DEV 213

What you need to know about Windows Security

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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.