or *account*)
  - Map the filters to resource terms just as you would files
  - Apply policy—files matching the filter are automatically mapped to that term (if not explicitly mapped to another term)

Wildcard Mapping Example



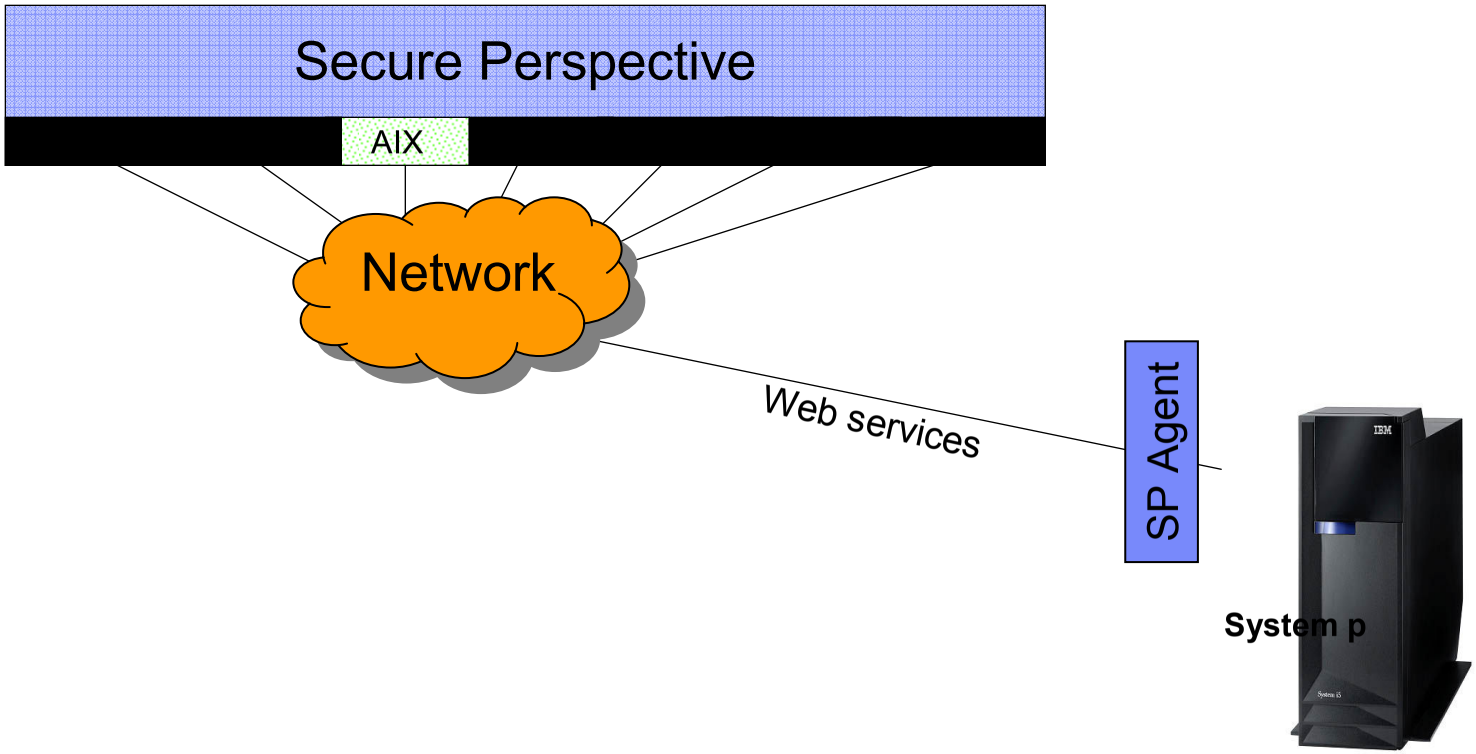
Wildcard Mapping Example (2)



Cross-platform Capabilities

- i5/OS
- AIX (New)
- Windows (New)
- DB2 (New)

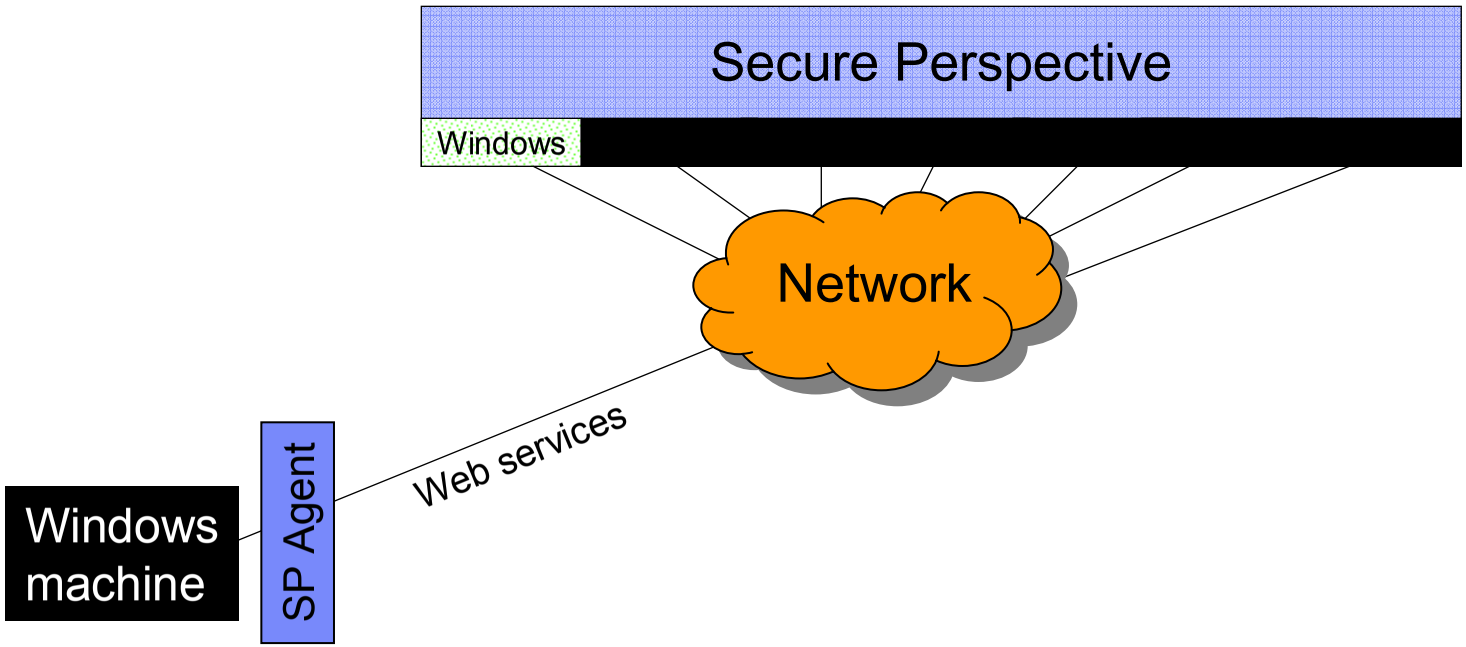
AIX Capability Architecture



AIX Access Rights

- Controlled using NFS4 access control lists on the JFS2 version 2 file system
- Controls the following access rights:
  - Read
  - Write
  - Execute
  - Append
  - Delete
  - Read attributes
  - Write attributes
  - Read named attributes
  - Write named attributes

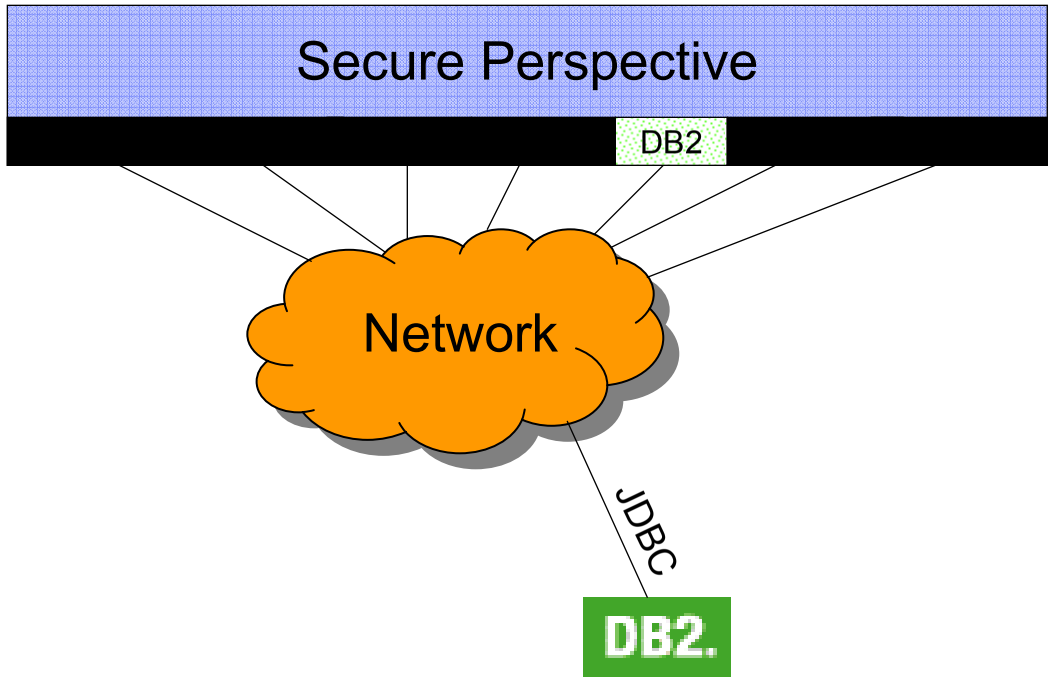
Windows Capability Architecture



Windows Access Rights

Files	Directories
Read Data	**List Directory**
Write Data	**Add File**
Append Data	**Add Subdirectory**
Execute	**Traverse**
Read EA	
Write EA	
Delete Child	
Read Attributes	
Write Attributes	
Delete	
Read Control	
Write DAC	
Write Owner	
Synchronize	
Generic – All	
Generic – Execute	
Generic – Write	
Generic – Read	

DB2 Capability Architecture



DB2 Plug-in

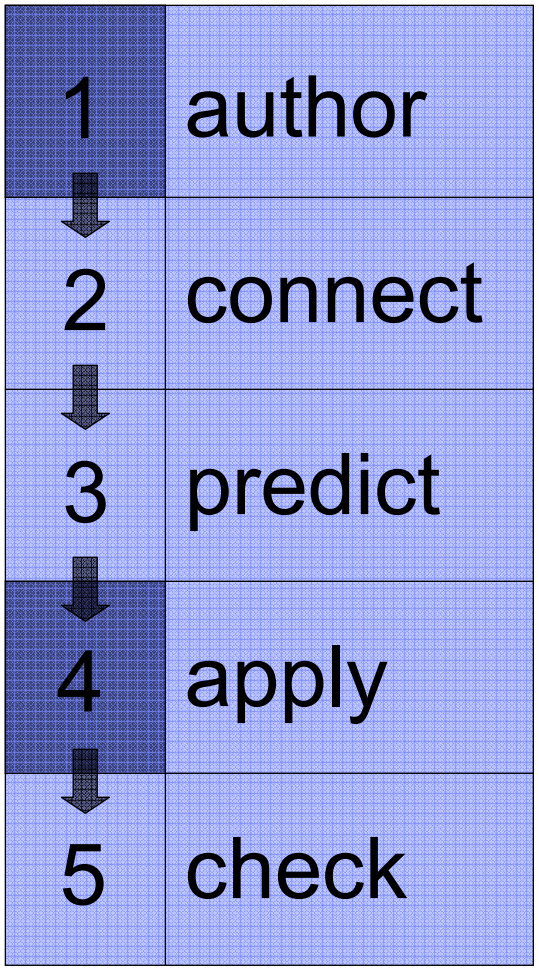
dpk1

- Controls DB2 databases on Windows, Linux, and AIX
- Controls database-level authorities (database administrator, connect, etc.)
- Controls all privileges on
  - Schemas
  - Tables
  - Views
  - Columns
  - Indexes
  - Packages

dpk1 Remove Plug-in

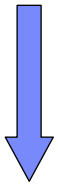
Daniel Kolz, 9/25/2007

Transformation from Abstract to Concrete Statements



Statements

Accountants can change accounting data.



chmod dkolz +rw /data/ledger

chmod sullivan +rw /data/ledger

…

Basic Use Scenario

Administrator

Sales person

Manager

DB2.

Order history

Customer notes

Customer orders

Customer order data

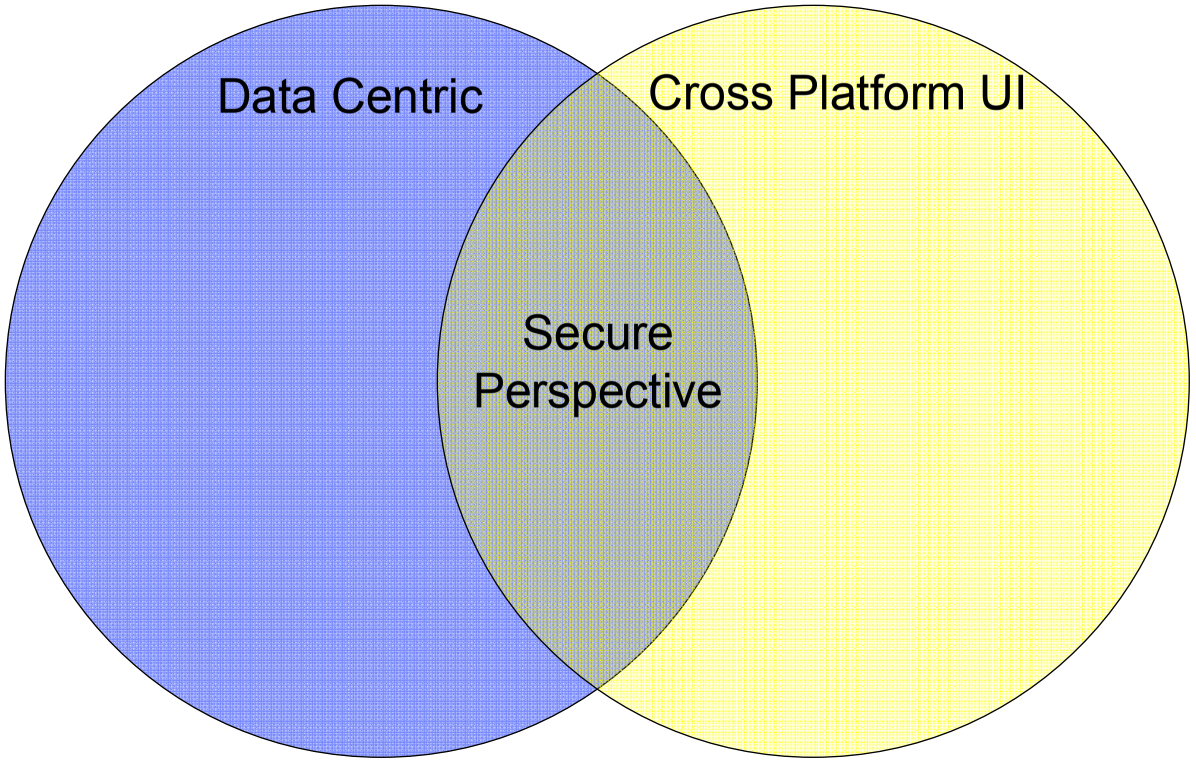
OLAP reports

Sample Policy

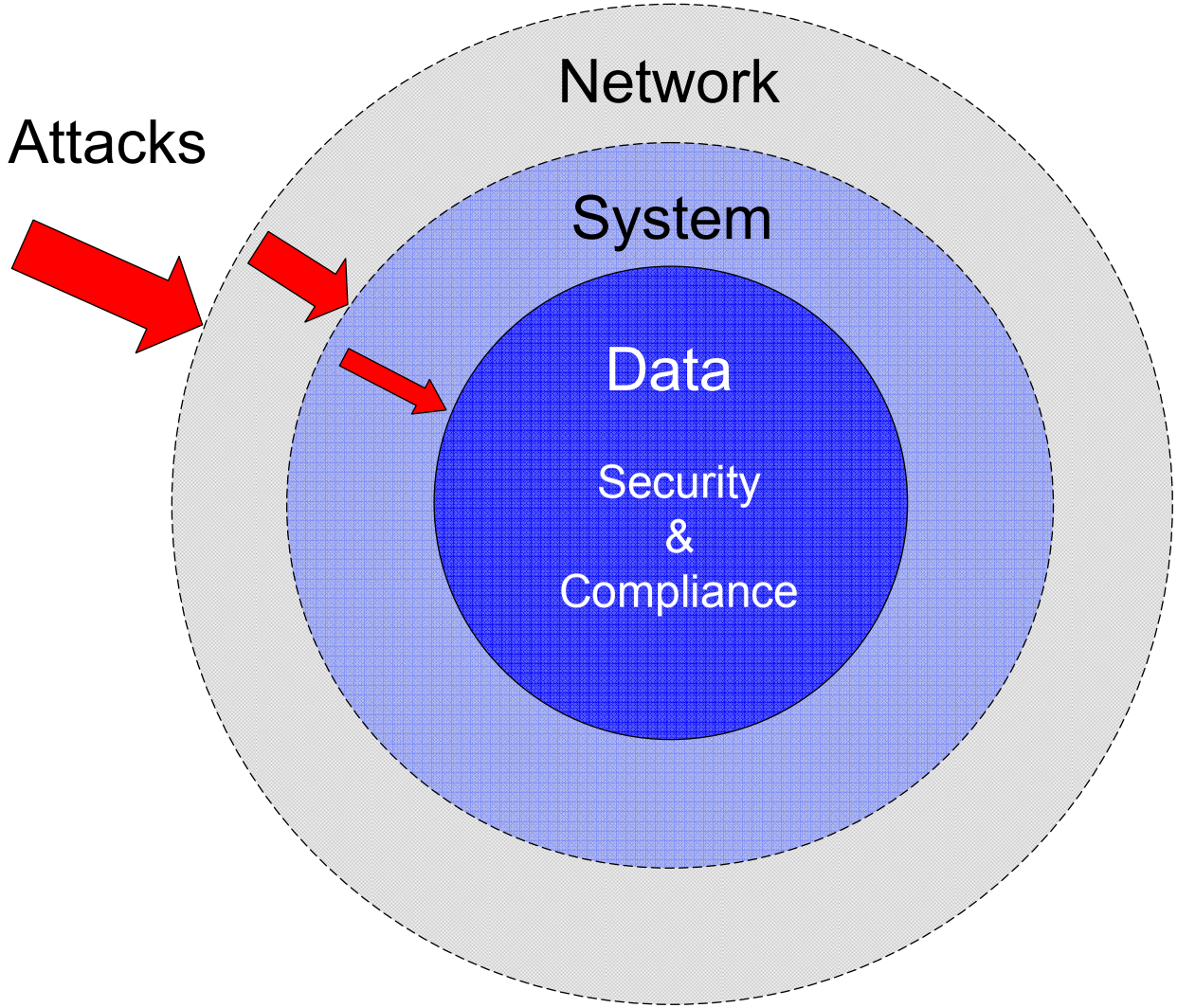
1. Sales people can change customer order data.
2. Managers can read OLAP reports.
3. Administrators can administrate customer order data.

- DEMO

Vision of Secure Perspective



Data-Centric Model



Data Centric Policy

- Resource Access Control (Released)
- Password Policy (Released)
- High Availability (Possible future work)
- Performance (Possible future work)
- Process (Possible future work)
- Backup Network (Possible future work)
- **Auditing (Possible future work)**
- **Encryption (Possible future work)**

Cross Platform UI

- Platforms:
  - System i (Released)
  - DB2 (Coming soon)
  - AIX (Coming soon)
  - Windows (Coming soon)
  - RACF (Possible future work)
  - Linux (Possible future work)
  - Data Power (Possible future work)
- ONE user interface

Ordering/pricing

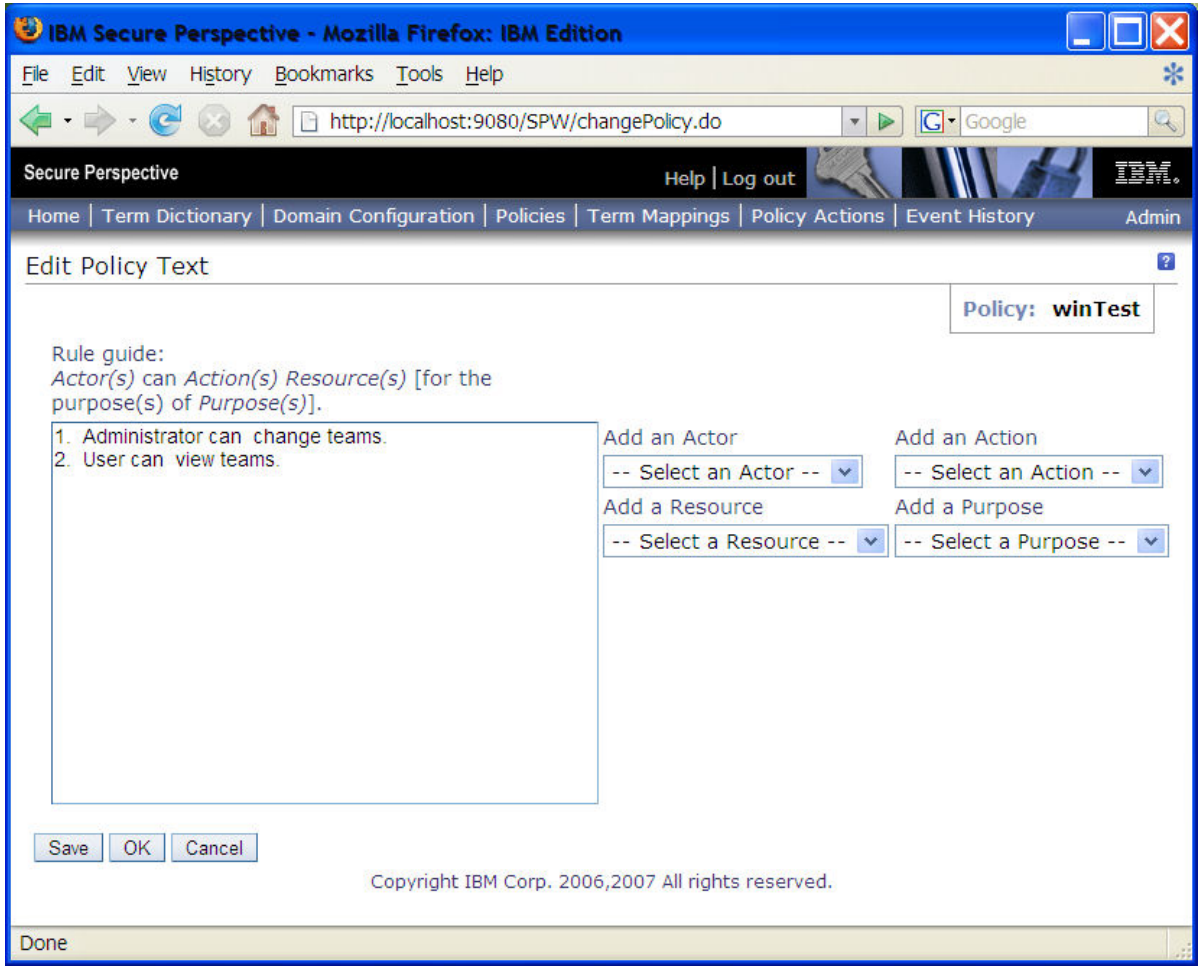
- Web application available for i5/OS and Windows
- $1500/processor controlled
  - i5/OS
  - Windows
  - AIX
  - DB2

Benefits

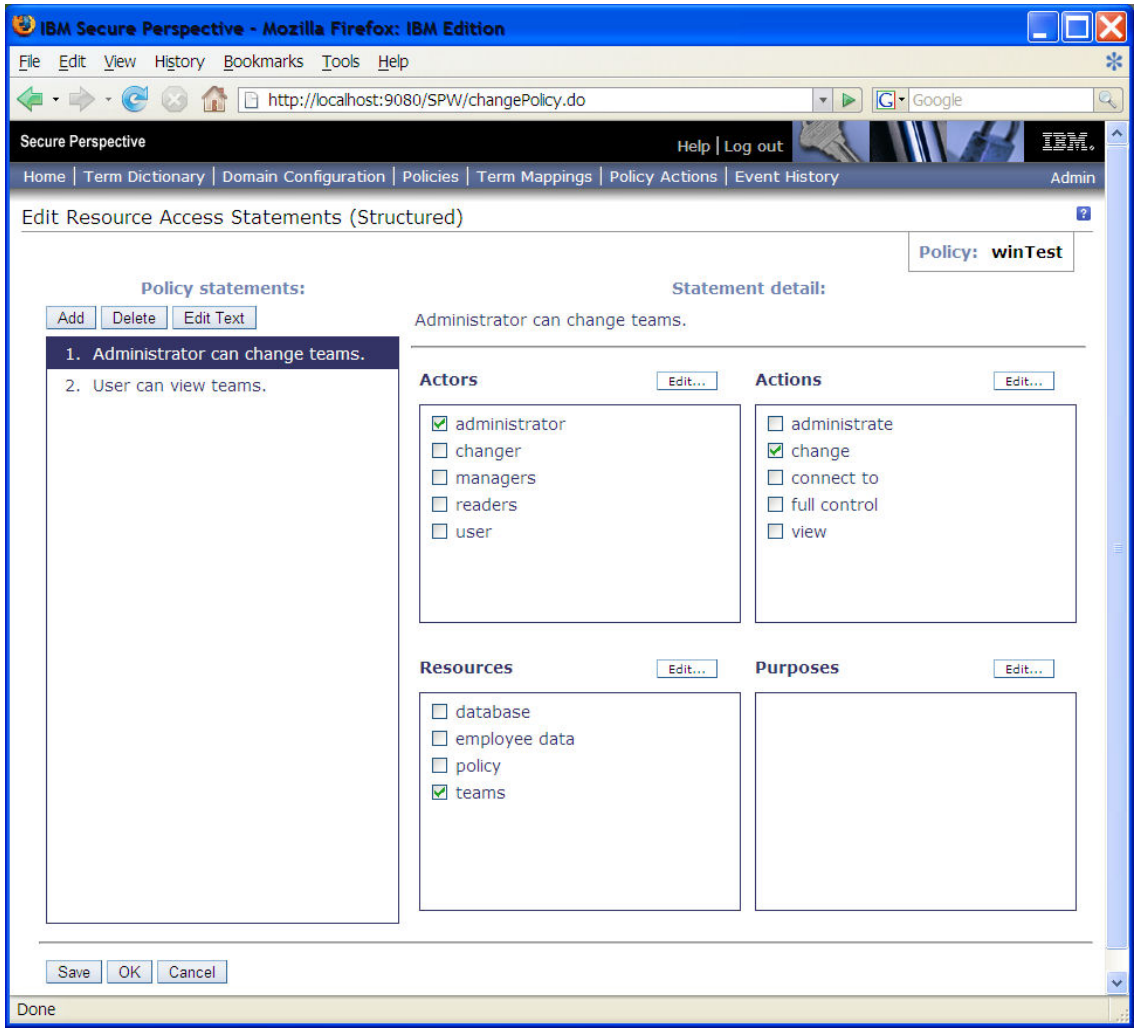
- Improved involvement in policy authoring from the business side of the house
- Accelerated deployment and checking of policy
- Reduced chance of problems (due to problem prediction)
- Consolidated point of control for many platforms/boxes

http://www-03.ibm.com/systems/i/security/rethink_security_policy.html

Policy Authoring – Text Edit Mode



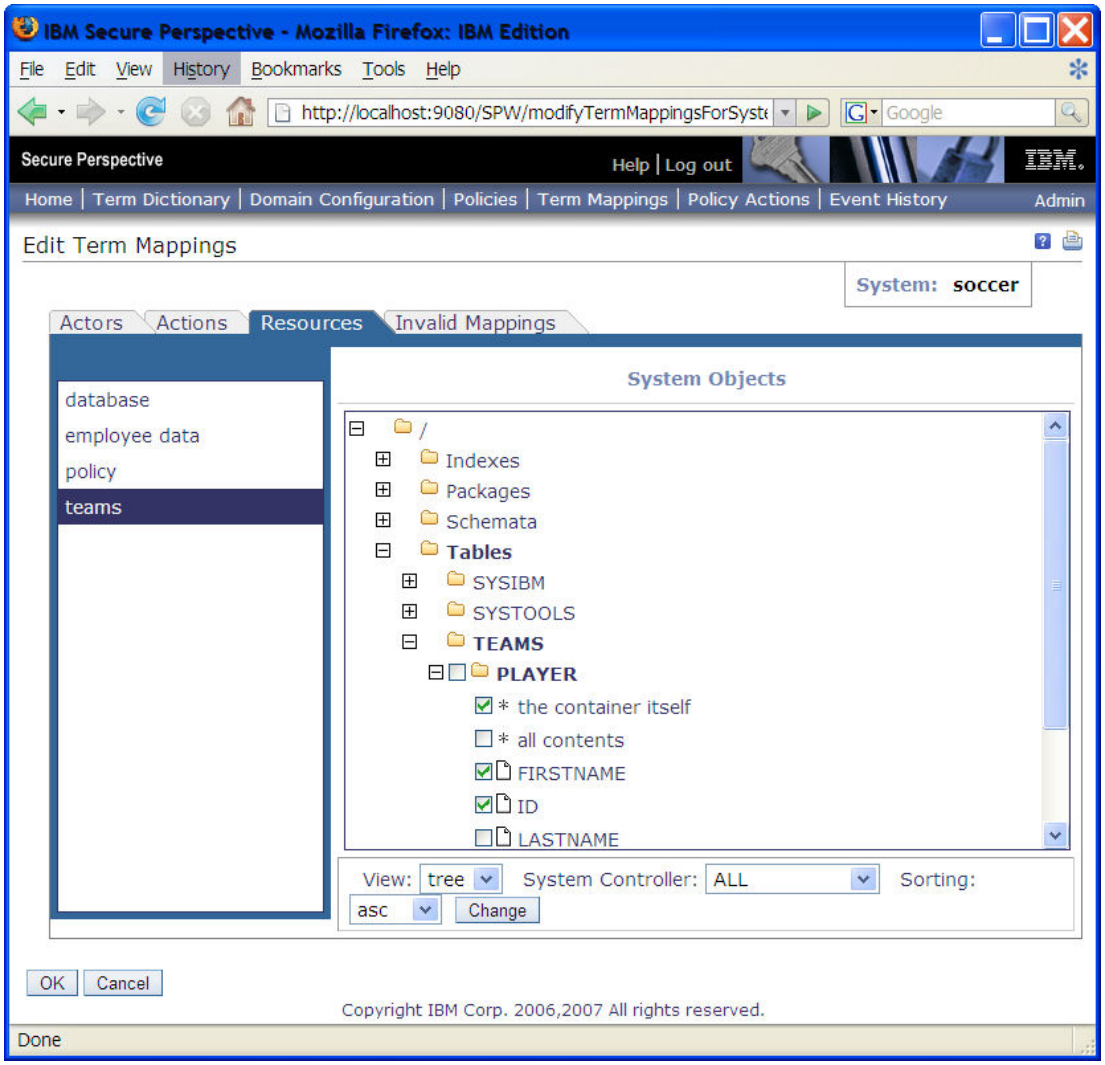
Policy Authoring – Structured Edit Mode



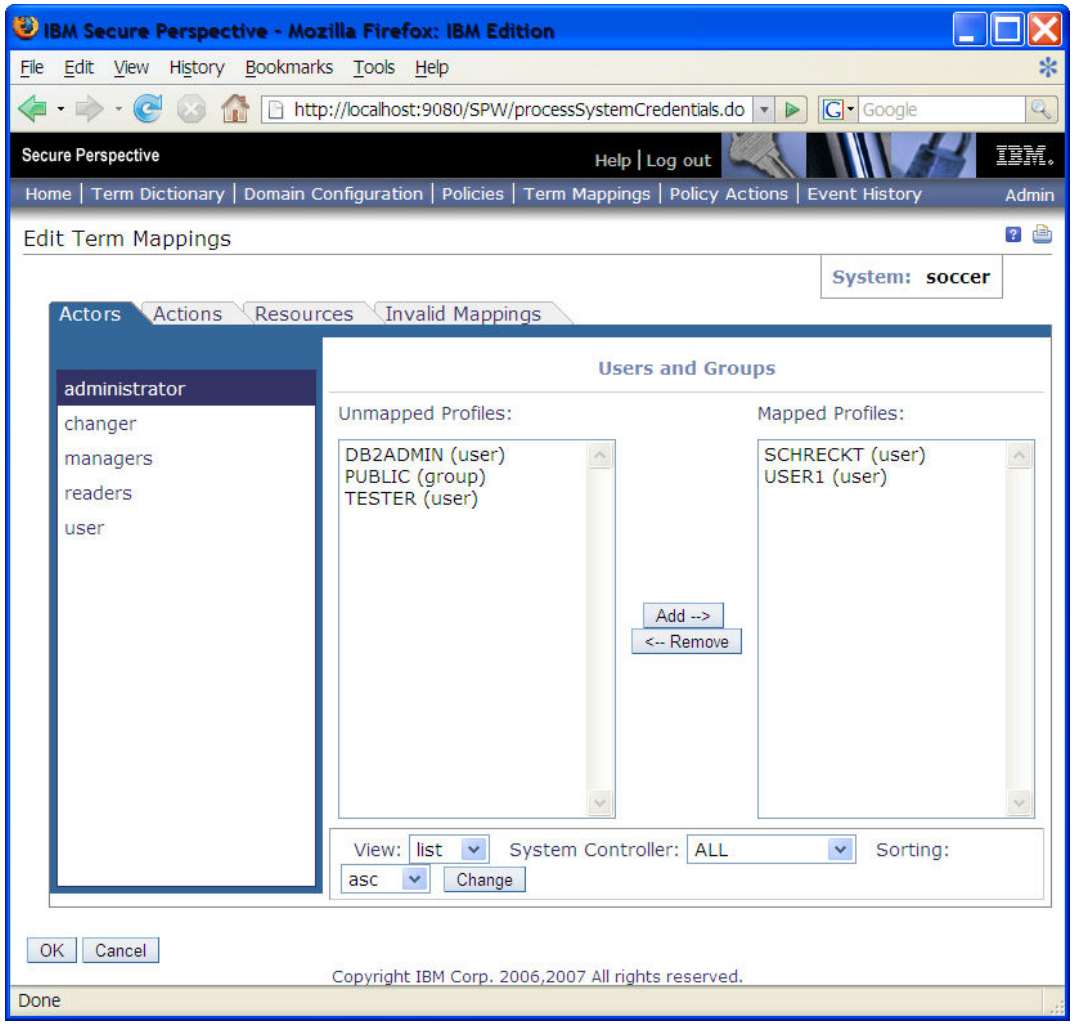
[Authoring Statements]

[Creating Statements]

Mapping (Tree View)



Mapping (List View)



Connecting