3169 Exchange 2003 Migration Best Practices

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Objectives

1. Outline the new deployment features and requirements of Exchange 2003.
2. Describe the ExDeploy Tool set.
3. Describe migration methods from Exchange 5.5 and Exchange 2000.
4. Give an overview of available third-party tools.

Agenda

- Exchange 2003 general requirements
- Exchange 2003 installation
- Migration from Exchange 5.5
- Migration from Exchange 2000
- Mixed Exchange migration
- Interorganizational migration
- Third-party tools
- Summary

Exchange 2003 Editions (1 of 2)

- Standard Edition
  - 16GB database limit
  - One mailbox store
  - One public folder store
  - Server can act as a Front End (NEW)
  - Can install on Windows 2000 Server
- Enterprise Edition
  - Clustering
  - Up to 20 databases per server
  - X.400 Connectors
  - Recommend install on Windows 2000 Advanced Server or higher

Exchange 2003 Editions (2 of 2)

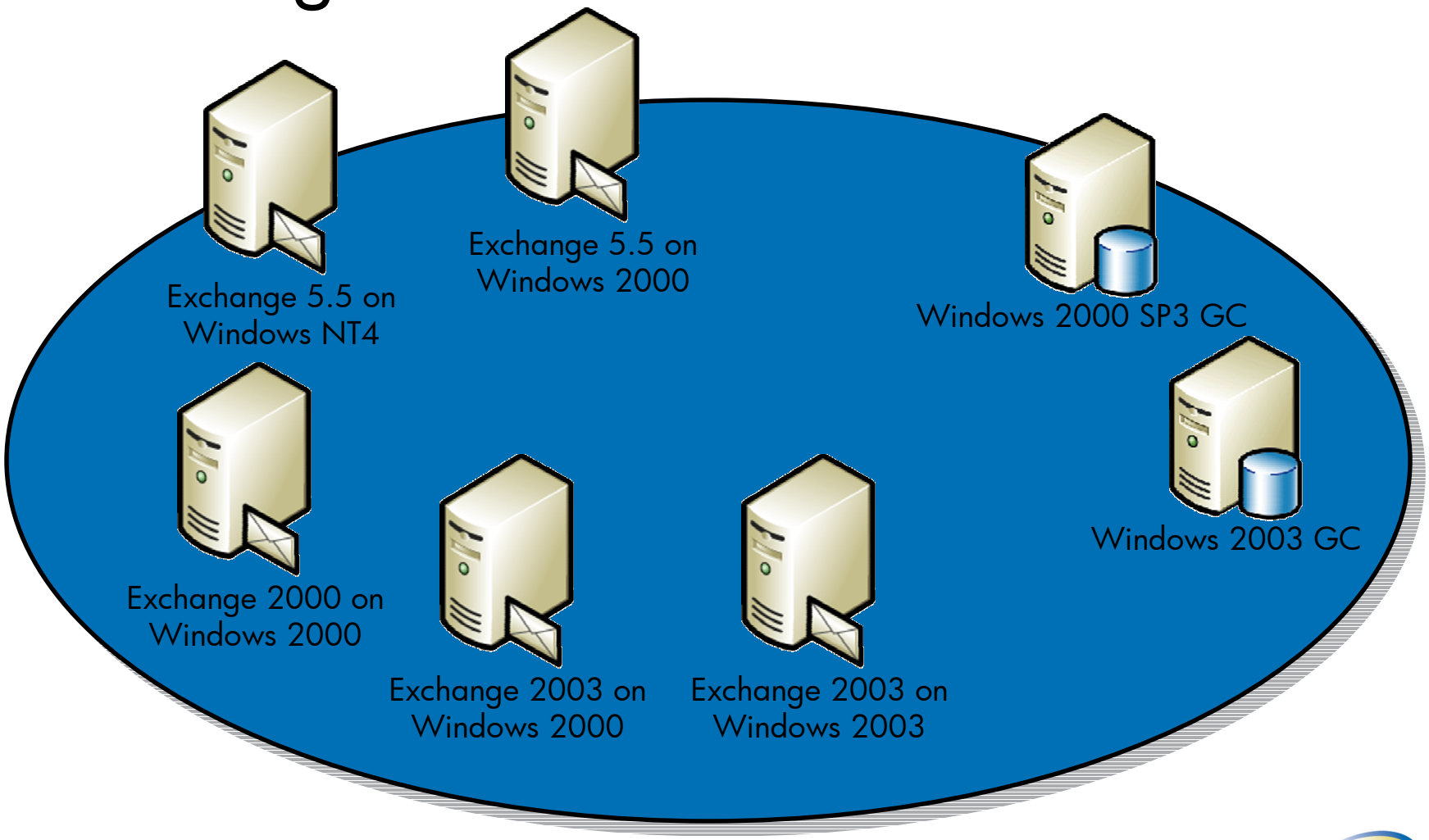
- Both Editions support features such as:
  - Database snapshot
  - Outlook Mobile Access (OMA) and ActiveSync
  - Recovery Storage Group
  - Exchange Management Pack for MOM
- Exchange 2000 Enterprise cannot be in-place upgraded to Exchange 2003 Standard

Exchange Server vs. OS Support Matrix

- Significant changes between Windows 2000 and Windows 2003
  - Including modifications to **AD**, **IIS**, SMTP, DNS
- Exchange 2000 will not install on Windows 2003
- Must upgrade Windows 2000/Exchange 2000 to Exchange 2003 before OS upgrade
- Summary statement in Microsoft KB article 321648

Exchange/OS Version	Windows NT4.0	Windows 2000 in Windows 2000 Domain	Windows 2000 in Windows 2003 Domain	Windows 2003
Exchange 5.5 SP3	Y	Y	Y	N
Exchange 2000 up to and incl. SP1	N	Y	N	N
Exchange 2000 SP2	N	Y	Y[1]	N
Exchange 2000 SP3	N	Y	Y	N
Exchange 2003	N	Y[2]	Y[2]	Y

Exchange and Windows Servers



Benefits of Using Windows 2000 SP3

- Best practice to upgrade all Windows 2000 servers to SP3 or later
  - Required for Exchange 2003 access
    - Secure LDAP access for ADC, SRS, RUS, and DSAccess
  - Smarter GC behavior
    - SP3 GCs will only advertise their service (via an SRV) after they have received a complete replica of all of the domain naming contexts

Benefits of Using Windows 2003 (1 of 2)

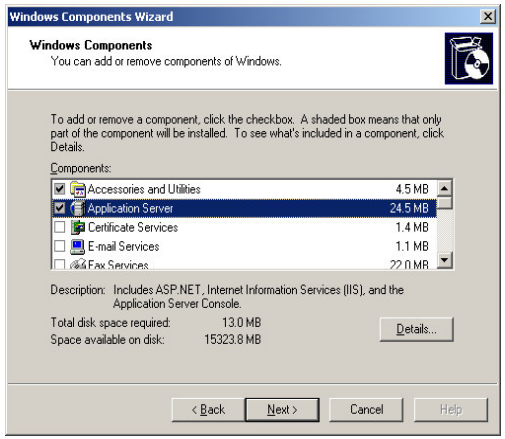
- Up to 8-node clustering
  - Windows Server 2003 Enterprise and Datacenter
- P4 XeonMP Processors (Hyperthreading) Support
  - 4-way on Standard
  - 8-way on Enterprise and Datacenter
- Mountpoint support on clusters for the Store
- VSS
- RPC over HTTP support
- Improved Virtual Memory Allocation Control
  - /3GB switch and /USERVA supported (Standard & above)
- IPSec support between Front End and Back End servers
- Exchange 2003 NOT supported on Windows 2003 Web Edition

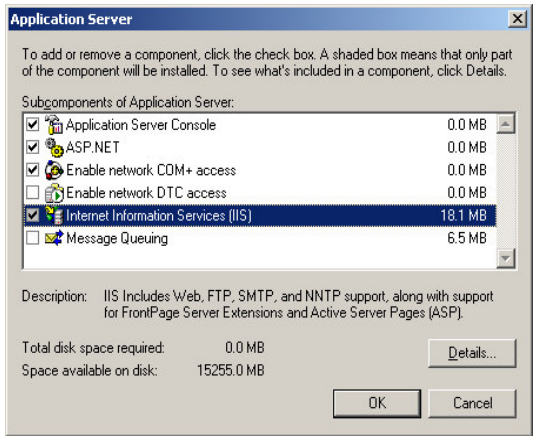
Benefits of Using Windows 2003 (2 of 2)

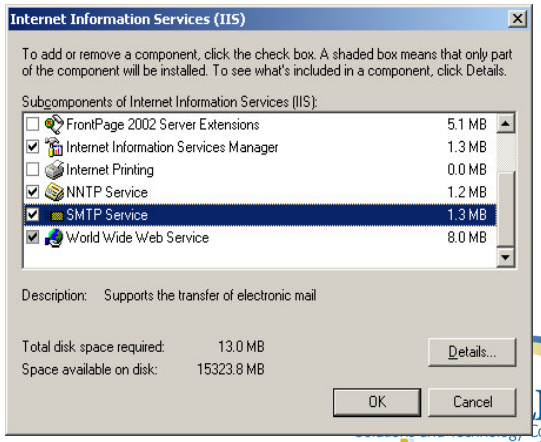
- Create AD replica from media
- Windows 2003 Dynamic Name Service Provider Interface (NSPI) Enable/Disable on GCs
  - On Windows 2000 the GC required a reboot
- Linked Value Replication
  - 5000 direct member limit removed
- No Global Catalog full synchronization
- Intra-site replication latency reduced to 1 minute
  - Was 15 minutes

Exchange 2003 Installation Requirements (1 of 2)

- Exchange 2003 will only install on Windows 2000 SP3 or higher
- Must install .NET framework and ASP.NET components
  - Automatic when installing Exchange 2003 on Windows 2000
  - Manual when installing Exchange 2003 on Windows 2003
- NNTP and now SMTP and WWW Service must be explicitly installed
  - Although server roles change this
- Retirements
  - IM, KMS, Chat, cc:Mail connector, MS-Mail connector, DXA Connector, Schedule+ Free/Busy Connector







Exchange 2003 Installation Requirements (2 of 2)

- POP3/IMAP4/NNTP not enabled by default
- 10MB Global Message Delivery limit by default
- Domain users cannot logon locally to Exchange 2003 server
- Exchange 2003 generally not recommended on Active Directory servers
  - However is supported providing
    - Server is not a cluster
    - Server must be a GC (not just a DC)
    - Do not use /3GB switch
  - Be aware of shutdown times

Exchange 2003 Installation Recommendations

- You can install Exchange 2003 on Windows 2000 SP3 then upgrade to Windows 2003
  - Exchange 2003 will ensure
    - WWW Service not disabled during the upgrade (security)
    - Switch IIS 6.0 to Worker Process Isolation Mode
    - Enables Exchange ISAPI interfaces in IIS 6.0
- NTFS Partitions required for at least
  - System partition
  - Partition that hosts Exchange 2003 binaries
  - Partitions that host Transaction Logs
  - Partitions that host Database files
  - Partitions that host any other Exchange 2003 files

IIS 6.0 Benefits

- Why IIS 6.0?
  - Improved management, performance, scalability, reliability, security
  - New architecture
    - HTTP.SYS: kernel-mode HTTP listener
    - WWW Service Admin and Monitoring Agent: user-mode process manager
    - Worker Processes: third-party application code
    - Application failures separated from core WWW functionality
- Worker Process Isolation Mode
  - Prevents one application from affecting another
  - No restarts of W3Svc required
  - WWW Service Admin can restart failed worker processes
  - Performance improvements

Exchange 2003 Coexistence Requirements

- Coexistence supported with
  - Exchange 5.5 SP3 or SP4
  - Exchange 2000 SP3
- No support for previous versions of Exchange
  - However…
    - There are environments where even Exchange 4.0 SP2 servers are interoperating with Exchange 2003 servers

Exchange Deployment Tools (ExDeploy)

- Structured Guidance
  - Prescriptive guide to walk a customer through the entire Exchange deployment
- Preparation Tools
  - Tools to scan topology and give recommendations.
- Validation Tools
  - Tools to help the customer proactively identify issues that will prevent the setup of the Exchange from completing
- Customers can now have confidence that Exchange is setup correctly and avoid issues which would have required them to call PSS
- You need to determine when you should use them

Running the ExDeploy Tools

- Active documentation
  - Launch the tools with the right parameters
  - Step by step documentation
- Command line tools
  - ExDeploy /s:*<5.5 server>* /gc:*<gc>* /t:*<Test(s)>*
  - *Example:*
    - Exdeploy /s:Exch55 /gc:MyGC /t:DSScopeScan
    - Exdeploy /?
- Exchange 2003 Setup
  - Runs a sub set of tools

ExDeploy Command Line

Tool Group Name	Tool Command Line Name
DSScopeScan	DSConfigSum, DSobjectSum, UserCount, VerCheck, Netdiag
UserPrep	ADCUserCheck, NTDSNoMatch, VerCheck, OrgNameCheck
ADCCheck	ADCUserCheck, ADCObjectCheck, ADUserScan
OrgPrepCheck	PolCheck, OrgCheck, Netdiag, PubFoldCheck
Others	RecipientDSInteg, ConfigDSInteg, ADCConfigCheck, PrivFoldCheck, Move PFs

Exchange 2003 installation

Exchange 2003 Installation Improvements (1 of 3)

- SETUP no longer requires Full Organization privileges
  - Apart from
    - First server in the Organization
    - First server in a Domain
    - First server in an Administrative Group
    - Connector Servers (servers with an SRS)
  - All other servers installed with Exchange Full Admin at the Administrative Group level
    - Additional servers (plus machine account manually added to domain servers group)
    - Service Pack install okay
    - Remove server (except SRS-enabled); plus remove machine account
- No communication requirement with Schema FSMO during installation

Exchange 2003 Installation Improvements (2 of 3)

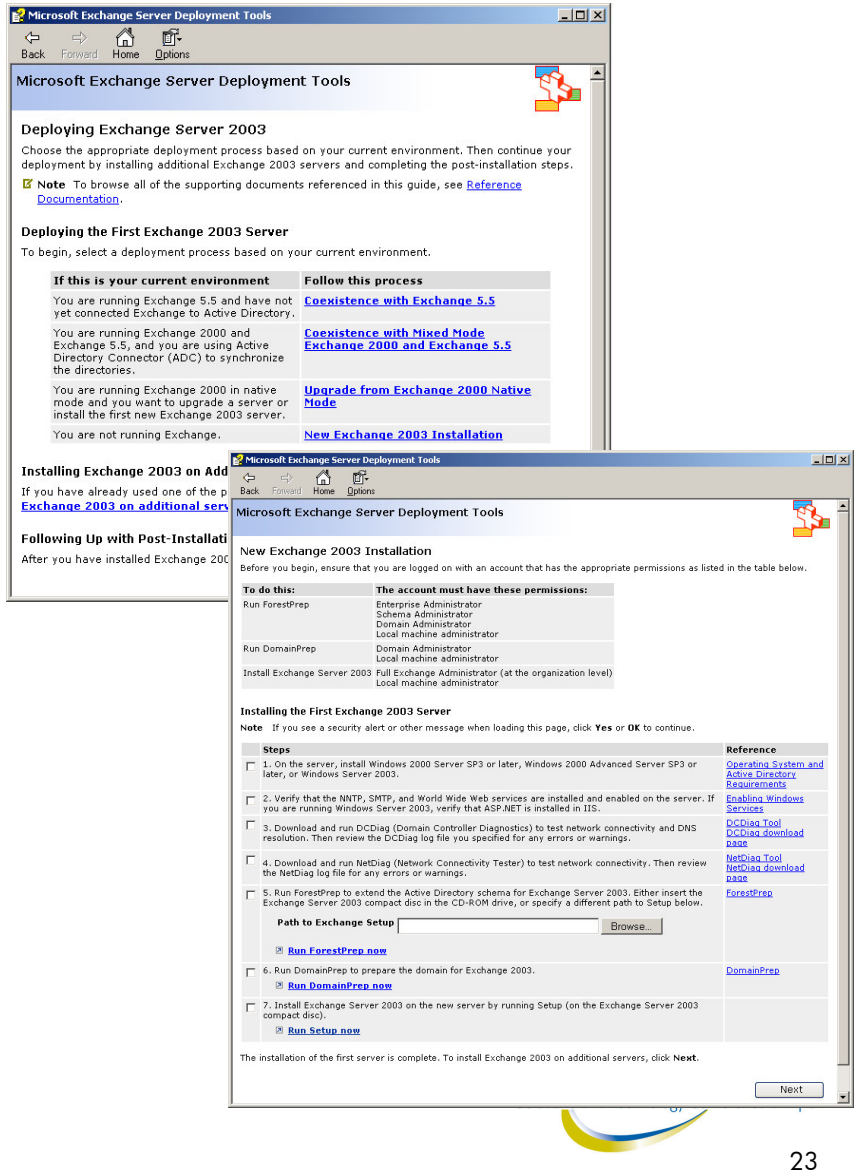
- SETUP /ChooseDC
  - Enter the fully qualified Domain Name of a DC
- Default permissions at Organization Level only set once
  - SETUP sets default permissions on the Exchange Organization object once (during first server install/upgrade)
  - Does not reset permissions for subsequent installations
  - Exchange 2000 SETUP will reset Exchange Organization permissions on each server install
    - Overwrites custom changes to the permissions structure, such as removing the permission for all users to create top-level public folders

Exchange 2003 Installation Improvements (3 of 3)

- Warning if Exchange Groups are moved, deleted, or renamed
  - SETUP ensures that the Exchange Domain Server and Exchange Enterprise Server groups are intact
  - If these have been moved, deleted or renamed, SETUP will terminate
- Permission to Access Mailboxes
  - SETUP locks down security on the database objects
  - Administrators do not have ability to open other user's mailboxes
    - Equivalent to Exchange 2000 EDSLock (309718)

Exchange 2003 Installation Process

- Conventional installation
  - SETUP/Forestprep
  - SETUP/Domainprep
  - SETUP
    - No checking
- ExDeploy Installation Tools
  - Set of tools to guide migrations
  - Launch from
    - \support\ExDeploy\exdeploy.chm
      - Make sure to launch locally
      - And have installation kit local
    - Select 'New Exchange 2003 Installation'
  - 'Suggests' you run DCDiag and NetDiag tools
    - Available in \ExDeploy directory



Basic Installation ExDeploy Tools

- DCDiag
  - Tests network connectivity and DNS resolution for DCs
  - Runs standalone (not part of any tool group)
  - Needs Enterprise Admin for *all* checks (but not basic connectivity tests)
  - Syntax: dcdiag /s:<dcname> /f:<logfilename>
    - Only needs /s if running from a Member Server
- NetDiag
  - Checks network connectivity for the local system
  - Uses netdiag-w2k.exe or netdiag-wsh.exe
  - Automatically runs as part of DSScopeScan
  - Places Logfile in ExDeploy Logs directory

SETUP /ForestPrep (1 of 2)

- Must run ForestPrep
  - Checks ms-Exch-Schema-Version-Pt attribute (Value is 6870)
- Extends AD Schema with Exchange-specific attributes and classes
  - 142 additional object definitions over Exchange 2000
- Creates Container object for the Exchange 2003 Organization object
- Runs in domain containing Schema Master
  - Schema Master on first DC installed in forest (default)
  - Forestprep will stop and tell you domain in which to run
- Permissions
  - Host account must be member of Enterprise Admins group
  - Host account must be member of Schema Admins group
  - Host account must be member of Domain Admins group
  - Host account must be member of Local Machine Admins group

SETUP /ForestPrep (2 of 2)

- Designates an account for Exchange Full Administrator permissions to the Organization object
  - Use this account to install/manage Exchange 2003 servers and subsequent further delegation
- Takes 19 minutes on a 500MHz PII, 256MB RAM, local disks
  - Heavy CPU utilization
- Not prompted to enter an Organization name during Forestprep until you install first Exchange 2003 server
  - Placeholder GUID created for organization
    - {335A1087-5131-4D45-BE3E-3C6C7F76F5EC}

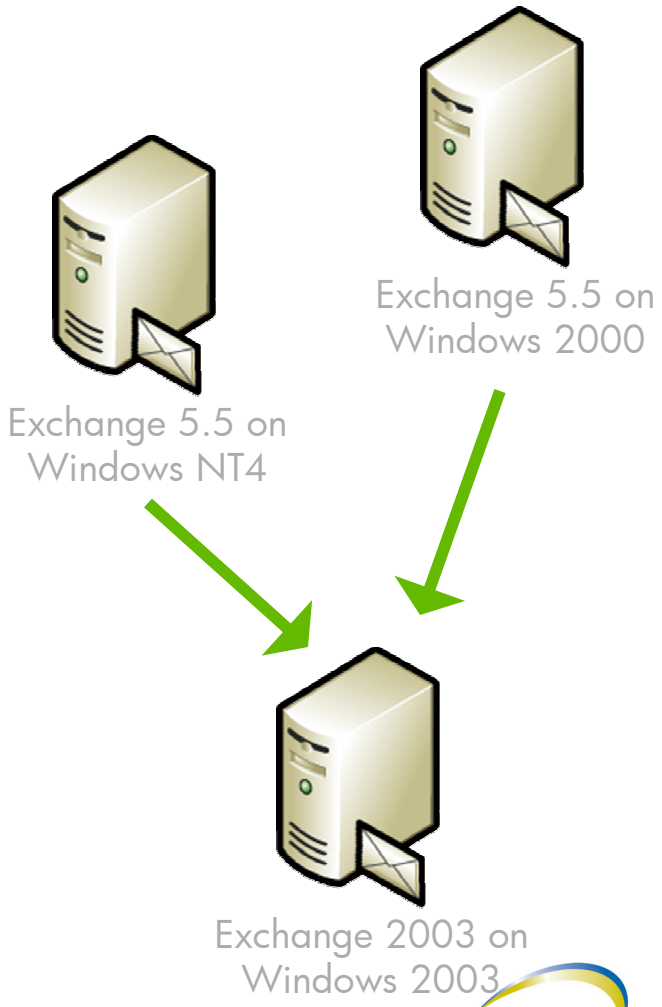
SETUP /DomainPrep

- Creates Exchange Domain Servers (Global SG) and Exchange Enterprise Servers (Local SG)
  - Allows Exchange 2003 server to read and modify user and configuration attributes
- Creates Public Folder Proxy container on per domain basis
- Run in all domains that contain Exchange 2003 servers or mail-enabled objects
  - Also run in root domain
- Permissions
  - Host account must be member of Domain Admins group
  - Host account must be member of Local Machine Admins group

Migration from Exchange 5.5

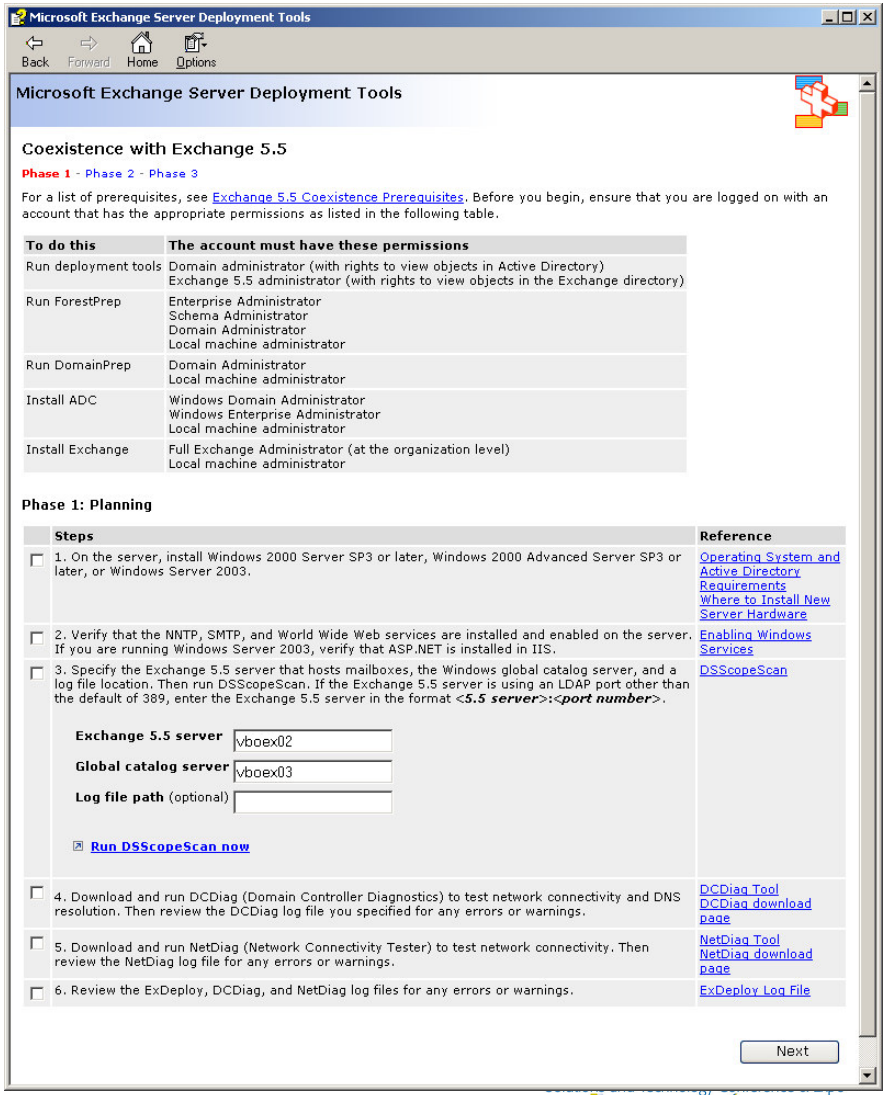
Migration Scenarios

- Pure Exchange 5.5 direct to Exchange 2003
  - Microsoft does not allow upgrade from Exchange 5.5 to Exchange 2003
  - Recommended migration path
    - Installing ADC and configuring CAs
    - Install an Exchange 2003 Server
    - Use Move Mailbox Wizard
- Mixed 5.5/Exchange 2000 to Exchange 2003
  - Same technique, but can upgrade Exchange 2000 servers
- Avoid Exchange 5.5 → Exchange 2000 → Exchange 2003 upgrades
  - Unless you are doing in-place Store upgrades



Using ExDeploy for Exchange 5.5 Migration

- Three preparatory phases
  - **Phase 1:** Basic prereq and connectivity check
  - **Phase 2:** Forestprep, Domainprep, OrgPrepCheck, ADC install, ADC Tools
  - **Phase 3:** DNS checks and Exchange 2003 install on new server, validation checks
  - Move mailboxes
- You can also do all of this manually

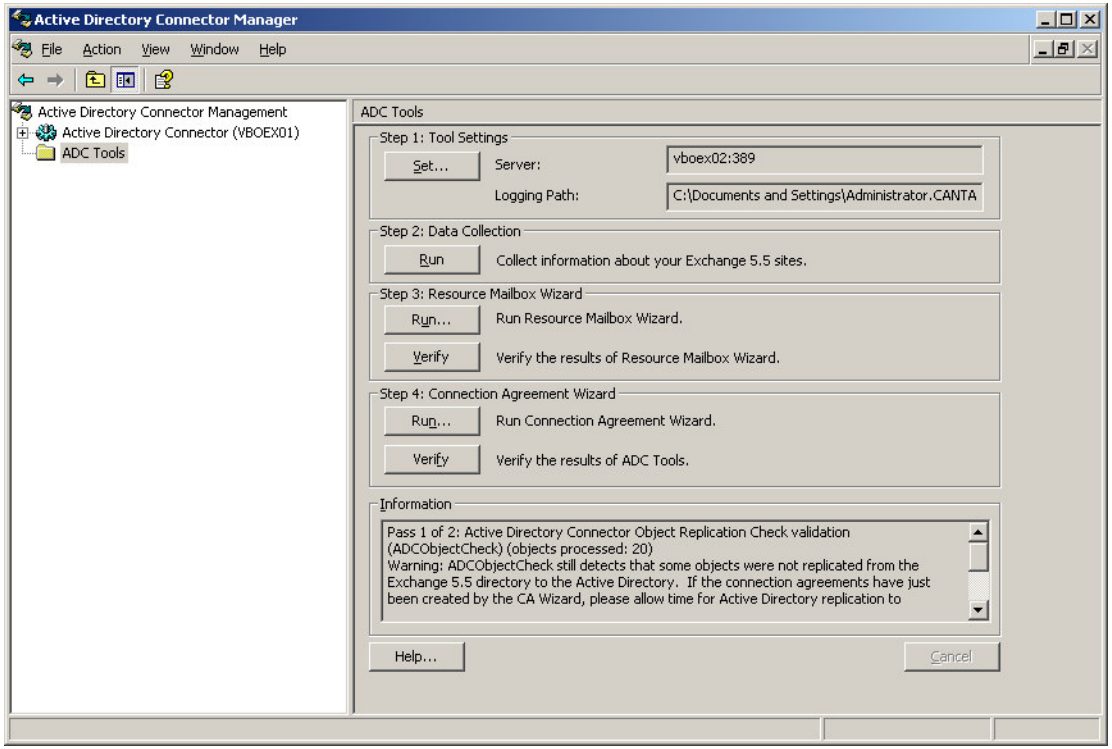


Installing the ADC

- ADC installation permissions
  - Enterprise Admin no longer required (Q253286 indicates required to create the AD Connections container)
  - Need Domain Admin
    - To create local Exchange Services and Exchange Administrators groups
    - Recreated by an installation if needed
    - Required for all subsequent ADC installs
- ADC Schema Updates identical to Exchange 2003 schema updates!

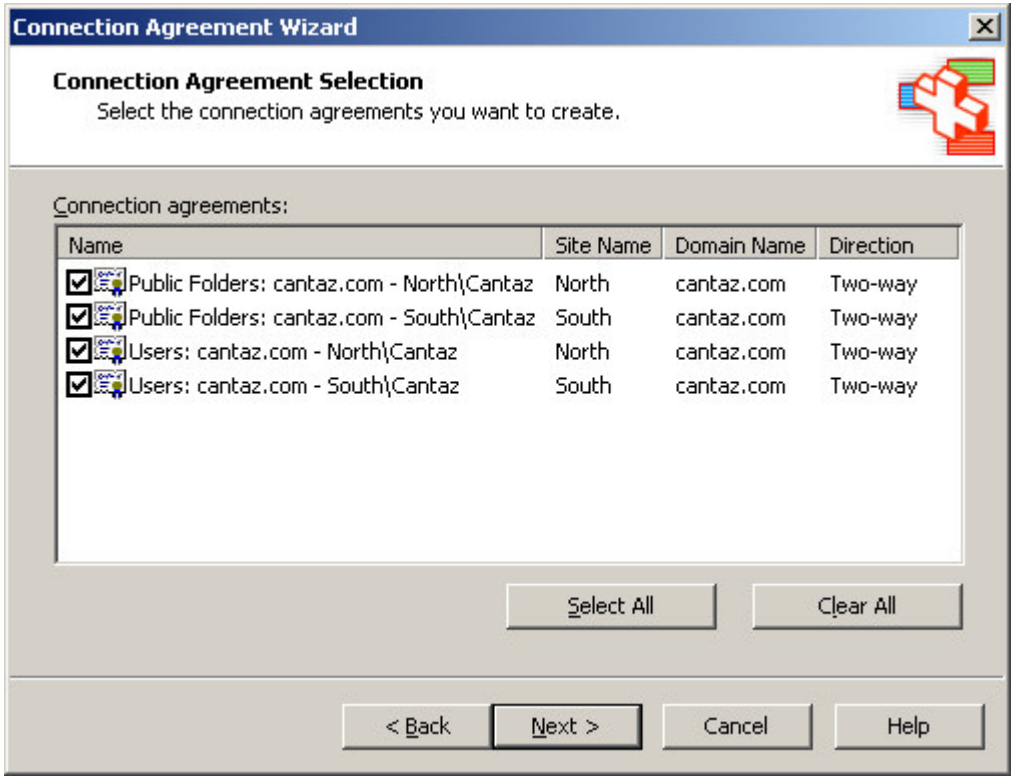
Exchange 5.5 Migration: ADCTools

- ADC Tools
  - New item on ADC Management snap-in
  - Series of tools that check your Exchange 5.5 environment
    - Performs NTDSAttrib check
    - Performs CA replication check
    - Logs to ADCTools.log
  - You MUST run this tool in order to install Exchange 2003
  - You can optionally run the Connection Agreement (CA) Wizard



Connection Agreement (CA) Wizard

- CA Wizard process
  - You specify the OU container for new objects
  - Wizard recommends CA models
  - You specify credentials
  - You select CAs you want
  - Wizard creates them
- The Wizard will not overwrite existing CAs



Installing Exchange 2003 with Exchange 5.5

- Last stage before installation
- SetupPrep Tools
  - OrgNameCheck
    - Checks organization and site names for illegal characters
    - Results written to OrgNameCheck.log and ExDeploy.log
  - OrgCheck and PubFoldCheck also included
- Install checks the log files, especially the ADC Check logs and ADCUserPrep marker
  - Install will not continue if the checks have not been run
  - Warning messages are issued if logs detail errors
- Installation proceeds as normal

Installation Validation Tools (1 of 2)

- Run after installation of first Exchange 2003 server
- ADCConfigCheck
  - Checks integrity of 5.5 DS to AD ADC replication
  - Permissions: Domain Admin (write to AD) and Exchange 5.5 Admin (view 5.5 DS)
- ConfigDSInteg
  - Checks config settings on AD Exchange objects
    - Example: addresses defined for SA, SRS, etc.
  - Permissions: Domain Admin (view AD objects)
- RecipientDSInteg
  - Checks attributes on each AD object (user, group, contact, PF)
    - Examples: contact target addresses, proxy addresses, home server, GUID, 5.5 DN
  - Permissions: Domain Admin (view AD objects)

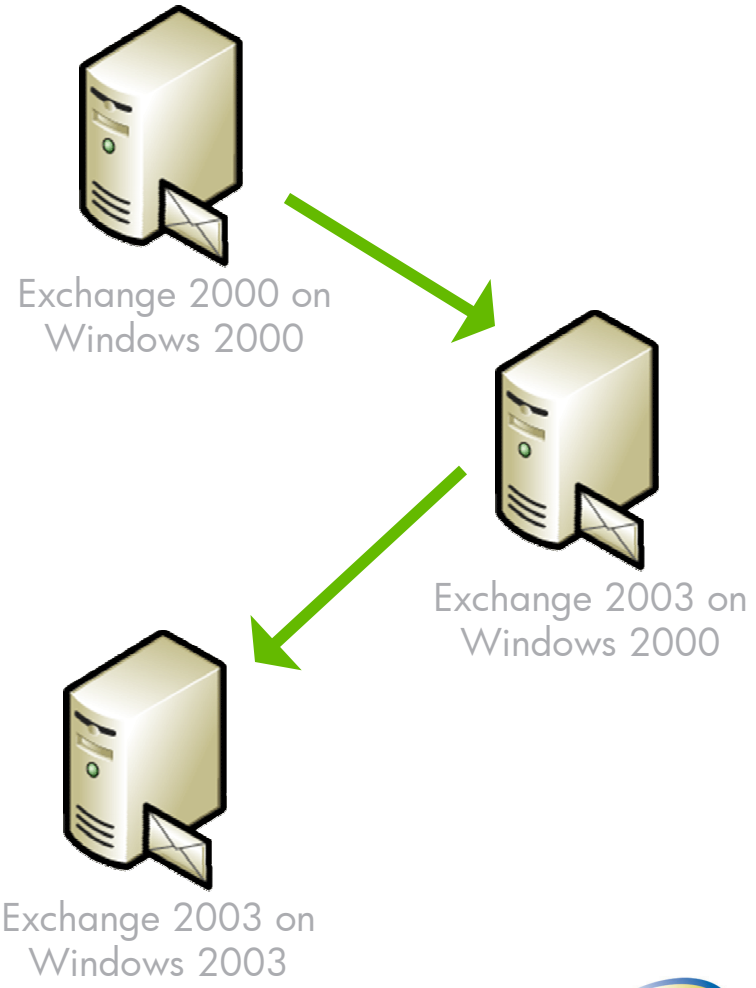
Installation Validation Tools (2 of 2)

- PrivFoldCheck
  - Run before moving mailboxes from 5.5 servers to Exchange 2003 servers
  - Checks integrity of 5.5 DS with 5.5 IS (example: mailbox in DS, but no entry in IS and vice versa)
    - Will create a DS entry for a mailbox that exists in IS; will not delete DS mailbox entries if not in IS
    - Removes unknown user accounts from mailbox permissions
  - Permissions: Exchange 5.5 Admin (view 5.5 DS)

Migration from Exchange 2000

Migration from Exchange 2000

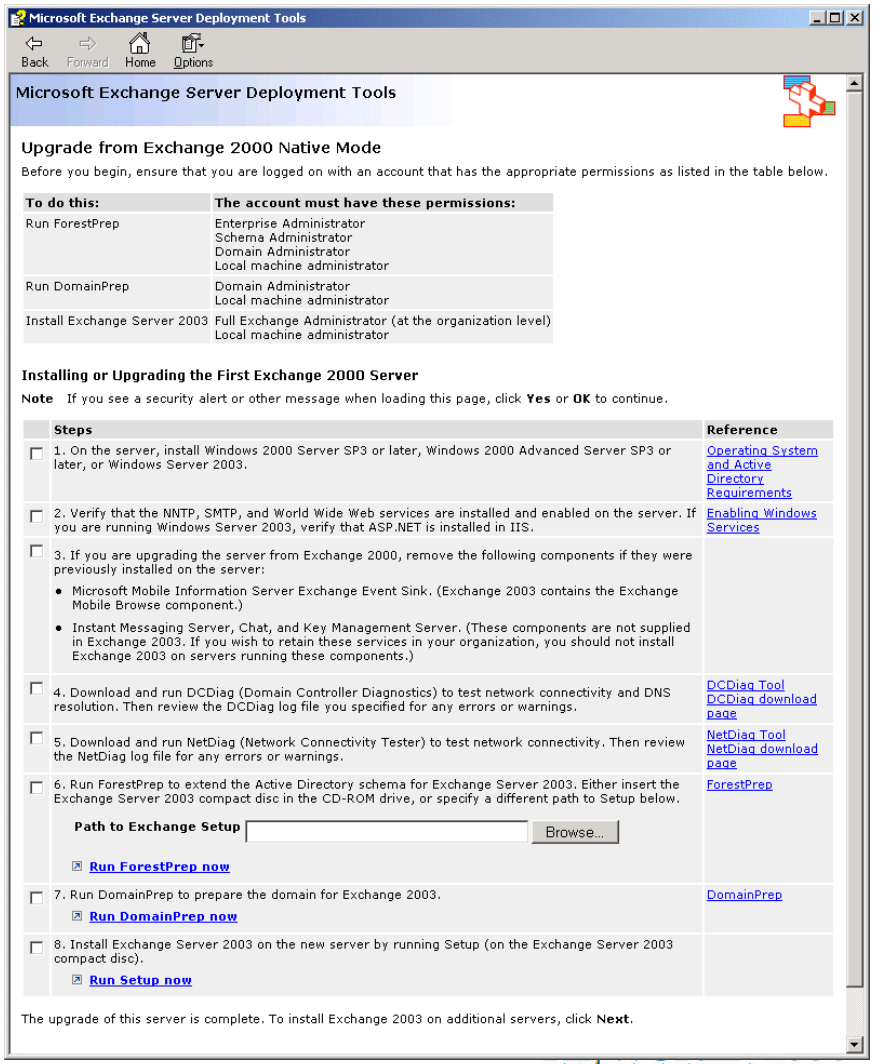
- Two approaches to migration
  - In-place upgrade
  - Move Mailbox
- Select Upgrade from Exchange 2000
  - Don't need to be in native mode
  - Choose this option on existing Exchange 2000 server



Migration from Exchange 2000

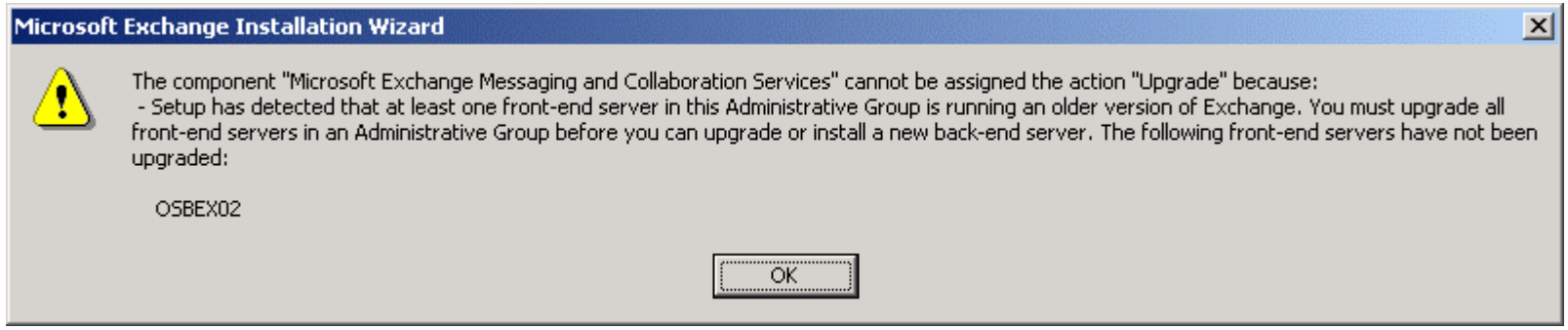
- ExDeploy approach to migration
  - Or just run SETUP!
  - Or just move mailboxes!
- You must rerun
  - Forestprep
  - Domainprep

  … even though you ran them when installing Exchange 2000



Exchange 2000 Migration Prerequisites

- Server minimum versions
  - Exchange 2000 SP3 and Windows 2000 SP3
- Must remove IM, Conferencing Service, MIS, Chat, and KMS servers before in-place upgrade
  - You can keep these legacy servers in place if you do not upgrade
- You must upgrade Exchange 2000 Front End servers before any Back End servers in an Administrative Group
  - Otherwise Back End server cannot be installed or upgraded



Front End Server/Back End Server Model

- Front End and Back End servers must be Exchange 2003 for the new OWA interface
- Interface matrix
  - Exchange 2000 FE + Exchange 2000 BE: Exchange 2000 OWA
  - Exchange 2003 FE + Exchange 2000 BE: Exchange 2000 OWA
  - Exchange 2000 FE + Exchange 2003 BE: Unsupported (AG protected)
  - Exchange 2003 FE + Exchange 2003 BE: Exchange 2003 OWA
- Forms-based authentication
  - Works where the Front End is Exchange 2003, but the mailbox is still on Exchange 2000
  - However, session timeouts are handled much better if the Back End is also Exchange 2003

Exchange 2003 Store Upgrades

- There is no format change to the Exchange 2003 Store
- However…
  - OLEDB Schema requires a post-upgrade change
  - STORE.EXE and EXSCHEMA.EXE execute update after upgrade
- Store rebuilds Full Text indexes after upgrade
  - Index rebuild is 'indefinitely paused' during upgrade
  - Administrator must 'unpause' Index rebuild
    - Possibly out-of-hours

Mixed Exchange migration

Mixed Exchange Migration

- No different from migration scenarios already described
  - Combination of Exchange 5.5 and Exchange 2000 migrations
- Must upgrade existing ADCs to ADC code supplied with Exchange 2003
- Install Exchange 2003 servers
  - Use in-place upgrades for Exchange 2000 servers, or
  - Use Move Mailbox Wizard (for both)
- Still restricted to intra-site moves
  - Unless you use Exchange 2003 SP1!

Move Mailbox Wizard Features (1 of 2)

- Now available from Exchange System Manager
  - As well as AD Users and Computers
- New Improved Mailbox Move Wizard
  - Multithreaded and therefore higher performing
    - 4 threads per move session
    - Multiple move sessions possible
    - About 500MB/hour plus
- Users cannot be logged on during mailbox moves
  - 9660 event logged if users tries to log on
  - Cached mode is helpful here!

Move Mailbox Wizard Features (2 of 2)

- Move Mailbox can now be scheduled
  - Schedule the Start Time of Moves
    - The system will start the move at the time specified
    - Allows for administrators to schedule nightly moves without writing scripts
  - Schedule the latest end time of the move
    - The system will cancel pending and processing moves at the time specified
    - Allows the server to free up its processing power at a specified time (9:00am logons of employees)
    - Behavior of mailbox moves currently 'in flight'

Move Mailbox Wizard Operation

- Mailbox move continues when there are corrupted messages in users' mailbox
- Exchange System Manager allows you to select the maximum number of corrupted items that you want to skip during the move
- Improved error handling
  - Process
    - Connect to source and destination
    - Create folder hierarchy
    - Fast MAPI transfer: if a read fails, try again, then fail
    - You can control whether the complete move is failed or the error logged
- Creates a detailed report of the messages that were skipped during the move

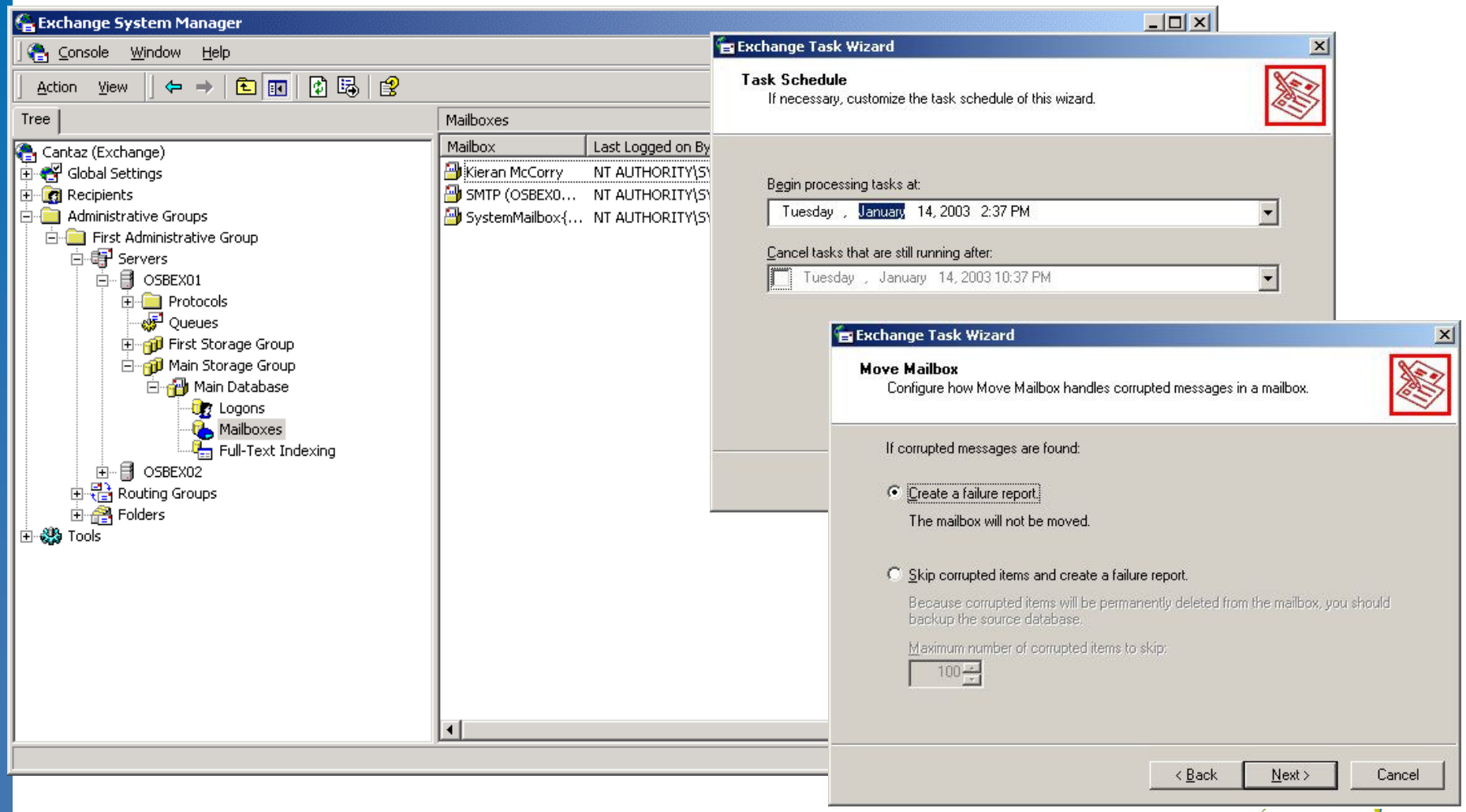
Move Mailbox Wizard Reporting (1 of 2)

- Exchange System Manager provides status of
  - Pending moves
  - Completed moves
  - In-process moves
  - Failed moves
  - Completed moves
- Shows scheduled time of moves

Move Mailbox Wizard Reporting (2 of 2)

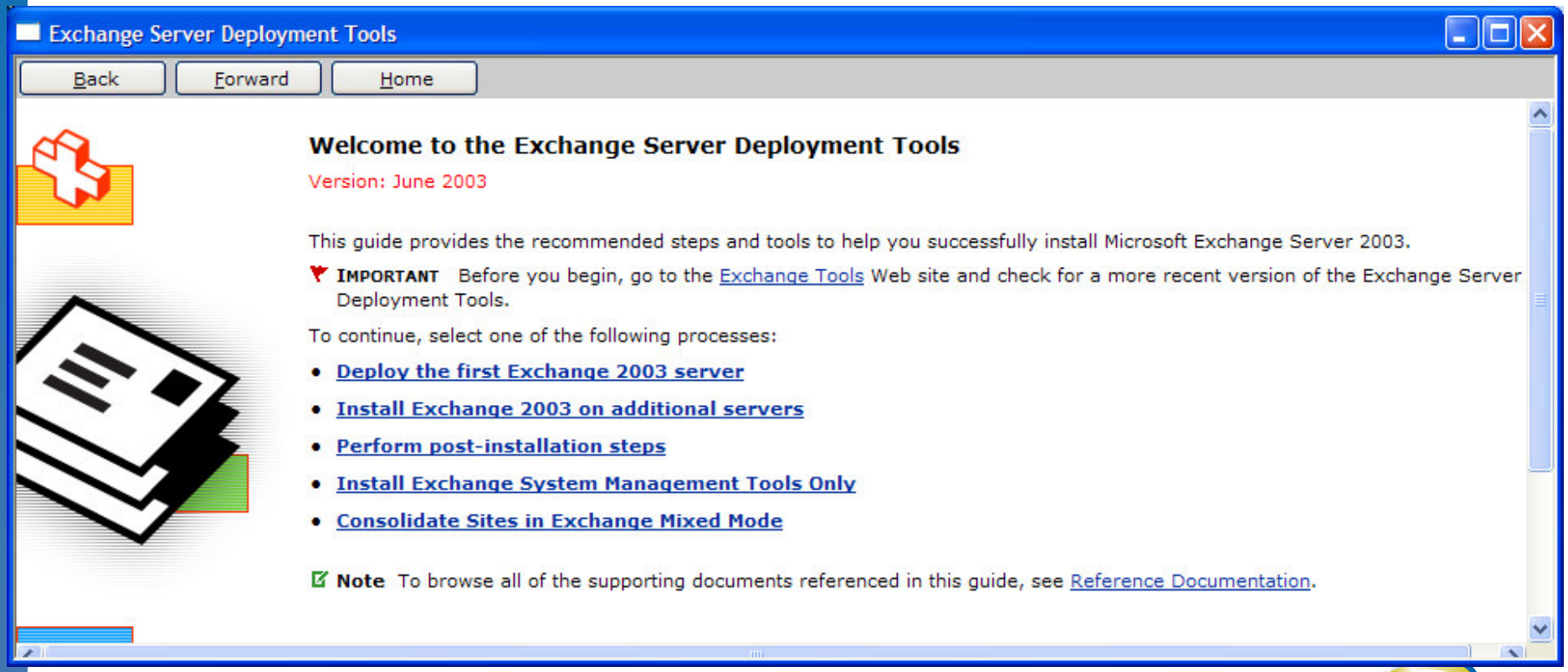
- Gives time duration of the move
- Creates detailed reports on the server from which Exchange System Manager initiated the move
- Reports are in XML format, so you can apply your own XML style sheet to display the data
- Reports saved to disk for administrative review

Move Mailbox Wizard in Action



Inter Site
Mixed Mode Mailbox Moves

- Exchange 2003 Service Pack 1 Now supports inter-site mailbox moves



Site Consolidation Tools

- Exchange Profile Update Tool (EXPROFRE)
  - Updates Outlook profiles after cross-site mailbox move
- Public Folder Migration Tool (pfMigrate)
  - Updated (/SC option) to move Public Folders across sites
- Object Rehome Tool
  - Moves contacts and Distribution Lists across sites (updates Legacy DN of objects)
- Exchange 5.5 DS/IS Consistency Adjuster Patch
  - Ensures Public Folder ACLs are updated after a cross-site move so that users and groups have continued access to public folders

Site Consolidation Process I

- Upgrade all ADCs to Exchange 2003 SP1 build
- Apply DS/IS Consistency Adjuster Patch to all Exchange 5.5 servers in all sites
- Move connectors from remote Exchange 5.5 server to central server
- Run pfMigrate to create PF replicas in central site for remote PFs
- Ensure SP1 installed on all central Exchange 2003 servers

Site Consolidation Process II

- Move Mailboxes
  - Logged on account needs Exchange Admin perms in source and target site
  - Member of Account Operators or Domain Admins group
- Run Object Rehome Tool to update Legacy DN for Custom Recipients and DLs
- Run Exchange Profile Update Tool on clients
  - Exprofre.exe /targetgc=<*target global catalog server*> /v /f /a /logfile=<*share\path*>
- Run DS/IS Consistency Checker on Exchange 5.5 server in source site
- Run pfMigrate to remove PF replicas on Exchange 5.5 servers

Site Consolidation Misc

- Expect to see Exchange 5.5 Directory Service and Active Directory replication traffic activity
- Move mailboxes and delegates together
- Expect glitches with Free/Busy information

Public Folder Migration Tool

- Public Folder Migration Tool (pfMigrate)
- Windows script file
- Creates public folder replicas on new servers
- Removes folders from source server after they are replicated
- Report-only mode
  - Determines how many public folders need to be replicated
- Report can be run after the tool is run
  - Determines whether the public folders replicated successfully
- pfMigrate tool located in
  - /support/ExDeploy folder on the Exchange 2003 CD-ROM

Interorganizational migration

Interorganizational Migration

- Directory Synch
  - Consider Exchange 5.5 and Exchange 2000
  - Use either interorg CAs or GAL Synch (MMS) or LDSU
- Messaging transport
  - Almost certainly SMTP
  - Consider shared SMTP namespace issues
- Mailbox migration
  - Consider Exchange Migration Wizard
  - Or ExMerge
- Public Folder synchronization
  - Especially important for interorganization Free/Busy
  - Consider the IOPF tool and ExMerge

Third-party tools

Third-Party Tools (1 of 2)

- Inter-organizational moves
  - NetIQ: Exchange Migrator
    - Moves mailboxes, DLs, custom recipients, PFs
    - Supports incremental moves and rollback
    - Intersite, intraorganizational migrations
    - Scriptable enhancements
  - Bindview: bv-Admin for Microsoft Exchange Migration
    - Moves mailboxes, DLs, PFs
    - Intersite and interorganizational migrations
    - Rollback support
    - MAPI Profile Management

Third-Party Tools (2 of 2)

- Quest Software: Fastlane Migrator Tools
  - Features
    - Inter-organization/intra-org migrations
      - including inter-site and intra-site
    - Migrate to/from Exchange 5.5 and Exchange 2000/Exchange 2003, or like-to-like
    - Supports migrations with (or without) the Active Directory Connector
  - Aelita Tools (primarily inter-organizational)
    - Exchange Migration Wizard
    - Agents for mailbox synch, Public Folder synch, Free/Busy synch
    - Scheduling and switching features

Summary

Summary

- Understand the pre-requisites for Exchange 2003
- Migration from Exchange 5.5 is complex
- Migration from Exchange 2003 is straightforward
- Understand the tools available to make life easy

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