Domino Administration: Things Lurking You May Not Be Aware of and How to Fix Them

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Kim Greene - Introduction

- Owner of an IT consulting company

  - Kim Greene Consulting, Inc.

  - www.kimgreene.com

- Started my career at IBM, left and launched my own business in 2000

- Focus areas:

  - HCL collaboration software portfolio

- Customers are worldwide and in multiple industries

- Blog: www.dominodiva.com

- Twitter: iSeriesDomino

Michelle Smith - Introduction

- Owner of an IT consulting company

  - M.E.Smith Consulting

- Started fixing IT issues during University work terms and learned I loved solving the 'puzzles'

- First exposure to Lotus Notes and Domino was migrating a non-Y2K compliant email environment to Domino… wow that was a while ago!

- Focus areas:

  - HCL collaboration software portfolio

- Work with Kim to support a group of amazing clients!

Agenda

- Security
- Performance
- FTI Health
- Traveler Health
- Database Health
- Schedules
- Crashes

- Notes.ini
- Clusters and Failover
- Replication
- Unread Marks
- Often Overlooked 'Necessities'
- Q&A

Agenda

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ACLs

- Are they really controlling access properly?
- When was the last time you checked??

- Ensure Domino databases are locked down appropriately
  - Which databases have:
    - Default = Manager
    - OtherDomainServers = Manager
   - Anonymous = Manager
    - Anonymous missing

Manager Access

- Anonymous, Default and OtherDomainServers as Manager
  - Not a good idea
- Check, you'll be surprised at how many databases this applies to!
  - Check HCL supplied templates too
- Customer example:
  - *(Data compliments of Ytria aclEZ)*

	Apps1	Dev2	Mail1	Mail2	Sametime	Traveler
Anonymous Missing	855	202	346	44	58	18
Anonymous Manager	3	4	2	1	3	1
Default Manager	27	27	54	10	14	9
OtherDomainServers Manager	141	107	31	19	6	5

Anonymous Access

- Should web users be able to view the database??

- Set "Anonymous" to "No Access" for all databases except public databases
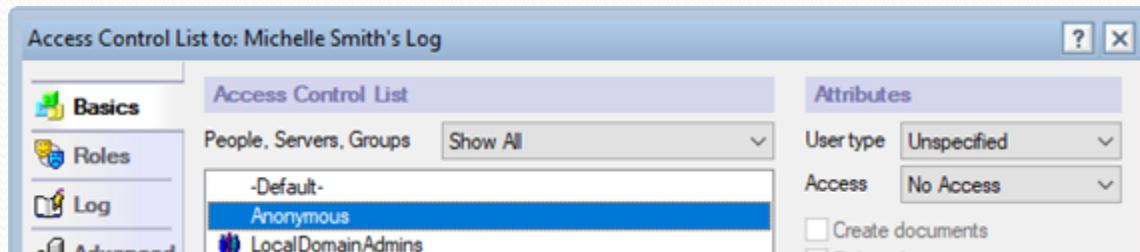
- Without this anyone can see public calendar entries within your mail files!!

Anonymous Missing

- If not present, same level of access as '-Default-'

- Customer example:
  - *(Data compliments of Ytria aclEZ)*

	Apps1	Dev2	Mail1	Mail2	Sametime	Traveler
Anonymous Missing	855	202	346	44	58	18
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Enforce Consistent ACL is Key

- Ensures ACL stays consistent across all replicas
  - Protects DBs if pulled at file system level!
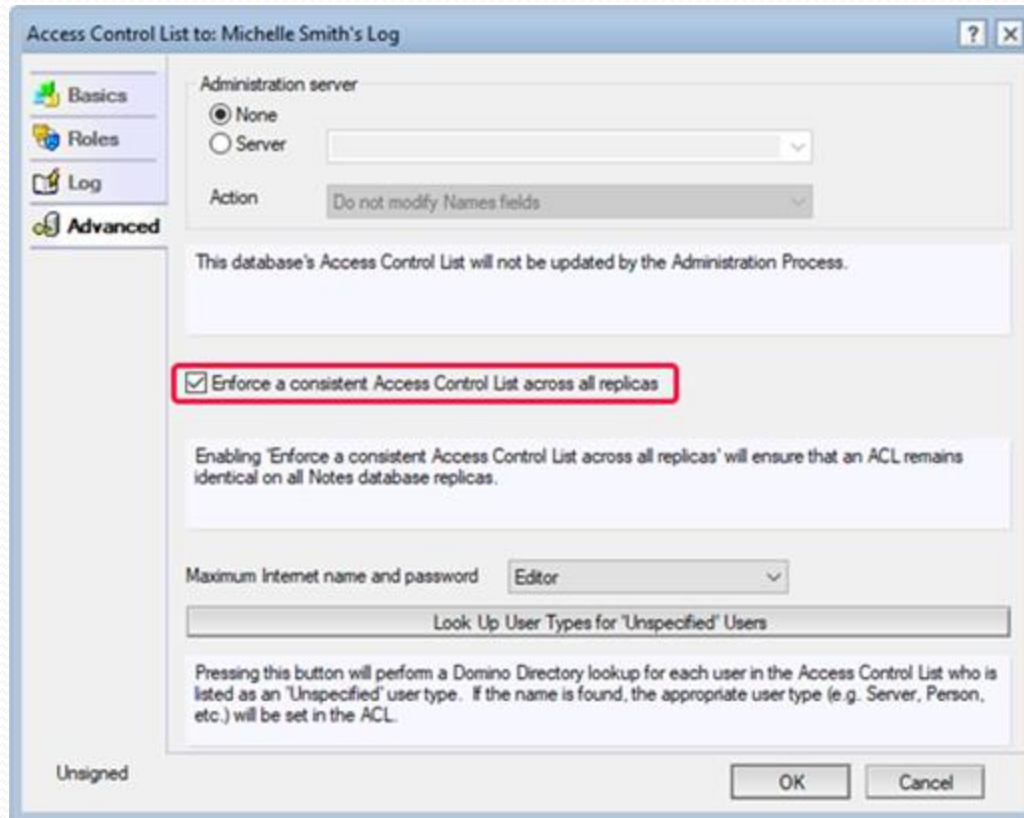
Access to Mail Files

- Who has Manager or Designer access?
  - Common carry-over from OOO agent days

  - Manager access, users can delete their mail file

  - Change to Editor access

Review ACLs Regularly

- Domain Catalog – **Access Control Lists -> by Name**

- Ytria aclEZ

Examine Agents

- Analyze agent signers
  - You'll be surprised by what you find, guaranteed!!

- Cross-analyze with Domino server security settings
  - Is the signer in the NAB?

- Which servers are agents set to run on?

Agent Signers

- Over time it's easy to lose track of the quantity of agent signers

- OpenNTF example before cleanup was done

  - *(Data compliments of Ytria agentEZ)*

Anil Vartak/NotesOSS (2)
Bruce Elgort/Sharepoint (5)
Christian Guedemann/WGC/CH (5)
Domino Template Development/Domino (9)
Enterprise Agentmgr/Atlanta/IBM (1)
Lotus Notes Template Development/Lotus Notes (4)
Martin Rolph/Oval (1)
Niklas Heidloff/Germany/IBM (12)
NotesOSS1/NotesOSS (4)
NotesOSS2/NotesOSS (5)
Oliver Busse/DEV-We4IT (1)
Per Henrik Lausten/PHL Consult (2)
Reading Error: The Address Book does not contain a cross certificate capable of validating the public key. (5975) (2)
Roberto Boccadoro/ELDENG/IT (1)
Serdar Basegmez/developi (2)
Steve Castledine/UK/IBM (3)
Vince Schuurman/NDT (16)

Agents – Server Set to Run On

- As servers are spun up, replaced, consolidated – it creates an interesting mix

- Another OpenNTF example

  - *(Data compliments of Ytria agentEZ)*

```
* (10)
Andre Guirard/USA/PNPHCL (9)
Atlas/Redshift (1)
D02DBS79/02/A/IBM (1)
Dev1/OvalDevAF (1)
George Demetriou/Westford/IBM (1)
HERMES/Intec (1)
hobbes/qtzar.com (1)
Masterlock/Server/Templates (1)
MLWNSS03/footlocker (4)
NotesOSS1/NotesOSS (9)
NotesOSS2/NotesOSS (32)
PDX1/Sharepoint (1)
Pretorian/INET (1)
Server1/XPageDeveloper.com (1)
Storm/IBM/US (1)
Ulrich Krause/midpoints/de (1)
```
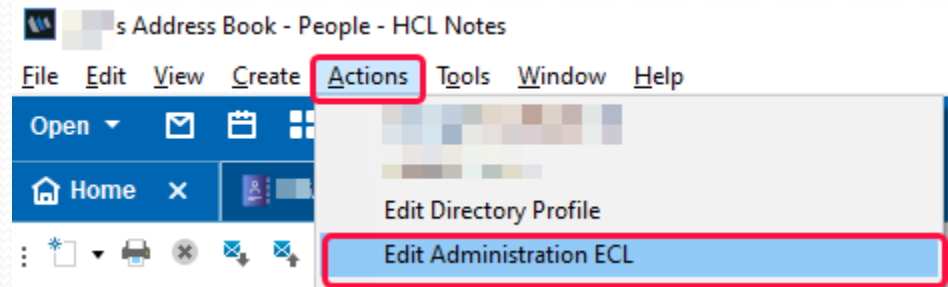
Administration ECL

- Functions as template for workstation ECLs
- Always check **-Default-** and **-No Signature-** settings
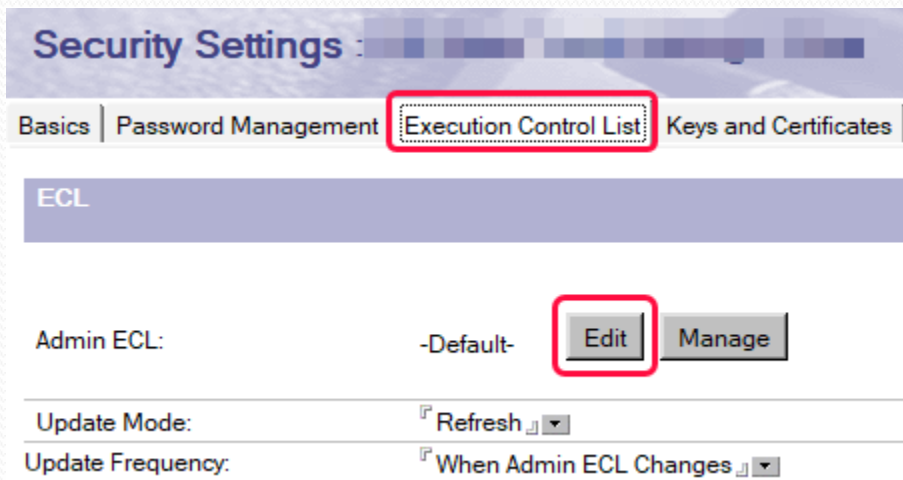- Often many outdated entries exist
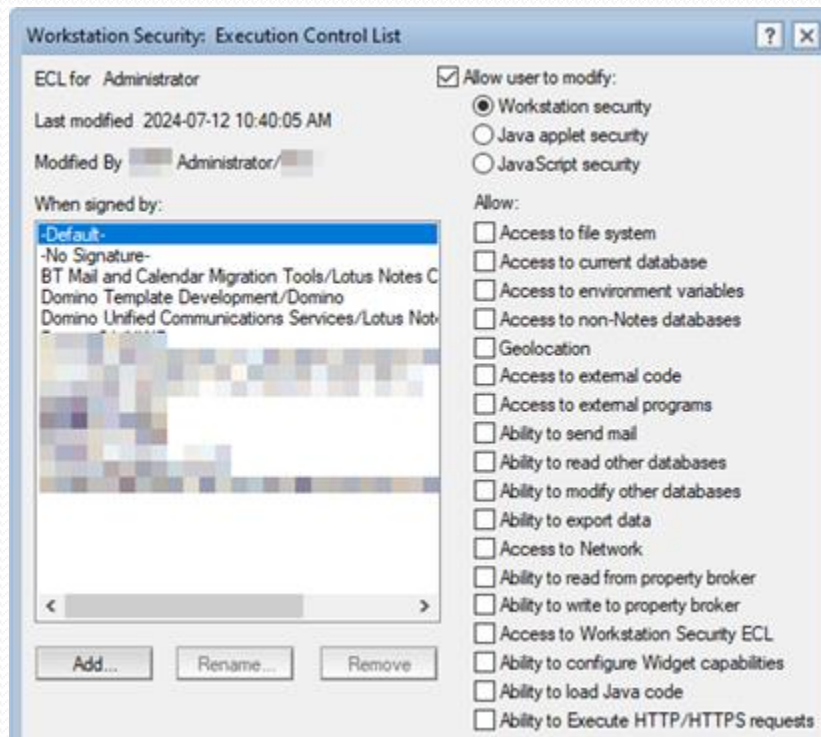
Administration ECL

- Actions -> Edit Administration ECL

-OR-

- Edit through security settings document

Administration ECL

- Warning, be careful when working with the Admin ECL

- ALWAYS use an ID that is already in the ECL!!
  - Even just **viewing** the Admin ECL can cause your ID to be put in the ECL

Protected Groups

- Prevents accidental deletion of designated "critical" groups

- Configured in Directory Profile of the Domino Directory
  - **Tip: You must edit and save once to become operational**
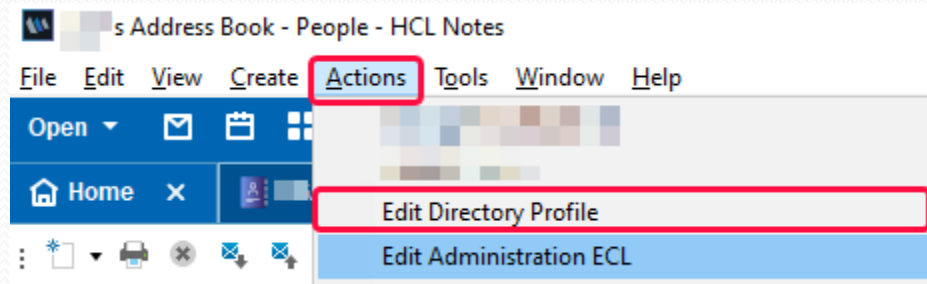
Protected Groups

- Prevent deletion of these groups
  - Defaults to LocalDomainAdmins, LocalDomainServers, and OtherDomainServers
  - Add others critical to your environment

Domino Directory Profile

Basics

| **Domino Directory Configuration Profile**	
Domain defined by this Domino Directory:	
Note: This setting is obsolete as of Domino 8.5.1. It is used for compatibility with prior versions only: Condensed server directory catalog for domain:	
Sort all new groups by default:	Yes
Auto-populated group Members update interval:	30 minutes
Use more secure Internet Passwords:	Yes - Password verification compatible with Notes/Domino release 8.01 or greater
Allow the creation of Alternate Language Information documents:	Yes
List of administrators who are allowed to create Cross Domain Configuration documents in the Administration Process Requests database:	
Prevent deletion of these groups:	LocalDomainAdmins, LocalDomainServers, OtherDomainServers
Comments:	

Examine/Update HTTP Password Hash

- Common to have non-secure HTTP password hashes in use
- Upgrade HTTP password hash to more secure option
- Step 1: Edit Directory Profile
  - **Actions -> Edit Directory Profile**

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Auto-populated group Members update interval:	30 minutes
Use more secure Internet Passwords:	Yes - Password verification compatible with Notes/Domino release 8.01 or greater

Examine/Update HTTP Password Hash

- Step 2: Upgrade person documents to use 'more secure internet password'
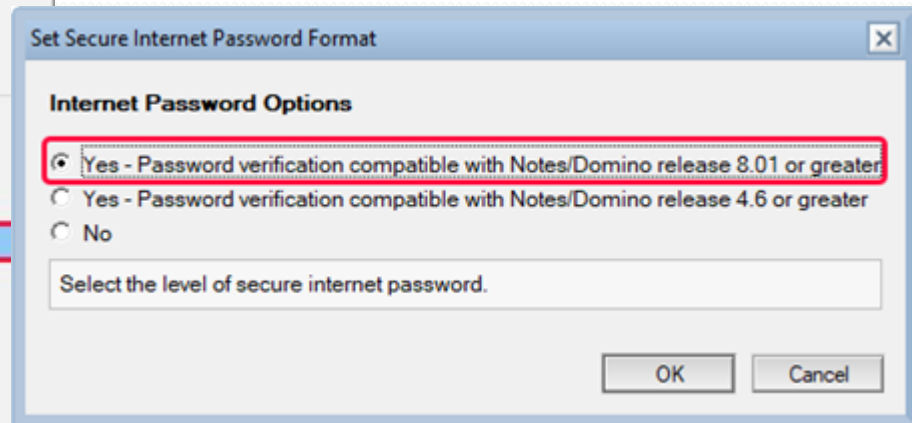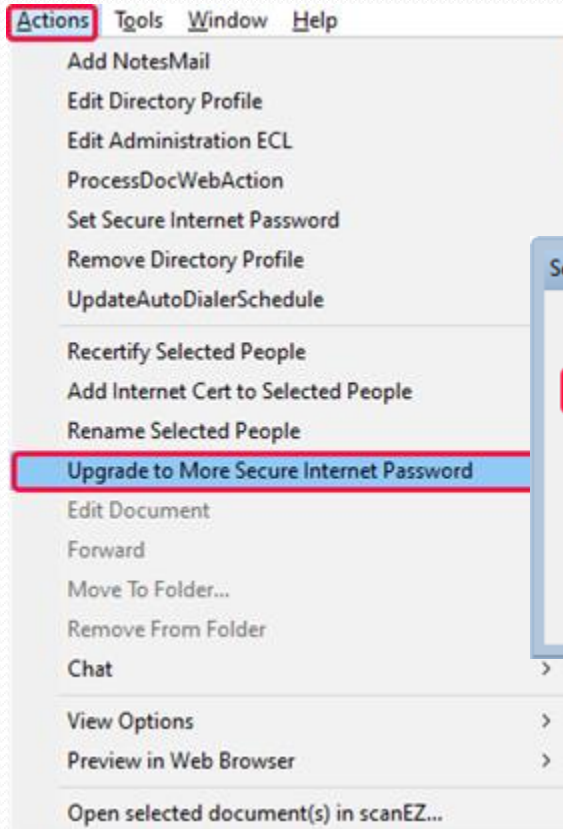
# Web Administration Database

- Has been deprecated, but may still be "lurking"
  - Support withdrawn due to cross-site request forgery attack vulnerability
  - Webadmin.nsf allows administrators to administer Domino via a browser

- Recommendations:
  - Remove both webadmin.nsf and webadmin.ntf
    - Tip: Set DominoNoWebAdmin=1 in the notes.ini to ensure the DB cannot be recreated if the template still exists on a server
  - IF still using webadmin.nsf, ensure **Anonymous = No Access**

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Memory – Critical for Optimal Performance

- Examine the hosting server/VM
  - High paging and faulting can dramatically impact performance of Domino
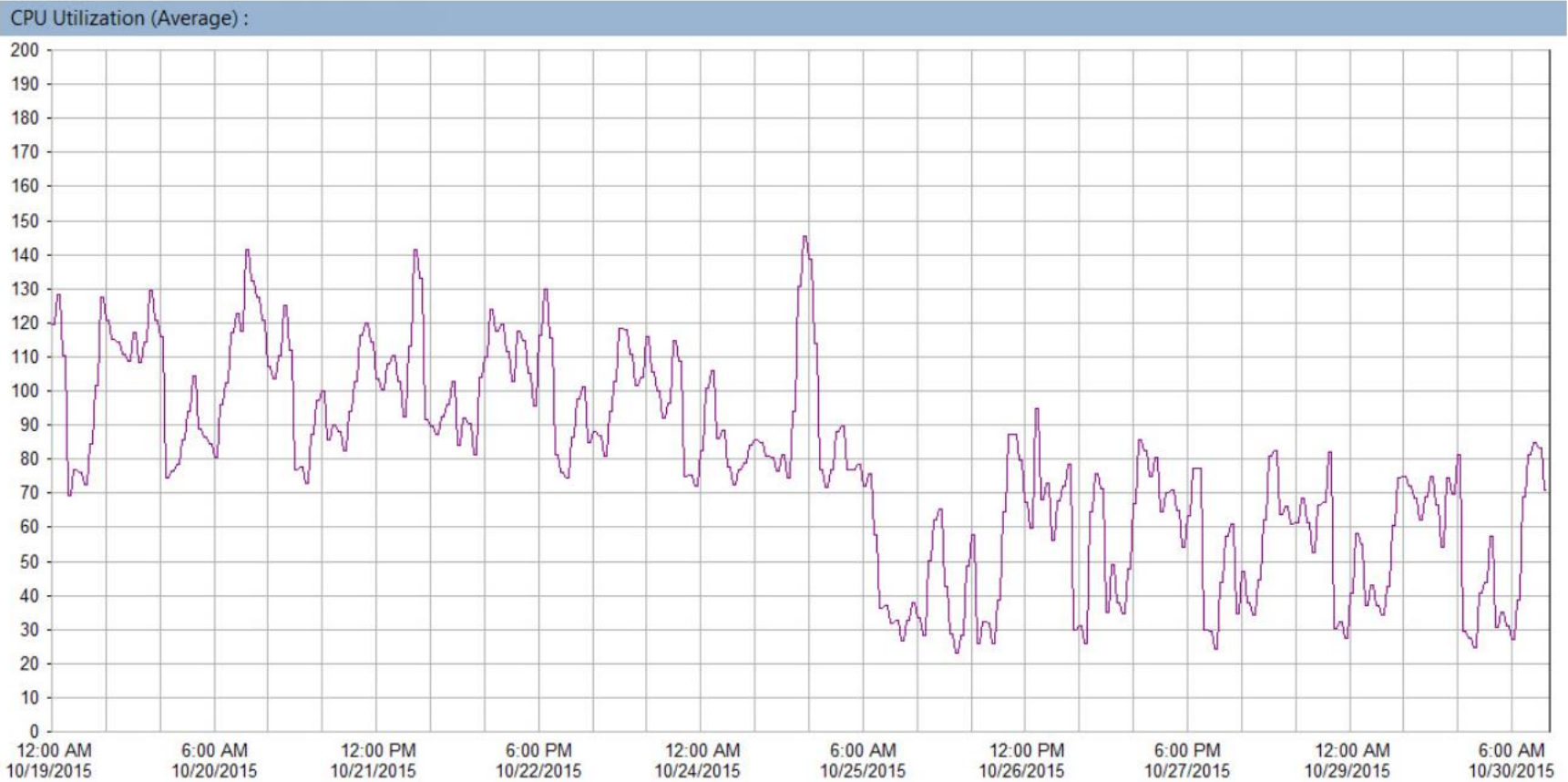   - IBM i example
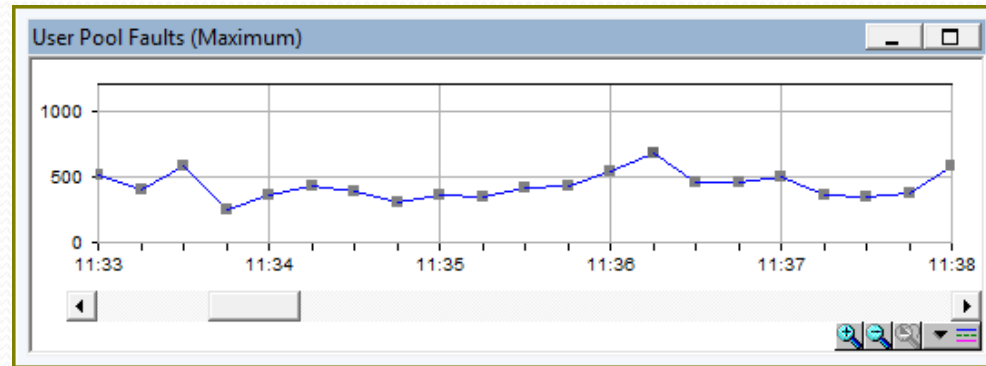
  - Drilling down further we see memory pool involved is where all of Domino servers are running
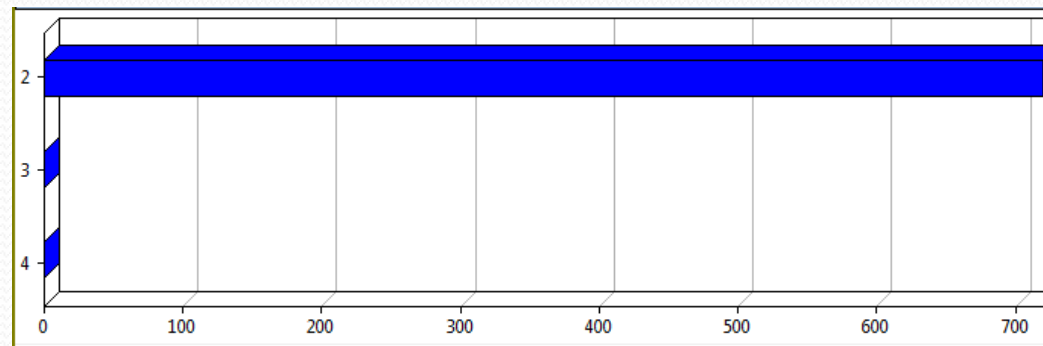
Memory

- Impact on CPU with optimal memory allocation

Network Impact on Notes Clients

- Notes client performance can be heavily impacted by network issues

  - Packet loss is of significant importance

    - Packet loss over 4% will have noticeable impact

  - Ping with large packet size is your friend ☺

    - Ex: ping -n 100 -l 8192 <servername or FQIHN>

  - Customer example:
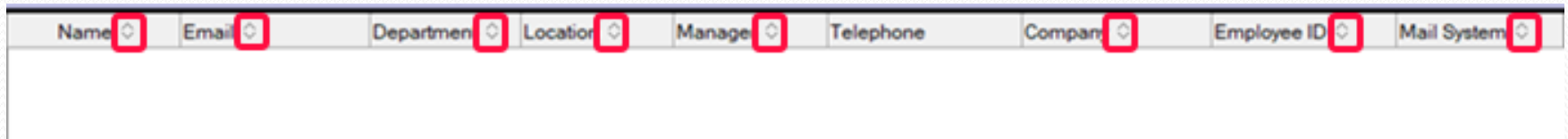
    Ping statistics for xxx.xxx.xxx.xx:
        Packets: Sent = 100, Received = 79, Lost = 21 (21% loss),
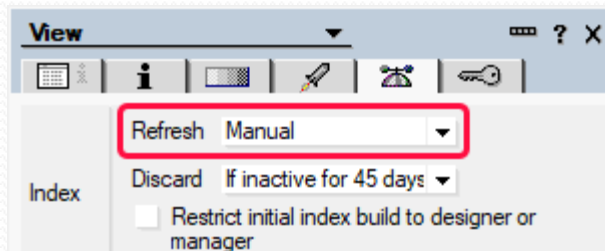   Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 7ms, Average = 6ms

Examine Views

- Views
  - Limit the number of sortable columns
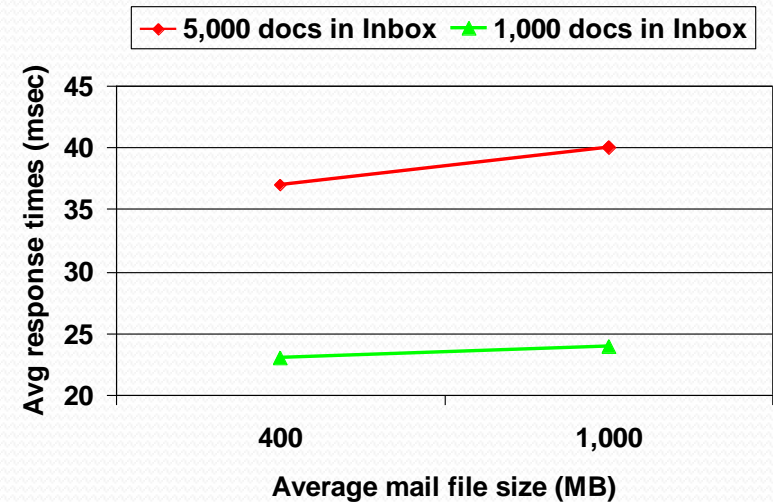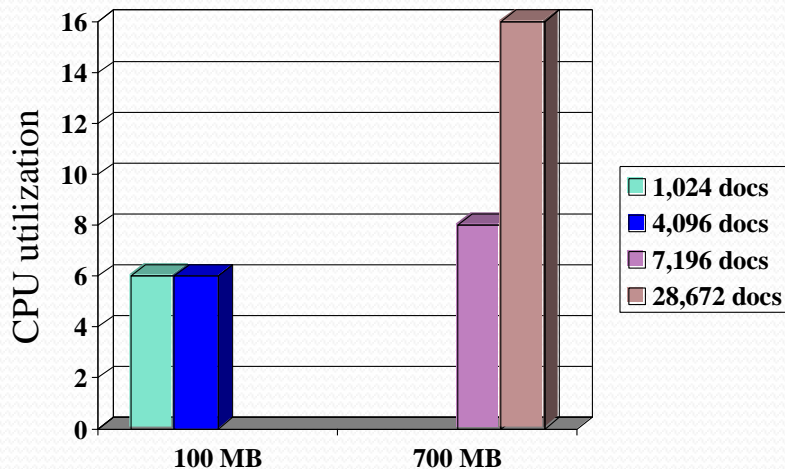   - Are ALL of the sort options are needed ??

  - Use hidden views sorted by a single column for look ups

  - Use Manual refresh setting in view where feasible

Check Inbox Size

- Size of inbox impacts both CPU and end user response time

- Tip: Check the Inbox size in the Log.nsf under **Usage -> by Size** and open the document to see details

Control Inbox Size

- Configure in server document
    - **Server Tasks -> Administration Process** tab

Mail Inbox Maintenance	
Start executing Inbox Maintenance agent on:	⌈ Sat ⌋ ▼ day(s)
Start executing Inbox Maintenance agent at:	⌈ 03:30 AM ⌋
⦿ Maintain inboxes for only these selected users on this home server	
○ Maintain inboxes based on policies	
Selected users:	⌈ ⌋ ▼
Remove documents older than [X] days from Inbox:	⌈ 90 ⌋
Maximum number of documents to remove per cleanup:	⌈ 500 ⌋
Do not remove unread documents from Inbox:	☐ Yes

- Or via Policy using Mail Settings Document
    - **Mail -> Basics tab**

Mail Inbox Maintenance	
Enable mail Inbox maintenance:	☑ Yes
Remove documents older than [X] days from Inbox:	⌈ 90 ⌋
Maximum number of documents to remove per cleanup:	⌈ 500 ⌋
Do not remove unread documents from Inbox:	☐ Yes

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Have You Tuned Full Text Indexes?

- By default, view updates and full text indexing are driven by the same thread

- Prevent long full text indexing operations from delaying view updates
  - Spawn full-text indexing off to own thread
    - Update_Fulltext_Thread=1

- Review key FTI statistics:

FT.Index.Count	FT.Index.Search	FT.Search.Total.Results
56,150	27,652	1,002,317

Customer FTI Example

- Semaphore timeouts happening

Semaphore Timeout	# of times occurring	Description
3A05	793	SEM_HTTP_AGENT
0266	20	NSF per-database full-text semaphore
0244	15	NSF per-database semaphore
0931	8	Task sync semaphore
03A8	2	DBCONT page zero semaphore

- Enabling Update_Fulltext_Thread=1 eliminated semaphore timeouts

Are You Preventing FTI Issues?

- Rebuild FTIs periodically with **Updall –x** option
  - Run regularly, can prevent FTI issues
    - Remedies corruption
    - Reduces the size of the FTI
  - Example: On a DB with 77k documents and 1.5 GB, here is the before and after of the Updall –x:
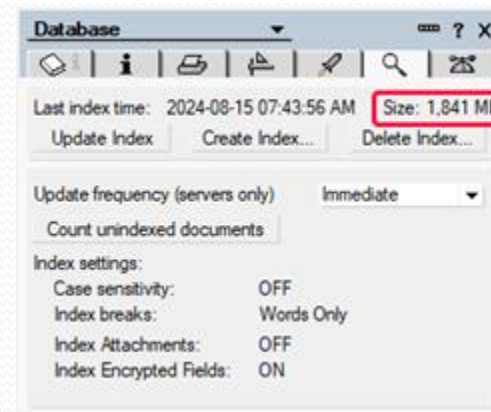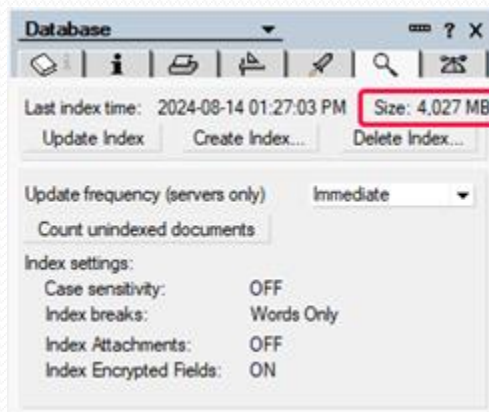
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Checking Traveler Health

- How often do you check the health of your Traveler servers?
  - Let's be honest ☺

- *tell traveler status* is your friend
  - Green : No issues
  - Yellow : Possible issue that should be investigated
  - Red   : Critical issues that should be addressed

  - The problem information for Yellow and Red status is incorporated in the command output

Traveler Tips

- *tell traveler status*

  - Example Yellow status

    Traveler: The Traveler task has been running since Thu May 02 16:13:19 CDT 2024.

    Traveler: The Traveler availability index is currently 98 while servicing 331 users.

    Traveler: Database Connection URL: jdbc:as400://10.1.1.1/LNT.

    Traveler: Database Connection Properties: user=TRAVELER, clientUser=TRAVELER, currentLockTimeout=60, loginTimeout=null.

    Traveler: The last successful device sync was on Tue Aug 13 13:24:19 CDT 2024.

    Traveler: Yellow Status Messages

    Traveler: The peak number of HTTP connections is 515 percent of the 437 available HTTP threads.

    Traveler: The overall status of Traveler is Yellow.

Does Traveler Have Enough Memory?

- *tell traveler mem*

  Traveler: CPU and Memory (MB) Usage History

Traveler: Date	CPU Pct	Java Mem	C Mem	Avl Indx	# Users	# Errors	# DB Conn
Traveler: 2024-08-12 13:02:48 CDT	1.60	917	3139	99	330	30326	1
Traveler: 2024-08-12 13:17:48 CDT	2.17	967	3134	98	330	30326	1

  …

  Traveler: Current Memory Usage

  Traveler: Java Memory Usage

  Traveler: Max Total 2048 MB

  Traveler: Current Total Allocated 1912 MB

  Traveler: Available   812 MB (40 percent of Max Total)

  Traveler: Used 1236 MB (60 percent of Max Total)

  Traveler: C Memory Usage

  Traveler: Allocated 3253 MB (20 percent of Total Physical)

  Traveler: Current Usage

  Traveler: Java   1236 MB

  Traveler: C   3253 MB

Monitoring Traveler Performance

- **Easy to check once and forget**

- Threads
  - HTTP threads = # of devices X 1.2
    - True for Derby and HA implementations

- Traveler thread pools
  - Check GetThreadDelayTime
    - Want majority in 0-2 second range
  - Monitor device synchronization return codes
    - 503 – Server busy, indicates insufficient synchronization threads

Monitor Traveler Performance

- HTTP threads
  - CAREFUL
    - Allocating too many active HTTP threads will result in unnecessary server memory consumption
    - Ensure system has sufficient resources to handle increased threads
      - HTTP thread consumes
        - ~ 1 MB of memory on 32-bit system
        - ~4 MB of memory on 64-bit system

Defrag Traveler Database

- Over time Traveler performance can deteriorate
  - Defrag the database to restore performance
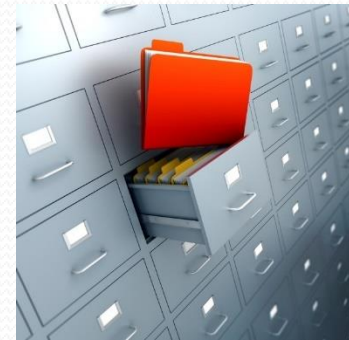
- Use DBMAINT to defrag traveler database
  - Tell traveler dbmaint set interval 7 **
    - 11/19/2017 09:37:02   Traveler: DB maintenance will be performed every 7 days.
  - Tell traveler dbmaint set time 23:00
    - 11/19/2017 09:39:58 Traveler: Time of day for DB maintenance has been set to 23:00
  - Tell traveler dbmaint set day Sunday
    - 11/19/2017 09:51:40   Traveler: Day is now configured to Sunday.
  - Tell traveler dbmaint set auto on **
    - 11/19/2017 10:12:27   Traveler: Automatic maintenance of your database has been set.
    - 11/19/2017 10:12:27   Traveler: The next maintenance is scheduled for 2017-11-22 23:00.
    - 11/19/2017 10:12:27   Traveler: Maintenance will be performed every 7 days at 23:00.
  - *** Only options available for Derby database*

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Can You Wipe the Device?

- Being able to remove data or "wipe" a device is critical
  - Lost or stolen device
  - Employee resignation or termination
- Wipe options
  - Full or Traveler only
  - User or server initiated

HCL Notes Traveler Access	
Access server:	☐ users listed in all trusted directories
	and
	『Mobile Directory Users』 ▼
Not access server:	『Terminations
	ACCESS DENIED』 ▼
Remote user commands:	『Disabled』 ▼
User managed security:	『Enabled』 ▼

User can only initiate a wipe if enabled in the server document, **Notes Traveler** tab

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Deletion Stubs

- Domino's way of tracking the life cycle of a document
- Eventually deleted when "purge interval" is reached
- Many deletion stubs can impact performance to end user
  - Searches read deletion stubs and include them in response returned
    - Search count only shows count of full documents, which is what user sees
- Use 'show database dbname.nsf' to get live and deleted document count

Document Type	Live	Deleted
Documents	21,292	1,174

- Important to purge deletion stubs on regular basis
  - Purge happens upon DB open in Notes client or DBMT runs

Monitor Size of Logging Databases

- Common for agents to write to logging databases as they process data

- Keep logging databases small
  - Semaphore timeout issues and HTTP thread locking issues with large logging databases

- Recommend archiving / purging documents out of logging databases on regular basis

Control Log File Sizes

- How large are log.nsf, domlog.nsf and custom log DBs?
  - Select to replicate out documents over X days old
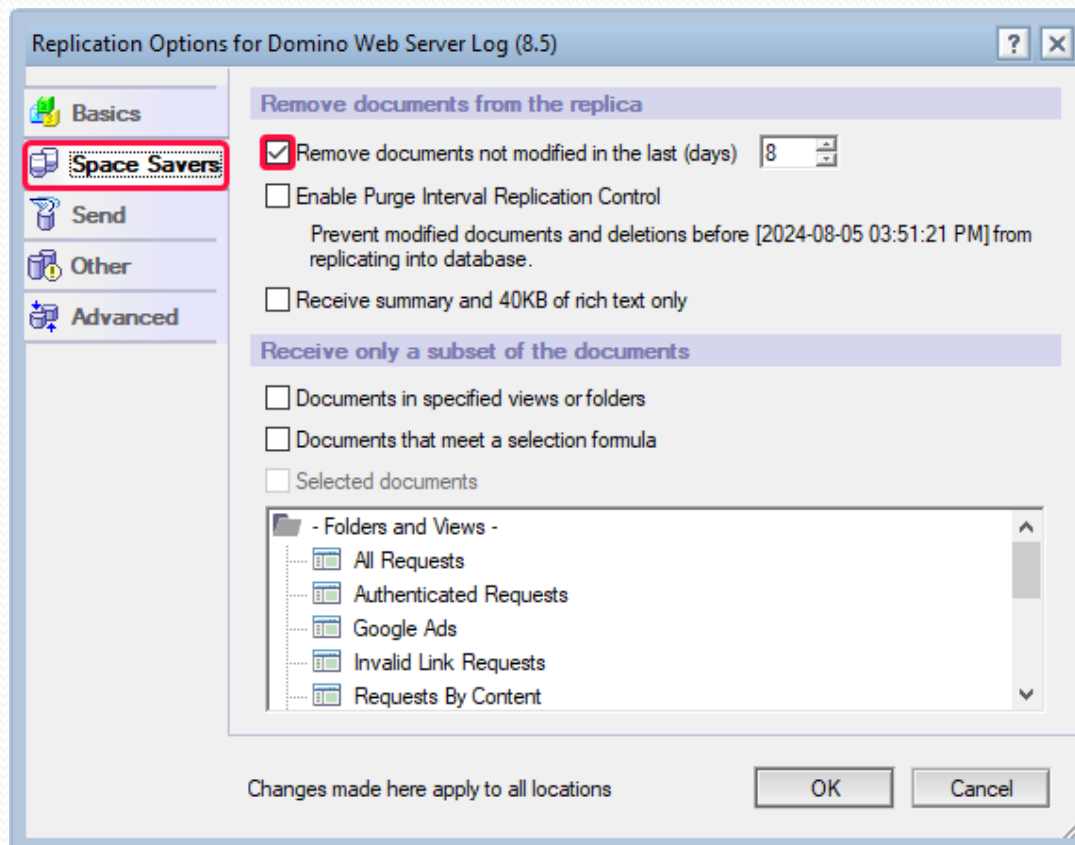
Corrupt NSFs and NLOs

- Server crashes and other events can cause corruption of NSFs and NLOs

- Are you proactively managing these?
  - **DBCapture Tool** for non-clustered environments
    - File named to .cor and moved to IBM_TECHNICAL_SUPPORT folder
    - Enable via notes.ini **DATABASE_CAPTURE_ENABLED=1**
  - **Repair** utility if using cluster symmetry
    - Upon database open event, if corruption is detected runs fixup
    - IF fixup is unsuccessful:
      - Replace with "good" replica
        - Rename to dbfilename.pd_bad_YYYYMMDDHHMMSSSS
    - Tip 1: Ensure **AutoRepair** and **RprCleanup** (or RepairCleanup depending on Domino release) are added to SERVERTASKS=
    - Tip 2: Schedule database cleanup and repair in Program documents

Still Using Old Compact Switches?

- Important to check
  - -b and -B were recommended for years
    - -b (*recover unused space*)
    - -B (*recover unused space & reduce file size*)
  - Most recent recommend is to use DBMT or compact with option -C
  - Compact -C
    - Equivalent to a Windows or relational DB "Defragment"
    - Rearrange database or reduce file size
    - Tip: No longer need debug_enable_compact_8_5=1 to run with multiple threads

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Know Your Schedules

- Have you examined Program document schedules in relation to backups and other work running on the server?
  - i.e. agents, compacts, …

- What is scheduled in Program Documents?
  - Are scheduled tasks ending before others kick off?
  - Should schedules be adjusted to accommodate backup and agent schedules?
  - Do scheduled tasks conflict with each other?

- What are ServerTasksxx= set to?

Know Your Schedules

- '*show sched*' lists all scheduled tasks

Scheduled	Type		Next schedule
DomAp		Replication	08/13/2024 14:16:27
DomAp		Mail Routing	08/13/2024 14:15:00
Domino		Replication	08/13/2024 14:09:54
Domino		Mail Routing	08/13/2024 14:10:00
Domino		Replication	08/13/2024 14:10:04
Domino		Mail Routing	08/13/2024 14:15:00
Domino.		Replication	08/13/2024 14:10:15
Domino.		Mail Routing	08/13/2024 14:15:00
STComr		Replication	08/13/2024 14:10:22
COMPACT		Run Program	08/14/2024 09:30:00
Event Monitor		Event Monitor	08/13/2024 14:14:36

Know Your Schedules

- '**tell amgr sched**' lists agent schedules, with limited granularity

- Ytria agentEZ

```
> tell amgr sched
S S 09:52 AM Today    Account Update           .nsf
S S 09:52 AM Today    Forgot Password          .nsf
S S 09:57 AM Today    updateViewIndex          /     .nsf
S S 10:16 AM Today    NewDocNotification       /   .nsf
S S 12:28 PM Today    Conflict Killer          /   .nsf
S S 12:50 PM Today    _schUpdate               /   .nsf
S S 10:00 PM Today    Checker                  .nsf
S S 10:00 PM Today                             /   .nsf
S S 11:00 PM Today                             /        .nsf
```

Enable	Schedule Type	Agent Schedule			

🔒 Status	Is Agent ...	Database Title	Database Path	Database Fil...	D..	Name
⊞ **False (37)**						
⊟ **True (21)**						
⊟ **Daily (10)**						
⊞ At 10:00:00 PM (2)						
⊞ At 11:00:00 PM (1)						
⊞ At 12:15:00 AM (1)						
⊞ At 12:30:00 AM (1)						
⊞ At 1:00:00 AM (2)						
⊞ At 1:32:00 PM (1)						
⊞ At 3:00:00 AM (2)						
⊟ **More than once a day (9)**						
⊞ Every 10' (1)						
⊟ Every 10h and 5' (1)						
	✓		\l...5\	nsf		Conflict Killer
⊟ Every 1h (2)						
	✓		\...s\	nsf		NewDocNotification
	✓	Monitoring Configuration	\	events4.nsf		Reset Monitor Number
⊞ Every 4h (2)						
⊞ Every 5' (2)						
⊞ Every 6h and 30' (1)						
⊟ **Never (1)**						
⊞ Never (1)						
⊟ **Weekly (1)**						
⊞ On Thursday at 12:45:00 AM (1)						

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- **Crashes**

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- Clusters and Failover
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- Unread Marks
- Often Overlooked 'Necessities'
- Q&A

Automatic Diagnostic Collection

- Are you collecting crash reports and running fault analyzer?
  - Not enabled by default
  - **Configuration document → Diagnostics tab**

Diagnostic Collection Options	
Mail-in Database for diagnostic reports:	Lotus Notes Domino Fault Report
Maximum size of diagnostic message including attachments (in MB):	20
Maximum size of NSD output to attach (in MB):	10
Maximum amount of console output file to attach (in KB):	10240
Diagnostic file patterns:	logasio*.log NSD_DTRACE*.out memcheck*.log
Remove diagnostic files after a specified number of days:	Yes
Number of days to keep diagnostic files:	90

Fault Analyzer	
Run FaultAnalyzer on Fault DBs on this server:	Yes
Run Fault Analyzer on:	All mail-in databases on this server
Remove attachments from duplicate faults:	No

Crash Notification Rollup

- Set desktop policy to collect fault reports
- Tip: Set prompt to NO
  - Otherwise security-minded people will cancel

Desktop Settings : Default Desktop Setting

Smart Upgrade | Applications | Widgets | Dial-up Connections | Accounts | Name Servers | TLS | Applet Security | Proxies | Mail | Preferences | Comments | **Diagnostics** | ◄ ►

Diagnostic Collection Options		How to apply this setting:	Inherit from parent policy:	Enforce in child policies:
Mail-in Database for diagnostic reports:	Lotus Notes Domino Fault Repor	☐ Don't set value	☐ Inherit	☐ Enforce
Prompt user to send diagnostic report:	No	☐ Don't set value	☐ Inherit	☐ Enforce
Prompt user for comments:	No	☐ Don't set value	☐ Inherit	☐ Enforce
Maximum size of diagnostic message including attachments (in MB):	5	☐ Don't set value	☐ Inherit	☐ Enforce
Maximum size of NSD output to attach (in MB):	2	☐ Don't set value	☐ Inherit	☐ Enforce
Maximum amount of console output file to attach (in KB):	10240	☐ Don't set value	☐ Inherit	☐ Enforce
Diagnostic file patterns:		☐ Don't set value	☐ Inherit	☐ Enforce
Remove diagnostic files after a specified number of days:	Yes	☐ Don't set value	☐ Inherit	☐ Enforce
Number of days to keep diagnostic files:	30	☐ Don't set value	☐ Inherit	☐ Enforce

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Auto Restart After Failure

- Do your servers have enough time to properly shutdown?
  - Some servers need longer than 300 seconds to shutdown
  - Adjust based on your environment
- Are you getting notified when crashes happen?
  - Set on Basics tab of the Server document
  - Enable 'Mail Notifications'
    - (shh.. Don't include your Boss on it)

Automatic Server Recovery	
Run This Script After Server Fault/Crash:	『 』(This script must not run NSD)
Run NSD To Collect Diagnostic Information:	☑ Enabled
Automatically Restart Server After Fault/Crash:	☑ Enabled
Cleanup Script / NSD Maximum Execution Time:	『600』 seconds
Server Shutdown Timeout:	『300』 seconds
Maximum Fault Limits:	『3』 faults within 『5』 minutes
Mail Fault Notification to:	『Administrators』 ▾

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Review Server Tasks

- Are critical tasks running?
  - Check! Some may be missing

- Not all servers need all tasks
  - Calendar Connector
  - Message Tracking Collector
  - Rooms & Resource Manager
  - Schedule manager
  - LDAP
  - DECS
  - Collect

Is RNRMGR Needed?

- Is it needed?
  - RNRMGR task (Rooms & Resource Manager)
    - Processes all Rooms and Resources activities
      - Meeting invitations
      - Reschedules or cancellations
      - Updates Busytime or Clusterbusy database accordingly

- If used, has the design been updated?
  - Make sure you update the design of your Resources database when upgrading your Domino server

Old Debug Still Lurking

- Is there lurking debug still enabled?
  - Did you really check??
  - Consumes valuable resources

- Make sure your notes.ini doesn't look like this

  Debug_Enable_Update_Fix=8191
  Debug_Disable_DDM=1
  NSD_RUN_MEMCHECK=1
  debug_sem_timeout=1000
  DEBUG_PRIVATE_POOLS=1
  DEBUG_SHARED_POOLS=1
  NSF_DocCache_Thread=1
  debug_nif=0
  debug_nif_update=1
  NSF_DocCache_Thread=1
  FT_LIMIT_HIGHLIGHT_FILTER=1
  LDAPDEBUG=1
  SMTPDebug=3

Notes.ini

- Don't forget about the configuration document!!

| Basics | Security | Client Upgrade | Router/SMTP | MIME | NOTES.INI Settings |

NOTES.INI Settings

Current parameters: HTTPJVMMaxHeapSize=1024M
HTTPJVMMaxHeapSizeSet=1
FTG_USE_SYS_MEMORY=1
UPDATE_FULLText_Thread=1
CLUSTER_ADMIN_ON =1
CLUSTER_REPLICATORS=2
debug_threadid=1
debug_capture_timeout=1
SERVER_TRANSINFO_RANGE=12
debug_show_timeout=1
Create_R9_DATABASES=1

Don't Forget!

Review for Unsupported Variables

- Determine if any unsupported notes.ini variables are in use
  - Partial list here:
    https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0032795
  - Examples:
    - DEBUG_NAMELOOKUP_MISSES
    - DONT_CACHE_MONITOR_FORMULAS
    - LSMODULE_TRACE
    - PercentAvailSysResources (not listed in the KB article, but has been deprecated)

Do You Have These Variables Set?

- Recommended to be enabled at all times:

  - CONSOLE_LOG_ENABLED=1
    - Captures server console data and logs to console.log file
  - CONSOLE_LOG_MAX_KBYTES=204800
    - Restricts the console Log size to 200MB and then overwrites oldest entries
  - DEBUG_CAPTURE_TIMEOUT=1
    - Captures semaphore time stamp and logs to semdebug.txt
  - DEBUG_SHOW_TIMEOUT=1
    - Captures semaphore information and logs to semdebug.txt
  - DEBUG_THREADID=1
    - Stamps server threads and logs to console.log file

Prevent Updates to ServerTasksAt

- Tired of losing your ServerTasksAt customizations when upgrading?

- SetupLeaveServerTasks to the rescue
  - Add SetupLeaveServerTasks=1 to server's notes.ini
  - Disables automatic updating of the ServerTasks= and ServerTasksAtXX= lines during a Domino Server upgrade

Ensure Proper Event Pool Size

- Especially important if actively debugging a problem
  - Message below indicates Event Pool is set too small
    - *Warning: Cannot record event - cannot keep up with event occurrence rate!*

- Increase the event pool size if necessary
  - Default size is 10,485,760 bytes. Maximum size is 104,857,600 bytes.
  - Add notes.ini EVENT_POOL_SIZE=xxx to notes.ini
  - Requires a server restart

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Is Silent Failover Setup?

- Check your desktop policy settings
  - Desktop Settings Document -> **Mail tab**

Client Settings		How to apply this setting:
Auto-retrieve document setting:	Disable ▾	☑ Don't set value
Enable server to poll for new mail and trigger replication on notification of new mail:	Enable ▾	☐ Don't set value
Enable silent failover when a server goes down:	Enable ▾	☐ Don't set value
Enable upgrade of all local NSFs to latest ODS version:	Disable ▾	☐ Don't set value

Is Mail Cluster Failover Configured?

Directory Assistance Failover

- Will directory assistance work during a failover?
  - Not if an application link is in use!

| Basics | Naming Contexts (Rules) | Domino |

Replicas			
Application links:		☒ OR	
	Server Name	Domino Directory Filename	Enabled
Replica1:	*	outsidenames.nsf	Yes
Replica2:			No
Replica3:			No
Replica4:			No
Replica5:			No

  - Replace with * for Server Name and specify the filename
  - Tip: Can't have both for failover to work, the application link will be used over the servername / filename

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RNRMGR

- RNRMGR supports clustering, but be aware
    - Only <u>one</u> other server in cluster will be allowed to process requests
    - If the home server (administration server in ACL) is down when RNRMGR starts it will not process any requests to protect cases where the database is out of date from the primary server
        - https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0088332
    - After 30 minutes of down-time, RNRMGR server updates to "first non-home server in line" in the server cluster
        - Check who owns RNRMGR with this command
            - tell rnrmgr whoowns <resourceDBname>.nsf

Cluster Symmetry

- Is your configuration optimal?
  - Should NOT use on:
    - \IBM_ID_VAULT
    - \MTDATA

- Does it do what you expect?
  - Copy at file system level
  - Only folders below the data directory
  - No templates
  - Folder names and filename need to match, including case sensitivity!

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Are You Automatically Creating Replicas?

Use a registration policy!

Careful with Database Properties

- Quotas and PIRC settings don't replicate!

- Quotas
  - Quotas are unique to a given server
    - Will only get set on cluster when replica is first created
    - Changes do not replicate
  - You must set the quota on the cluster server to match quota of file on primary server

    -OR-

  - Remove quotas on secondary servers

Careful with Database Properties

- PIRC (Purge Interval Replication Control)
  - Prevents old deleted documents from being recreated/resurrected
  - Enable via database property or with compact command

Replication Options for NWF's Address Book

Remove documents from the replica

- [ ] Remove documents not modified in the last (days) [90]
- [x] Enable Purge Interval Replication Control
  - Prevent modified documents and deletions before [2024-05-15 04:47:58 PM] from replicating into database.
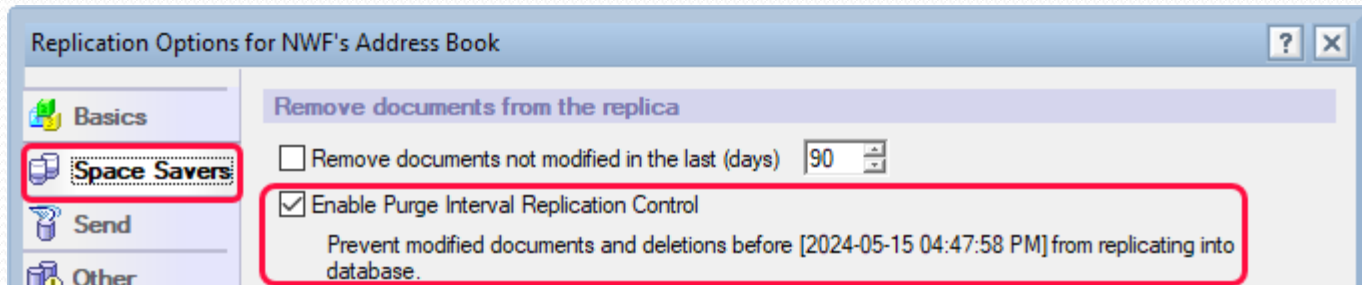
  - load compact dbname –pirc on

- **Especially important to have enabled on names.nsf**

Missing and Duplicate Replicas

- Missing replicas
  - Very common on non-mail servers

- Duplicate replicas
  - Very common on mail servers

- How to identify:
  - Look at cluster directory database
  - Write your own application to detect
  - Ytria replicationEZ
  - Cluster symmetry

Missing and Duplicate Replicas

- Have you looked? You will be surprised!!
  - cldbdir.nsf

Missing and Duplicate Replicas

- Ytria replicationEZ

Is Design Ping-Pong Happening?

Replicates design changes to 14.0 server

14.0 Server

12.0.2 Server

Updates design of mail files to 14.0 design

Updates design of mail files to 12.0.2 design

Replicates design changes to 12.0.2 server
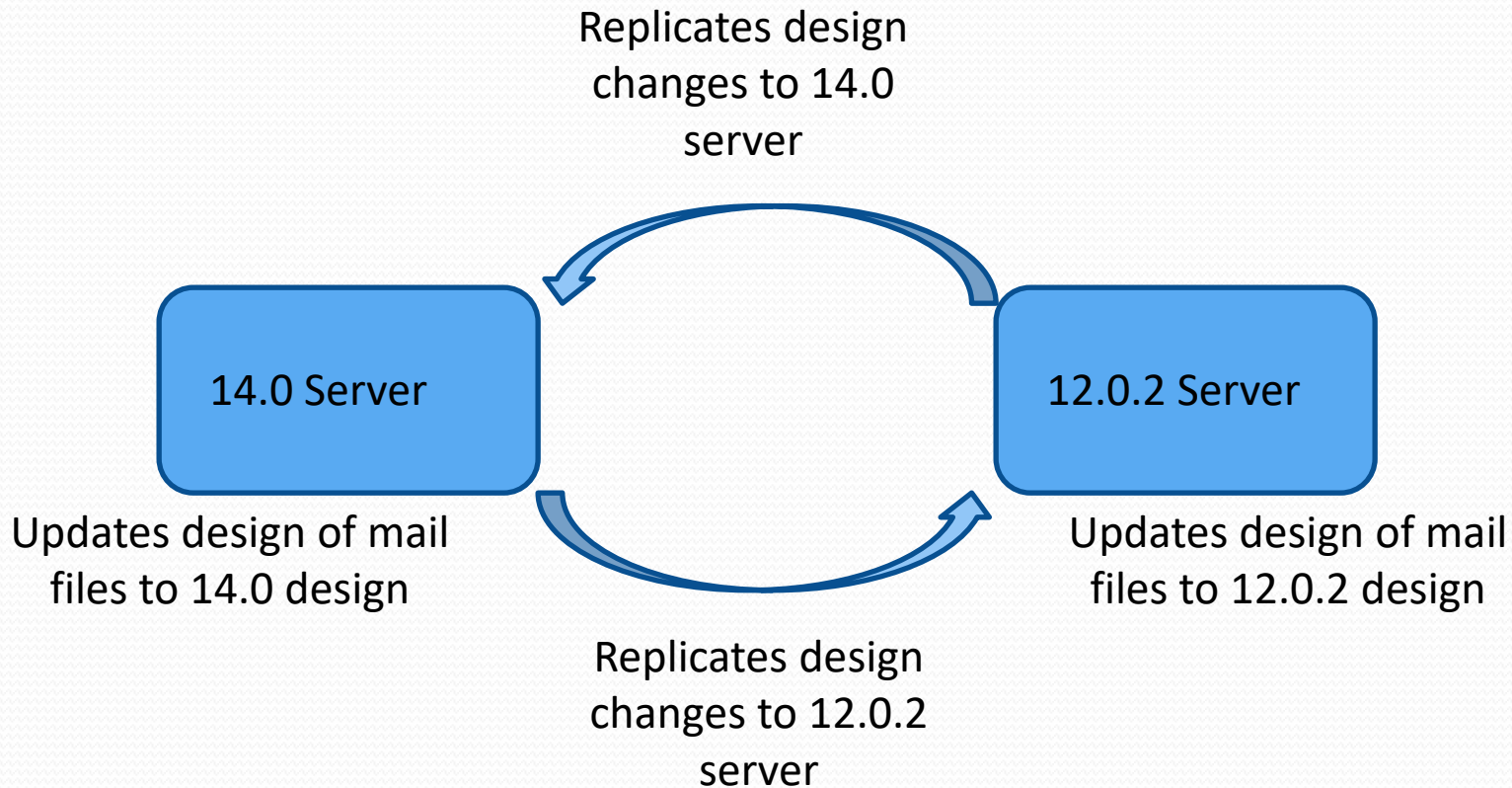
Preventing Design Ping-Pong

- Replicating templates between servers
  - Most templates share same replica ID across servers
  - Latest design gets replicated
  - Stops ping-pong chain of events

- Limiting Design task execution
  - Runs by default at 1:00 AM along with Catalog task
    - ServerTasksAt1=Catalog, Design
  - Remove 'Design' from this variable
    - set config ServerTasksAt1=Catalog
    - Or edit notes.ini file directly
  - Until all servers are at same code level

Preventing Design Ping-Pong

- Selective replication

  - Choose to not replicate design elements
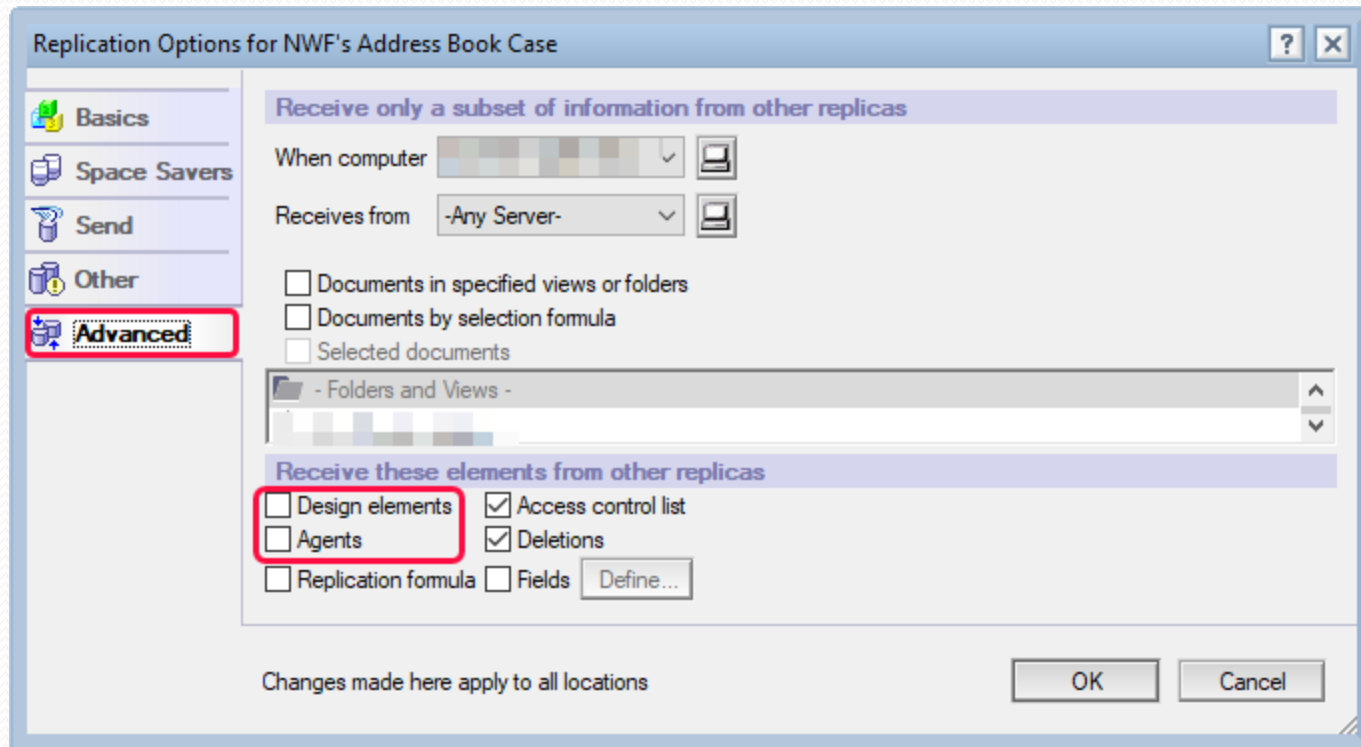
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Unread Marks

- Are unread marks in sync across replicas?
  - Have you actually checked??

- Customer example
  - Unread mark counters of mail files on primary and secondary servers

  (Data compliments of Ytria replicationEZ)

Unread Counts In Sync	Unread Counts Out of Sync	No Unread Table on Secondary Server
955	690	286
49%	36%	15%

Unread Marks

- Key to ensure they are properly replicated
  - Review Database properties
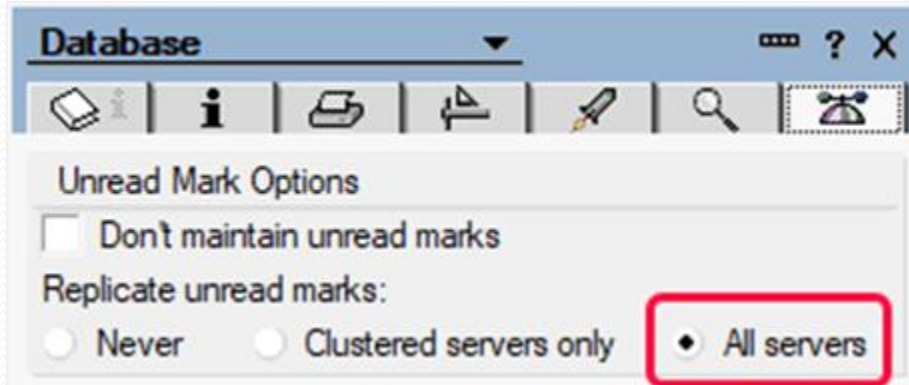
Unread Marks - Creating Replicas

- Key to exchange unread marks during replica creation
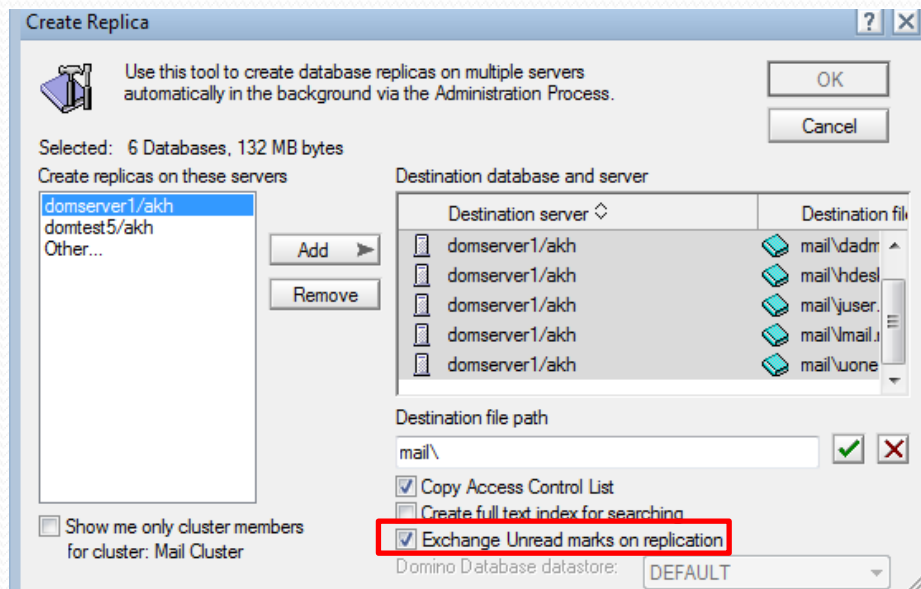
- Set ADMINP_EXCHANGE_ALL_UNREAD_MARKS=1 prior to creating replicas
  - Set on the "source" server

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Pay Attention to Console Errors!!

- Console errors can't be ignored
    - admin4.nsf has not replicated (PUSH) with ANY server since MM/DD/YYYY HH:MM:SS (1681 hours ago)
    - admin4.nsf has not replicated (PULL) with ANY server since MM/DD/YYYY HH:MM:SS (1681 hours ago)
    - Error validating execution rights for agent 'Notify' in database 'subdir/dbname.nsf'. Agent signer 'XXX01/YYY', effective user 'XXX01/YYY'. Agent signer.
    - RnRMgr: The design of Rooms.nsf is not one supportable by RnRMgr. Autoprocessing is being disabled for this DB.
    - Directory Cataloger finished processing DirectoryCatalog.nsf: File does not exist
    - Agent Manager: Full text operations on database 'mail/myfile.nsf' which is not full text indexed. This is extremely inefficient.

Recertifying Users

- Recertify users BEFORE they expire
- Use the Certification Expiration view in the Domino Directory to see which users are due to expire

- Then select users, and click 'Recertify Selected People'

Admin4.nsf – Keep it Clean

- Do not make Test or Development servers part of your production Domain

- Keep it small. Remove old documents

  - Up to 21 days is OK

    - **File -> Properties -> Replication Settings -> Space Savers -> Remove documents not modified in the last # days**
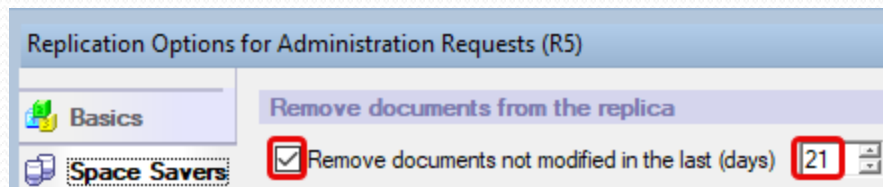
  - All replicas must have the same setting

Admin4.nsf – Keep it Clean

- Approve workflow requests
  - Renames
  - Delete Mailfiles
- Review documents pending Administrator approval
- Select 'Approve Selected Requests' or edit document to reject

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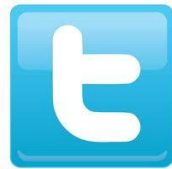- Often Overlooked 'Necessities'
- **Q&A**

Questions?

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