



E-SECU

What you need to know about Windows Security

**Whil Hentzen
Hentzenwerke Corp.**

Visual FoxPro Konferenz 2001

Who Am I?

- ◆ **Software Developer: Hentzenwerke Corp. (17 yrs)**
- ◆ **Editor, FoxTalk**
- ◆ **Author (6 books)**
- ◆ **Publisher, The Essentials for Visual FoxPro**
- ◆ **Ask me about my kids**

About This Session

- ◆ An introductory session to Windows Security and Networking
- ◆ Perfect if you're using Windows as a single-user operating system

Who Is This Session For?

- ◆ Using Win9x because you're scared of NT
- ◆ Logging onto NT as Administrator
- ◆ Not sure of how to restrict access to files
- ◆ Puzzled about Domains vs. Workgroups
- ◆ Logging onto SQL Server as "sa" and ""
- ◆ Wondering how to set up a second Server on a network

The Transition to Windows Security for VFP Developers

- ◆ **The Way We Were**
Standalone development to...
Novell to...
- ◆ **Things Have Changed**
Windows NT

NT as a single user system

- ◆ **User information is stored on that machine**
- ◆ **Administrator does it all**

NT as a workgroup

- ◆ **User information is STILL stored on that machine**
- ◆ **Users decide what they want to share (files or resources) in a workgroup (peer to peer)**
- ◆ **Each user configures their own machine and attaches to all other machines**

I. Fundamental Concepts

- ◆ **Users**
- ◆ **Domain**
- ◆ **Domain Controllers**
- ◆ **Permissions**
- ◆ **Groups**

Fundamental Concept - User

- ◆ Information about an object allowed to access objects on a computer
- ◆ Attributes include a name, a password, and possible restrictions

Fundamental Concept - Domain

- ◆ Group of machines that share common information – file server, web server, workstations
- ◆ This single location is the “domain”

Fundamental Concept – Domain Controller

- ◆ **All user and permission information is located in a single location**
- ◆ **All workstations access this single location**
- ◆ **The machine that holds all the information about users and permissions**

Fundamental Concepts – Primary/Backup Domain Controllers

- ◆ **What happens if the domain controller goes down?**
- ◆ **Backup domain controller**
- ◆ **Primary domain controller**

Fundamental Concepts - Permissions

- ◆ **Attributes assigned to a user to allow access to resources such as directories, files, and printers**
- ◆ **Assigning permissions assigned to individual users becomes unwieldy quickly**
- ◆ **Example (software dev shop)**

Fundamental Concepts - Groups

- ◆ Create entity to which permissions are added
- ◆ Add users to group, and users inherit permissions of group
- ◆ Eases maintenance and ensures control
- ◆ Groups also stored on domain controller

II. Setting Up Your Server

- ◆ **Allow plenty of time**
- ◆ **Plan on doing your first install several times**
- ◆ **Write down every step – every piece of data you enter**

Setting up a File Server - NT

- ◆ Name Your Server
- ◆ Domain Controller
- ◆ File System
- ◆ Protocol
- ◆ Partitions
- ◆ Tools and Services
- ◆ Domain Name

Setting up a File Server - NT

- ◆ Name your server
- ◆ Greek Mythology
- ◆ Alphabet
- ◆ Temporal Names
- ◆ Nothing nasty!

Setting up a File Server - NT

- ◆ Primary Domain Controller
- ◆ Backup Domain Controller
- ◆ Member Server
- ◆ Password for Administrator

Setting up a File Server - NT

- ◆ **File System**
- ◆ **FAT16 (NT4, W2K) – DOS era**
- ◆ **FAT32 (W2K) – Win95**
- ◆ **NTFS (NT4, W2K) – allows operating system to permit and track access**

Setting up a File Server - NT

- ◆ Partitions
- ◆ OS as FAT, Data as NTFS
- ◆ OS and Data as NTFS

Setting up a File Server - NT

- ◆ Network?
- ◆ Network Card
- ◆ Protocol

Setting up a File Server - NT

- ◆ Tools and Services
- ◆ Don't install unless you KNOW you need them

Setting up a File Server - NT

- ◆ Domain Name
- ◆ Name for the 'network' (not your Internet Domain Name)
- ◆ All users will need to use this name!

III. Setting up a File Server – W2K

- ◆ **Installation – similar to NT**
- ◆ **Activity Directory Domain choice**
- ◆ **DNS**

Setting up a File Server – W2K

- ◆ Installation – similar to NT
- ◆ DON'T let the server become a member of a domain yet!

Setting up a File Server – W2K

- ◆ Activity Directory Domain choice
- ◆ Native mode – pure W2K server
- ◆ Mixed mode – required if you need to shared security information with NT4 servers
- ◆ You can upgrade later (but can't go back)

Setting up a File Server – W2K

- ◆ DNS
- ◆ What DNS is: Domain Name Server
- ◆ If connected to Internet, use your Internet DNS
- ◆ If not connected, W2K will install a DNS on your own server
- ◆ Picking your domain name (hw.com)
- ◆ You can use a domain name already on the Internet ONLY IF you won't ever connect to the Internet with this server
- ◆ “Permissions compatible only W2K Servers”

IV. Setting up a Workstation

- ◆ Adding a user to the domain – NT
- ◆ Adding a user to the domain – W2K
- ◆ Adding the workstation to the domain
- ◆ Logging on as a user to a domain

Setting up a Workstation

- ◆ Adding a user to the domain – NT
- ◆ On Server:
 - ◆ 1. Program Files | Admin Tools | User Mgr
 - ◆ 2. User | New, Properties

Setting up a Workstation

- ◆ Adding a user to the domain – W2K
- ◆ On Server:
 - ◆ 1. Start | Settings | Control Panel
 - ◆ 2. Admin Tools applet
 - ◆ 3. Computer Management
 - ◆ 4. Click on Local Users and Groups node

Setting up a Workstation

- ◆ Adding the workstation to the domain
- ◆ Connect the workstation to the domain
- ◆ Logon to the workstation
- ◆ Enter username and password, and select domain name (not local machine name)
- ◆ The domain won't find the machine – dialog will ask
- ◆ Enter username/password of admin/auth user – on the domain, NOT the local machine

Setting up a Workstation

- ◆ Logging on as a user to a domain
 - ◆ 1. Ctrl-Alt-Delete
 - ◆ 2. Choose domain or local machine
 - ◆ 3. Enter local user or domain user

V. Setting up Groups

- ◆ Scenario for groups
- ◆ Create the groups
- ◆ Add users to groups
- ◆ Maintaining groups and users

Setting up Groups

- ◆ Scenario for groups – software development shop:
 - ◆ Partners
 - ◆ Admin Ass't
 - ◆ Developers
 - ◆ QA
 - ◆ Guests

Setting up Groups

- ◆ Create the groups

 - Partners

 - Developers

 - Staff

- ◆ User Mgr for Domains or Computer Mgt

Setting up Groups

- ◆ Add users to groups
- ◆ In NT: User Properties
- ◆ In W2K: New Group icon in Computer Mgt

Setting up Groups

- ◆ Maintaining groups and users
- ◆ NT4: User Properties
- ◆ W2K: Computer Mgt

VII. Setting up Permissions

- ◆ **Setting up Sharing**
- ◆ **Permissions**
- ◆ **Adding Groups**
- ◆ **Setting Rights**
- ◆ **Mapping**

Setting up Permissions

- ◆ **Setting up Sharing**
- ◆ **Right-click on folder, Sharing tab**
- ◆ **Share This Folder option button**
- ◆ **Name of share**
- ◆ **Permissions button**
- ◆ **This action publishes the name with the master browser (that the ws refers to during Network Neighborhood)**

Setting up Permissions

- ◆ **Permissions**
- ◆ **Security tab of properties dialog**
- ◆ **Add groups**
- ◆ **Set granular permissions**

Setting up Permissions

- ◆ Mapping
- ◆ On workstation, can manually map a share to a drive
- ◆ Right-click
- ◆ Map Network Drive
- ◆ Can create a login script
- ◆ NET USE

VIII. SQL Server Security

- ◆ **S/S is a collection of Windows Services, Apps**
- ◆ **Data Store – set of physical files with one or more logical entities (databases)**
- ◆ **Database – collection of objects – including tables (for users, for admins)**
- ◆ **Access data through S/S or via ODBC/OLEDB**

SQL Server Security

- ◆ Access data through S/S or via ODBC/OLEDB
- ◆ Must go through S/S which restricts access
- ◆ 1. User logs in and gets authenticated
- ◆ 2. Now has access to the server
- ◆ 3. Login given access to a database
- ◆ 4. Login mapped to user within database
- ◆ 5. User permissions determine access/allowed functions

SQL Server Security

- ◆ SQL Server security model – the pieces
- ◆ Logins – names/passwords in SYSXLOGINS
- ◆ Database users – in SYSUSER
- ◆ Permissions
 - Object permissions – SELECT/INSERT
 - Statement permissions – manipulate objects

SQL Server Security

- ◆ **Types of Authentication**
 - **SQL Server Authentication**
 - **S/S needs to be presented with ID/password**
 - **Application displays dialog**
 - **Information passed from app to S/S**

SQL Server Security

- ◆ **Types of Authentication**
 - **NT Authentication**
 - **Person logs into the workstation**
 - **S/S trusts the domain, so S/S looks for login without authentication**

Difference between S/S & NT Auth

- ◆ **Both NT and S/S logins are in SYSXLOGINS**
- ◆ **S/S logins need to be created from scratch**
- ◆ **NT logins are added to SYSXLOGINS from NT ACL**

Scenarios

- ◆ **NT Authentication – I**
- ◆ **User logs onto machine as HERMAN**
- ◆ **S/S has HERMAN login mapped to Windows user of HERMAN**
- ◆ **So HERMAN, once on Windows, can access S/S**

Scenarios

- ◆ **NT Authentication – II**
- ◆ **User logs into Windows as CARL**
- ◆ **S/S does not have a CARL login**
- ◆ **So Carl, while on Windows, still can't get into S/S**

Scenarios

- ◆ **SQL Server Authentication – I**
- ◆ **S/S has login of DONNA**
- ◆ **User logs into Windows as HERMAN**
- ◆ **User accesses S/S as DONNA**

Scenarios

- ◆ **Visual FoxPro Authentication**
- ◆ **VFP App running on workstation**
- ◆ **S/S set up with NT Auth**
- ◆ **User One logs onto Windows as MIKE**
- ◆ **User One walks away**
- ◆ **User Two walks up to machine and gets into app as LAURIE**
- ◆ **LAURE gets into S/S via remote view**
- ◆ **S/S thinks MIKE is in app**

Defining Authentication

- ◆ Run Enterprise Mgr
- ◆ Select SQL Server, Right-click
- ◆ Select option group (S/S or NT Auth)
- ◆ Select Server Roles (e.g. Sysadmin)
- ◆ Select Database (e.g. DB1)
- ◆ (Same login can't have different roles/db)

Creating Logins

- ◆ Windows Logins
- ◆ SQL Server Logins
- ◆ Viewing Existing Logins

Logging into SQL Server via NT Authentication

- ◆ From Query Analyzer
- ◆ From a Visual FoxPro application
 - With a data source
 - With a connection

Logging into SQL Server via SQL Server Authentication

- ◆ From Query Analyzer
- ◆ From a Visual FoxPro application
 - With a data source
 - With a connection

Permissions

- ◆ **Setting permissions for a database user**
- ◆ **Identifying the database**
- ◆ **Identifying the object**
- ◆ **Determining the permission**

ADVISOR DevCON Web Update Page

<http://www.Advisor.com/CMF0009update>

**This session WILL
have updates.**

Thank-You-Good-Night!

**Please remember to fill out your
evaluation.**