



Whats new and Best Practices

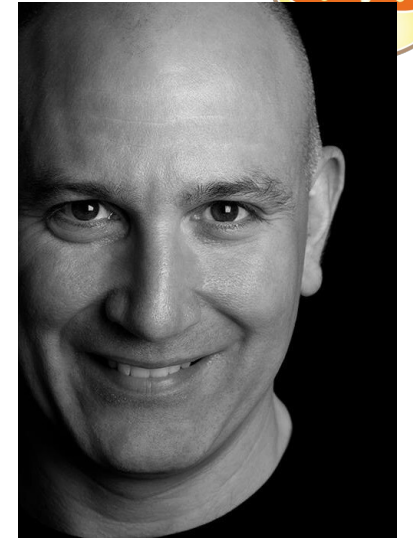
Domino V10.0.1

Daniel Nashed, Nash!Com

March 2019, Gelsenkirchen

About the speaker

- Nash!Com – IBM® Business Partner/ISV, HCL Partner
- Member The Penumbra group - An international consortium of selected Business Partners pooling their talent and resources
- Focus: Cross-Platform C-API, IBM® Domino® Infrastructure, Administration, Integration, Performance, Security, Troubleshooting and IBM® Traveler
- Platform focus: Microsoft® Windows®, Linux® und IBM AIX®
- “DNUG Fachgruppenleiter” Verse/Notes/Domino
- Author Domino on Linux®/UNIX® Start Script



IBM **CHAMPION** 





Agenda

- Introduction
- New Features & How they work
- Best Practices & First lessons learned
- “AppDev Pack”
- Q&A

Domino 10 Goals

- Reduce and simplify Domino administrator workload
- Improve Domino visibility and serviceability
- Improve Domino clusters for both administrators and end users
- Remove (many) long-standing NSF limits





Notes/Domino 10.0.1

- Shipped December 2018
- G1 Language Pack is planned for March 2019
- Mac support shipped with 10.0.1 in December 2018
- 10.0.1 includes fixes and enhancements that did not make it in to V 10.0
- Notes/Domino 10.0.1 FP1 planned for March 2019
 - Quarterly Fix Packs planned
- A major version is planned for every year – Notes/Domino 11 will ship in 2019



Notes/Domino 10.0.1 FP1 – Panned for March

- Beginning with Notes/Domino 10.0.1, HCL & IBM will ship frequent “Fix Packs” (FP) to improve the overall quality of releases deployed by customers. These Fix Packs will be provided for all platforms for all future release streams (e.g. 10.0.1, 11.0, etc...). The FPs will include:
 - All updates from previous FP of same feature release stream
 - Any hot fix “proven” since the last FP
 - Selected high-quality fixes using Interim Fix (IF) selection criteria in use today
 - Security patches including JVM updates
- Fix Packs will not include:
 - New Features unless disabled by default
 - Translation fixes
 - Template changes that would conflict with language kits. (This FP includes autocat.ntf and Forms9.nsf)
- <http://www.lotus.com/ldd/fixlist.nsf/WhatsNew/b1df4042fb8a980c852583b40067a7be?OpenDocument>

What's new in IBM Domino 10.0/10.0.1



WHAT'S NEW IN IBM DOMINO 10.0?

- Help admin database is updated and has a separate section to show "what's new"
- You can click thru the links to get a first impression
- There is more information on the web
 - Not all details made it into the NSF yet

What's new in IBM Domino 10.0?

Learn about all of the new features for administrators in IBM® Domino® 10.0.

[Publishing statistics to external services](#)

You can set up IBM Domino to publish Domino statistics to an external monitoring service. The service must be able to accept time series data via HTTP POST requests. A Domino server is preconfigured to publish Domino statistics to the New Relic service using the New Relic Plugin API; all you need to do in this case, is create a New Relic account and then add a setting to the server notes.ini file to enable the server to report its statistics. You can also configure Domino yourself to publish to Domino statistics to another service, for example, Hosted Graphite.

[Features that save you time](#)

The following new Domino features are designed to save you time and make you more productive.

[Security features](#)

[Apache Tika conversion filter used for attachment searches](#)

The Domino server and Notes® standard client use Apache Tika 1.18 open source conversion filters to extract text for full-text searches of attachments. Tika replaces the KeyView conversion filter used in previous releases.

[ODS 53 supports larger databases and folders](#)

The maximum size of databases allowed in IBM Domino 10 has increased to 256 GB; previously it was 64 GB. In addition, the maximum size of folders has increased significantly. Although the precise maximum size is difficult to quantify, users can expect at least a 10-fold increase in folder size capacity.

[Improvements to Web Site rule documents for HTTP response headers](#)

When you create a Web Site rule document for HTTP response headers, you can now include up to 20 custom headers; previously you were restricted to three. In addition, you can designate each for HTTP, HTTPS, or both HTTP and HTTPS requests.

[New features to push to Notes clients](#)

The following new features can be pushed down to IBM Notes clients.

[Component packages that are upgraded in Release 10](#)

The following component versions are upgraded in this release:

[Components no longer included](#)

The following components are no long part of Notes and Domino 10.

Domino 10 - Server Platform Support



- Windows 64bit only!
 - Windows Server 2012 R2 Datacenter Edition
 - Windows Server 2012 R2 Standard Edition
 - Windows Server 2016 Datacenter Edition
 - Windows Server 2016 Standard Edition
- AIX 64bit
 - AIX 7.2 / TL1
- iSeries / System i
 - Domino 10.0.1



Domino 10 – Linux Support



- SUSE Linux Enterprise Server (SLES) 12
- Red Hat Enterprise Linux Server (RHEL) 7.4
 - Redhat also requires a minimum of **bc-1.06.95-13.el7.x86_64**.
- New gcc compiler is used
 - The compiler ships with CentOS 7.4 which is the build platform
 - This means Linux versions with older **glibc** don't work any more
 - The other way round, applications compiled with older compiles still work!



Domino 10 -CentOS 7.4 and higher “Support”



- Also CentOS 7.4 and higher is supported!!

- <https://www.ibm.com/support/docview.wss?uid=ibm10735403>



CentOS

- Support Statement

- IBM Domino Customer Support will accept calls for issues that are encountered when using Domino in conjunction with CentOS (see supported CentOS levels below).
 - IBM Domino Customer Support will not require customers reproduce problems on Red Hat Linux as a condition of accepting customer calls.
 - IBM Domino Customer Support will make every attempt to solve Domino on CentOS problems but will not pursue problem resolution where issues are determined to be uniquely related to the CentOS distribution being utilized.



Domino 10 on Linux

- **SLES 12, RHEL 7.x** and **CentOS 7.x** ships with "**systemd**" instead of "**init.d**" to start services like network, sshd, Domino etc
- Quite different but Nash!Com Start Script fully supports it
- New start script version 3.2.1 ships with default systemd configuration enabled
- Also contains a install script for easy installation
 - You should install into the default locations with the default user
 - notes:notes
 - /opt/ibm/domino
 - /local/notesdata

Domino Docker

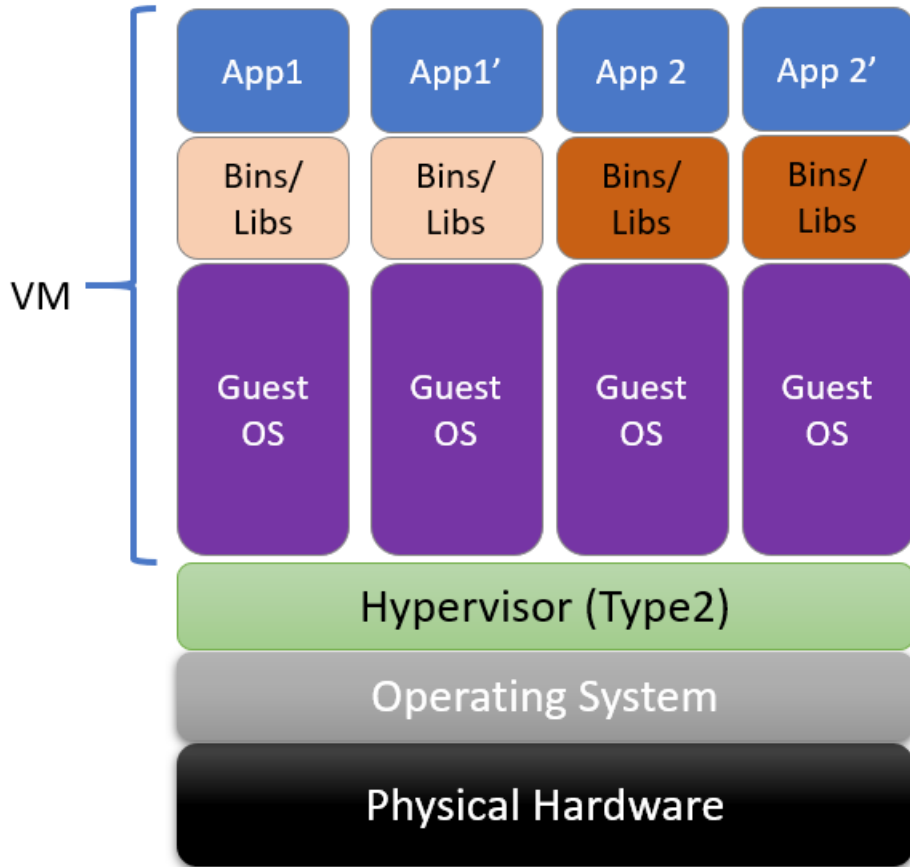


- Domino 9.0.1 FP10 is already supported on Docker
 - <http://www.ibm.com/support/docview.wss?uid=swg22013200>
- IBM published a first reference implementation on GitHub
 - Dockerfiles for SLES, RHEL and CentOS
 - Domino-Core Image Dockerfiles will contain installation for Domino 10
 - Sample Dockerfiles how to adapt the image for your environment and applications
- Nash!Com Domino Start Script will support Domino on Docker with automatic installation routine and Docker Entrypoint

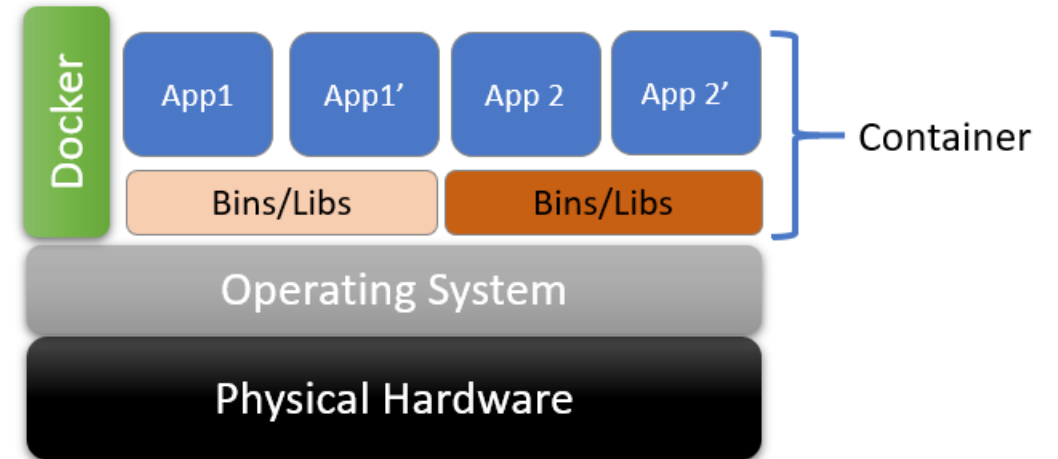


Virtual Machine vs. Docker Infrastructure

Virtual Machines



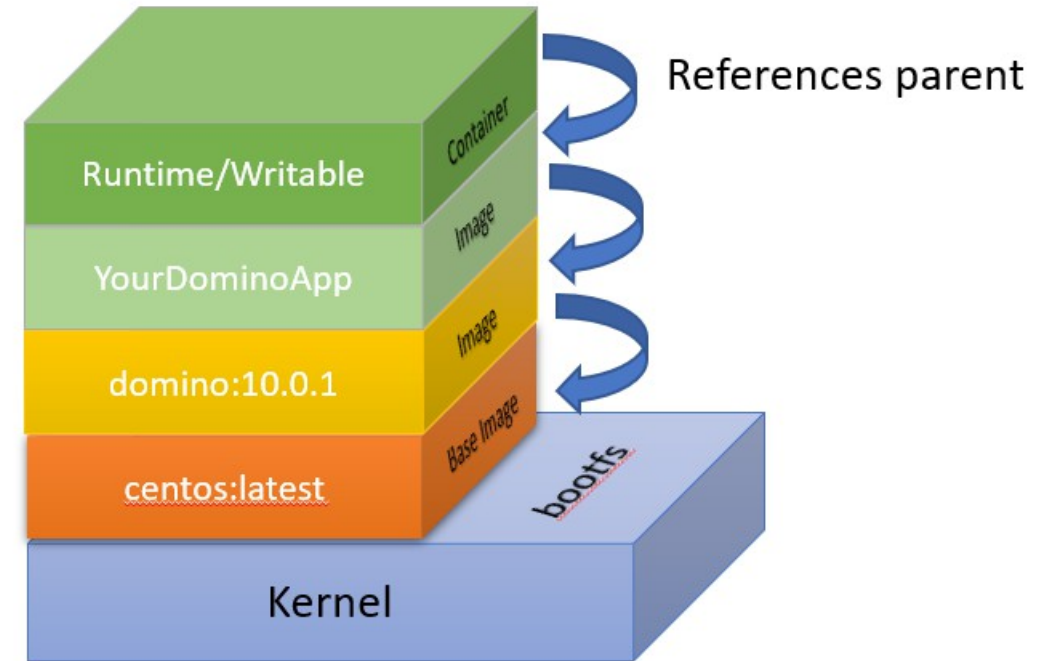
Docker Containers





Docker Container Concept

- Container is
 - A layered file system where each layer references the layer below
 - A run-time instance of an image.
 - Not containing your persistent (Domino) data
 - They are stored on a separate "volume"
- Images
 - Are used to create containers
 - Layers build on top of each other only the differences are stored in each layer



Traveler 10.0.1

- Works on Domino 9.0.1 current FPs and Domino 10.0.x
 - Build with older compiler on Linux ;-)
- It's the next version after 9.0.1.21
- IMSMO and Traveler are one installation package
 - You can either use it for Traveler or IMSMO Servers – Not in parallel for both on one server
- Better optimization for higher latency networks
 - Reduced transactions for mail with attachments
- <https://www.ibm.com/support/docview.wss?uid=swg21700212#10000>



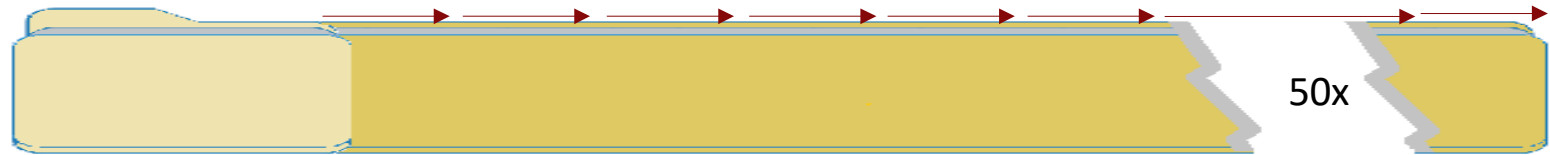
Breaking NSF Boundaries



Maximum database size



Large Folders



Summary Data

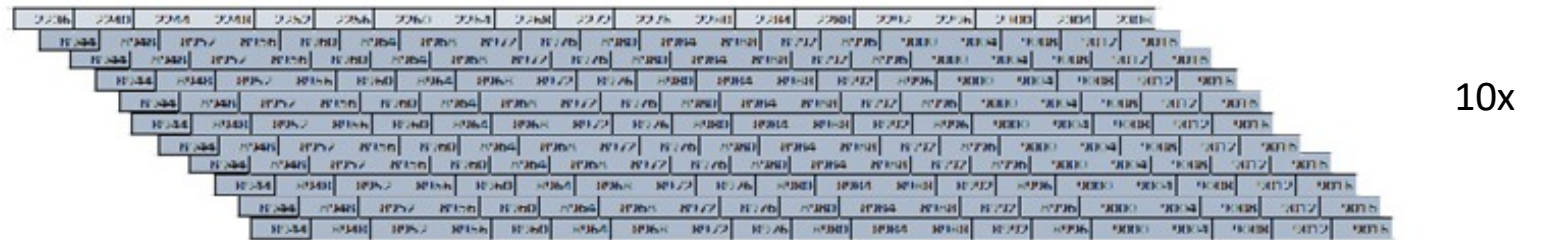
Ipso facto lorem
 Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of "de Finibus Bonorum et Malorum" (The Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolor sit amet..", comes from a line in section 1.10.32.

Doubled to 64K

More Field Names



ID Tables





Notes/Domino 10 - New ODS 53

- As usual new ODS 53 needs to be enabled on client and server
- Client:
 - Notes.ini **Create_R10_Databases=1, NSF_UpdateODS=1**
 - (**NOT NSF_UpgradeODS** !! Someone typed it wrong and others copied the wrong notes.ini name!)
- Server:
 - Notes.ini **Create_R10_Databases=1**
 - **DBMT -ods -ct 4**
 - Some databases with internally hard coded older ODS might still need **compact -upgrade**



Notes/Domino 10 – Default ODS is 52

- The default On-Disk Structure (ODS) is now ODS 52 if no other create `Create_Rx_Databases=1` notes.ini entries is set
- Higher ODS Version settings override older settings
- Automatically default used for new databases or for copy-style compacts
- Older ODS can be set via e.g. `Create_R85_Databases=1`
- Recommendation: ODS 53 which is needed for some of the new features to work
- Notes.ini **`Create_R10_Databases=1`**



New DBMT Switches

- DBMT is the recommended database maintenance tool and got some new switches

- Abbreviated DBMT switches

- nounread
- nocompactlimit (**-ncl**)
- blacklist (**-bl**)
- force (**-f**)
- range (**-r**)
- ftiNdays (**-fnd**)
- ftiThreads (**-ft**)
- compactNdays (**-cnd**)
- compactThreads (**-ct**)
- timeLimit (**-tl**)
- updallThreads (**-ut**)
- stopTime (**-st**)

- New Command-Line switches

- ods**

- compacted dbs to be upgraded to current ODS level

- blackList <indfile>**

- specify a .ind file containing dbs not to be compacted

- nounread**

- do not update unread tables

- Command Line is limited to 128 Bytes!



Automated Dead Mail Processing

- Mail router will periodically retry delivery/transfer to account for cases where configuration or other environmental issues caused the mail to fail
 - Configurable retry count and retry interval
 - After retries are exhausted, dead mail will be deleted from mail.box
 - Server Configuration document: Router/SMTP > Advanced > Controls > Undeliverable Mail

Undeliverable Mail	
Hold undeliverable mail:	Disabled
Automatically retry dead mail:	Enabled
Dead mail delivery retry attempts allowed:	<input type="text" value="12"/>
Time between dead mail delivery attempts:	<input type="text" value="360"/> minutes
Internal Internet domains:	east.acme.com west.acme.com



Scheduled Mail Transfers

- Delivery date/time can be provided on any email submitted to a Domino 10 server
- **\$SendAt** item can be added by agent, custom design
- Some policies applied immediately
 - e.g., maximum message size
- Server Configuration document
 - **Router/SMTP > Restrictions and Controls > Transfer Controls**
- Notes 10 client supports scheduled mail
 - policy controlled

Transfer Controls	
Maximum transfer threads:	
Maximum concurrent transfer threads:	
Maximum hop count:	25
Low priority mail routing time range:	12:00 AM - 06:00 AM
Low priority delay notification:	Disabled
Initial transfer retry interval:	1 minutes
Expired message purge interval:	15 minutes
Transfer and delivery delay notifications:	Disabled
Delay notification intervals:	
High priority mail:	4 hours
Normal priority mail:	4 hours
Low priority mail:	4 hours
Allow users to schedule a delivery time for messages:	Enabled



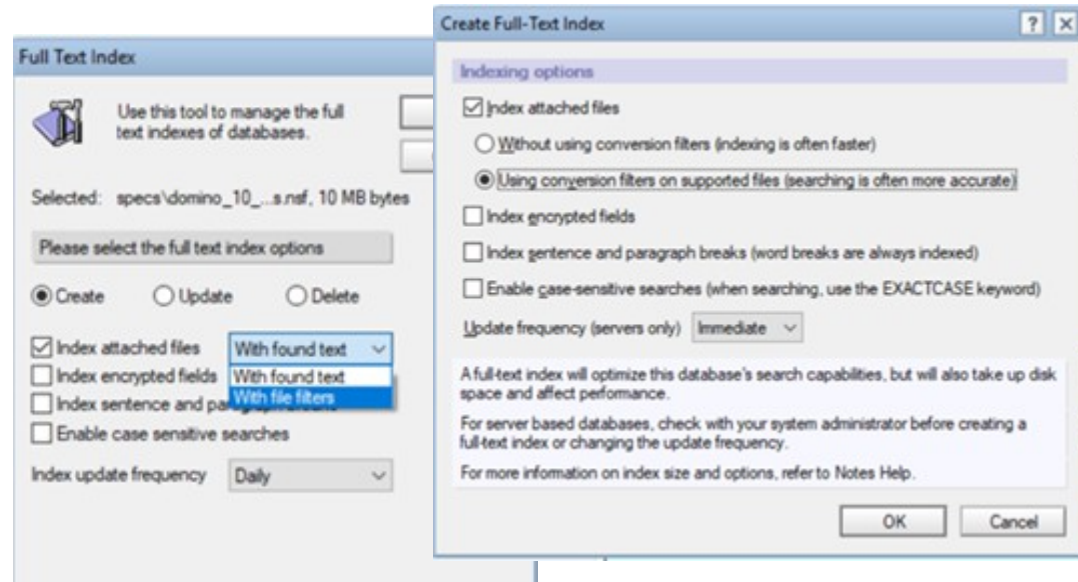
What happens if scheduled mail is disabled?

- Router rejects message
 - Information in log.nsf
 - Router: Message 00202092 rejected for policy reasons
 - Router: Policy Reason: Scheduled mail has been disabled by administrator
 - Router: Message 00202095, 00202092 delivered to Daniel Nashed/NashCom/DE
 - User received non-delivery report
 - This scheduled message cannot be delivered because of a server limit. You can create it again and send it unscheduled.
- Default in Config Document is enabled!



Full Text Search Improvements

- Update index on search
 - (Almost) Always get up to date search results – will index up to 200 documents before doing search
 - If > 200 documents to index, will queue update request for immediate action
 - Disable if needed via notes.ini **FT_SUPPRESS_AUTO_UPDATING=1** (dynamic on client and server)
- Improved attachment indexing
 - Replace KeyView filters with Apache Tika for more accurate text extraction



Tika Apache Project



- Tika is a Java based open source project – Version included: 1.18
 - Reference <https://tika.apache.org/>
- It offers more file formats than the KeyView package
 - And should allow better results
- It's free and IBM/HCL can have more influence on functionality
- Separate java process listens on loopback **127.0.0.1** Port **9998** by default
 - Can be changed via notes.ini if needed e.g. **TIKA_PORT=9997**
- Started and controlled by **update** task on server or **taskldr** on client
 - Attachments sent via curl lib to the process and results are coming back



New Configuration for Attachment Types

- By default all types beside the following are indexed
 - .au, .bqy, .cca, .dbd, .dll, .exe, .gif, .gz, .img, .jar, .jpg, .mov, .mp3,.mpg, .msi,.nsf, .ntf, .p7m, .p7s,.pag, .pdb, .png, .rar, .sys, .tar, .tar, .tif, .wav, .wpl, .z, .zip.
 - Supported formats in 1.18 → <https://tika.apache.org/1.18/formats.html>
- Define your own list by setting **FT_USE_MY_ATTACHMENT_WHITE_LIST=1**
 - **FT_INDEX_FILTER_ATTACHMENT_TYPES**=*.<format>,*.<format>
 - where<format> is a file format. Use a comma between formats.
 - **FT_INDEX_FILTER_ATTACHMENT_TYPES_MAX_MB**= <value>
 - Default is 1 MB



Specific Settings per Replica

- Index Settings for a database by replica-id
 - **FT_INDEX_FILTER_ATTACHMENT_TYPES_<replicaID> =*.<format>**
 - where<replicaID> is the replica ID of a database to search and<format> is the file type. Use a comma between formats.
 - **FT_INDEX_FILTER_ATTACHMENT_TYPES_<replicaID>_MAX_MB = <value>**



Full Text Index Resiliency Improvements

- Automatic index recreation on corruption
 - If corruption is detected while indexing or searching, Domino will automatically rebuild the index
- Repeat crash prevention
 - Domino will be resilient to FT search or update related crashes
 - Document causing repeat crashes will be isolated and avoided



Automatic Hot View Updating

- Domino 9.0.1 FP9
 - Update task – queued requests processed in order
 - Users have to wait for views to be updated
 - Inline View Indexing/Dedicated View Threads features needed specific / complicated configuration
 - Reference:
https://www.ibm.com/support/knowledgecenter/en/SSKTMJ_9.0.1/admin/admn_inline_index_enabling.html
- With Domino 10
 - Domino tracks view updates and reads in real time
 - “Hot” views are updated in real time without administrator’s having to guess or track
 - New statistics providing details about hotviews and updates



Automatic View Updating

- Can be disabled if needed too much resources (e.g. CPU)
 - **NIF_VIEW_USAGE_ENABLED=0**
- Additional statistics
 - See documentation for details
https://www.ibm.com/support/knowledgecenter/en/SSKTMJ_10.0.0/admin/high_usage_views_monitoring.ht

Symmetric Domino Servers



- Symmetrical Cluster configuration to enable for specific folders

Cluster Configuration: nsh-dom10-cluster

Basics | Symmetry | Tuning | Administration

Basics

Cluster: nsh-dom10-cluster
Servers: nsh-dom10-one/Srv/NashCom/DE
nsh-dom10-two/Srv/NashCom/DE
Comments:

Cluster Configuration: nsh-dom10-cluster

Basics | Symmetry | Tuning | Administration

Maintain symmetry: All folders
 Specified folders

Folders: mail

Automatic repair: Fix missing files
 List damaged or missing files in the log
 Disabled

Scan interval: 15 minutes

Damaged files: Fix damaged files
 Disabled

Remove damaged files after: 10 days

Cluster Configuration: nsh-dom10-cluster

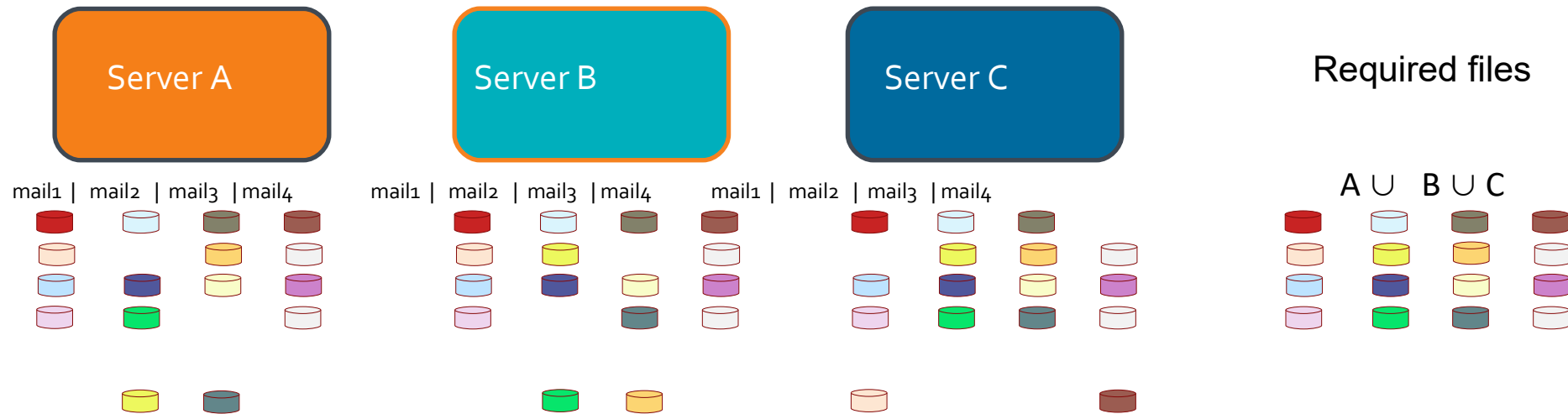
Basics | Symmetry | Tuning | Administration

Number of repair threads: 4
Check donor availability: 5 minutes
Retry failed repairs after: 5 minutes
Maximum number of retries: 3
Repair performance: 5 (1=slowest, 5=fastest)
Repair logging level: diagnostic



Symmetric Domino Servers

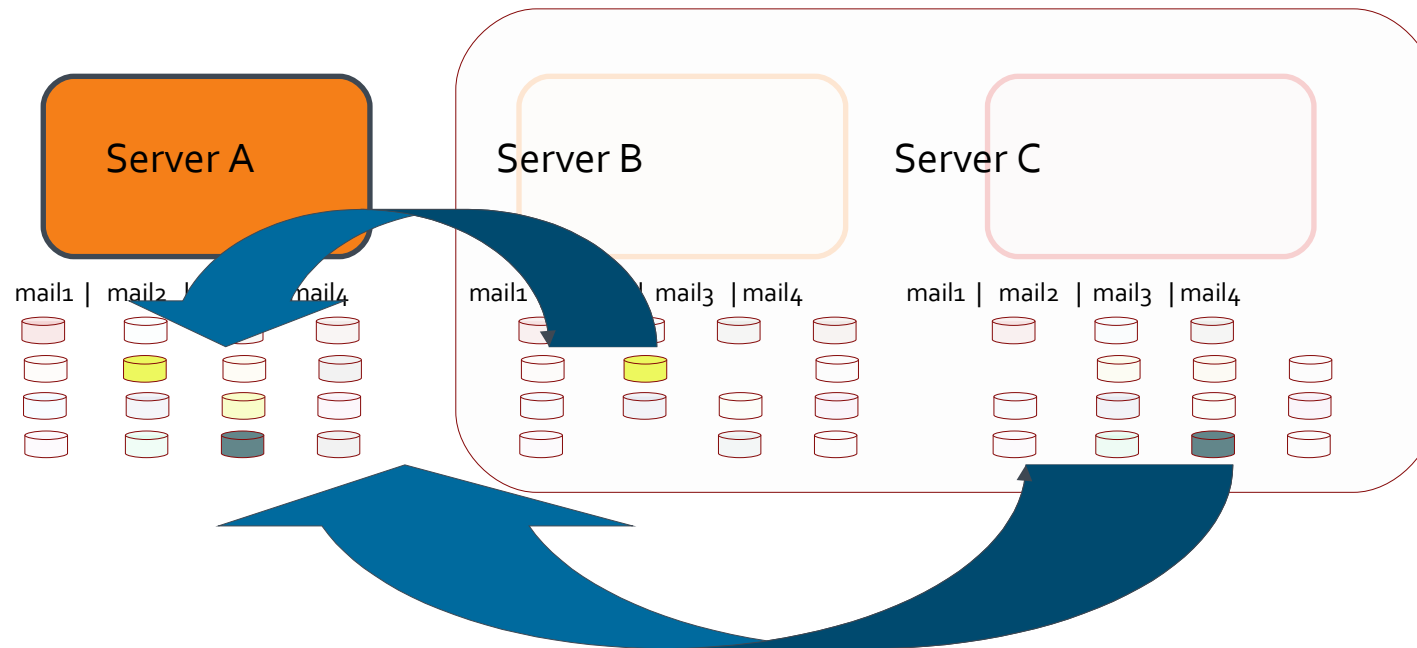
- One or more data directory folders are declared to be symmetrical
- Any Notes database which exists on any server in the cluster must exist on every server in the cluster.
- Domino 10 "repair engine" will detect any missing databases and repair them automatically





Automatic Database Repair

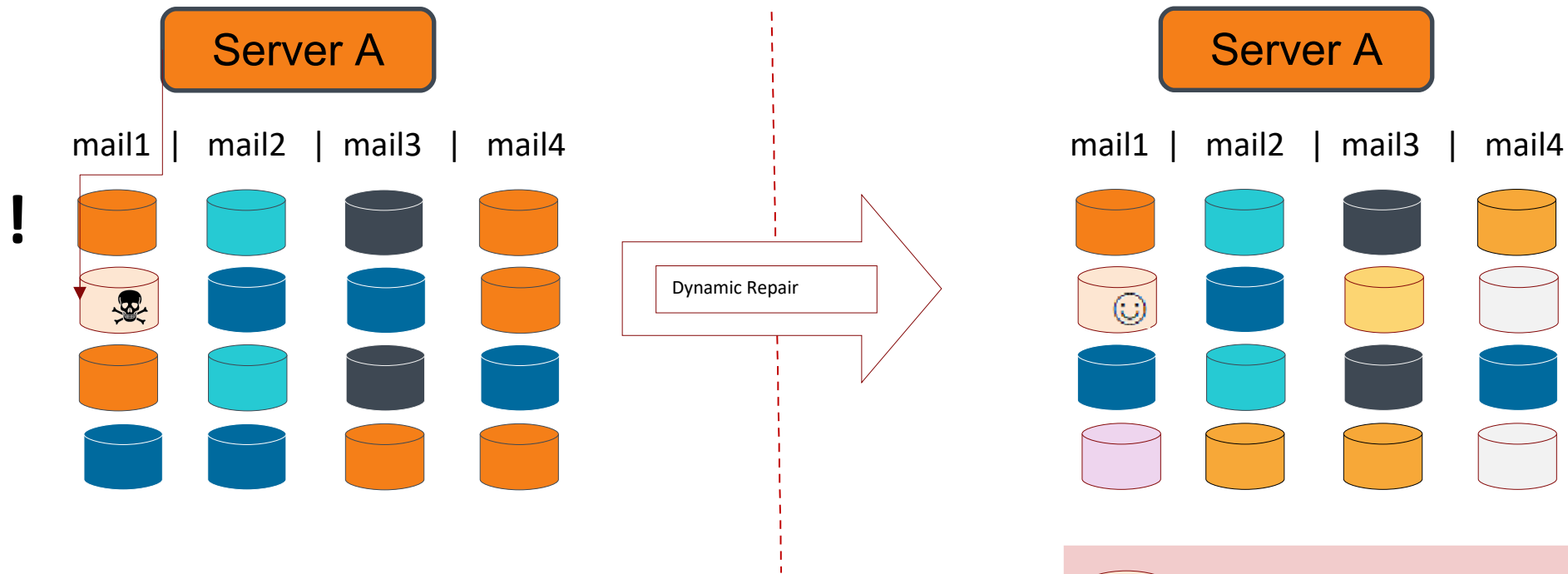
- Repair will periodically check for missing databases and repair them automatically
 - Fast, optimized transfer of file(s) between servers
 - New database instance will receive required DAOS objects
 - Replication histories are adjusted to correctly reflect replication currency
 - Full Text indexes are rebuilt if necessary





Automatic Database Repair

- Corrupt databases detected on open
- DbFixup attempted, Repair executed if needed





Which types of errors are causing a “repair”

- File is not a database
- Database is corrupt -- Cannot allocate space
- Database is damaged and can't be repaired (UNID index)
- Database is damaged and can't be repaired (RRV buckets bad)
- The Notes database file header is corrupted
- Database is damaged and can't be repaired (BDB)
- RRV bucket is corrupt.
- Allocation bitmap is corrupt.
- Non-bucketized response object is corrupt, perhaps partially written
- Non-bucketized nonsummary data is corrupt, perhaps partially written
- Access control list is corrupted
- Invalid PNO vector - position == 0
- File truncated - file may have been damaged

“Repair” Server Console Commands

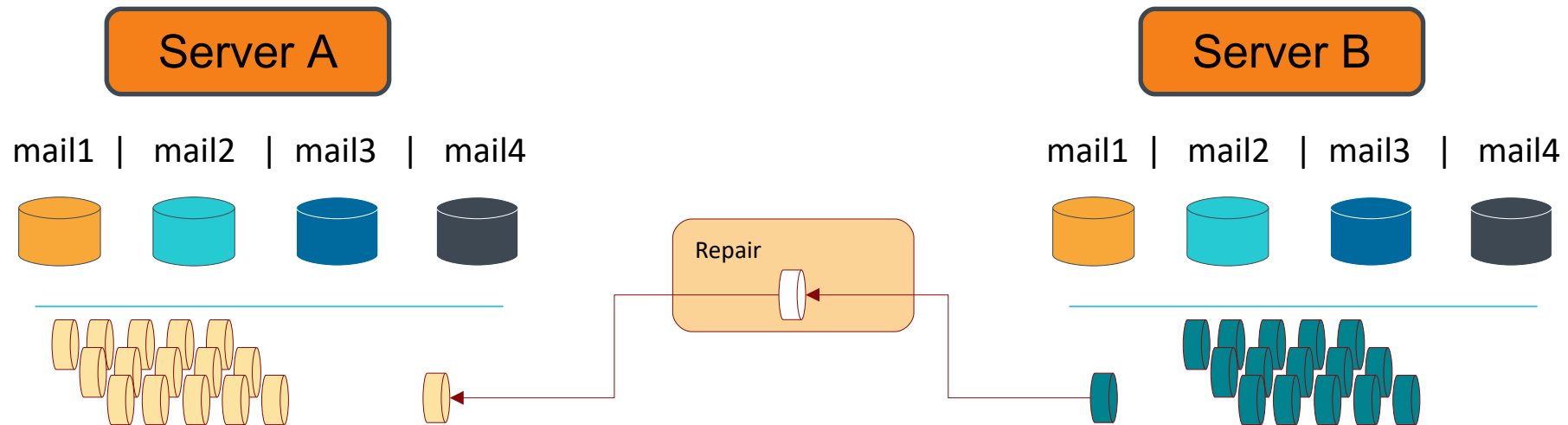


REPAIR	Cluster Repair commands
LIST	
SERVERS	List available donor servers
FILES	List all files being monitored for repair.
MISSING	List all missing databases
ENABLED	List all files being monitored for repair.
DISABLED	List all monitored files where repair is disabled.
FILE <dbname>	Repair a single database
ALL	Repair all missing databases
REPLHIST <dbname>	List histories for database - options [-all -clear]
ENABLE <dbname>	Enable Repair for all replicas of a single database
DISABLE <dbname>	Disable Repair for all replicas of a single database
SHOW	
CONFIG	Displays the current configuration settings for repair engine.
JOBS	Displays the jobs currently awaiting repair.



DAOS Repair – planned after 10.0.1

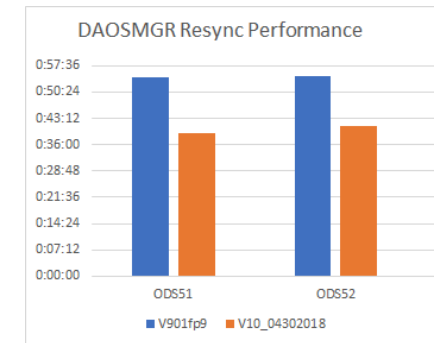
- Database repair is just one use of a broader DAOS repair capability
 - DAOS resync will repair any missing NLO's
 - Not limited to symmetric databases, works for ALL DAOS objects
 - DAOS will detect corrupted NLO's on open and dynamically repair the file
 - This works even if DAOS encryption is enabled – properly decrypts -> streams -> re-encrypts !
 - Kind of self healing for DAOS





DAOS Resynchronization Improvements

- Significantly improve resync performance
 - ODS53 enhancements reduce I/O when scanning databases for DAOS references
 - Improved concurrency to reduce contention during resync
 - At least 25% faster



- Improved monitoring and metrics
 - Resync progress indicators
 - Counters for number of objects, number of references and sharing (refs/object)



Cluster Replication Improvement

- Domino 9.0.1
 - SCR is engaged only after source and destination are known to be in sync via regular replication
 - Can cause significant and unpredictable replication delays after startup
- With Domino 10
 - SCR state check pointed to disk frequently
 - If databases are unchanged from last SCR checkpoint, SCR will be used immediately
 - SCR will hold content in queue waiting for destination server to restart
 - Will be much more tolerant of cluster mate restarts



Additional New Replication Capabilities

- Replica Synchronization Tool
 - Performs a background resync of database without clearing the replication history
 - Database remains responsive to SCR and all other access

- Replication Currency Monitoring
 - Compares replication on all cluster servers and lists currency of the replicas (e.g. "all copies current within 2 minutes)
 - Servers with databases which exceed a configurable currency interval can alert



Forcing a full database replication

- Performed without clearing the replication history
- User -F to force a full replication, use the following server command:
 - **Replicate <server> <database> -F**
- Use the -L option to log details about the documents (notes) that would replicate if you use the -F option but without actually performing the replication.

Example: Replicate Mail\Renovations mail/dnashed.nsf -L



Note Deletion Logging

- No more need to guess “who/what” deleted that document
- Enable deletion logging via Compact task
 - e.g. load **compact mail -dl on "Form,SendTo,From,PostedDate,\$TITLE"**
- Every NoteDelete will generate a log entry including
 - Date and time the document was deleted
 - Database from which the document was deleted.
 - Replica ID of the database
 - Process that performed the deletion (server, dbmt, replica, etc.)
 - Identity that performed the deletion
 - Type of document deletion (SOFT, HARD, RESTORE)
 - Note class (numeric)
 - Document UNID
 - Additional note item(s) specified when enabled



Nash!Com Delete Log Application

- Server writes deleted log entries into IBM_TECHNICAL_SUPPORT/delete.log
 - Delete log files are rotated like other diagnostic files
 - Files can be read on server
 - Custom fields are logged in the order they occur in the database
 - You can add more than 4 but only for are logged at a time
 - The first 4 fields that are found in the document are logged
 - Even if they are empty!
- New free application (Lotus Script + @Formulas)
 - Manual import
 - Scheduled Server based scheduled import and backup of log files
 - Very flexible and customizable

Annotates into database





Domino Statistics Publishing

- Publish Domino server statistics via HTTP Post for real time monitoring
- Publishing to New Relic built in
 - Default New Relic Plugin dashboard for viewing sample metrics
- Customization of URI and data format to allow publishing to other consumers
- All numeric Domino statistics posted once per minute
 - Domino will automatically calculate and send rate metrics for common counters
 - E.g. Mail.TotalRouted \diamond Delta/Mail.TotalRouted for mails routed per minute
- Statistics publishing is completely customizable and not just for New Relic!



Example Statistic Configuration and Test Application

- Example Notes.ini

- STATPUB_ENABLE=1
- STATPUB_URI=**<https://www.acme.com/request.nsf/webagent?openagent>**
- STATPUB_METRIC_FORMAT=Domino.myserver.\$Name\$ \$Value\$
- STATPUB_DELTA_METRIC_FORMAT=Domino.myserver.PerMinuteStats.\$Name\$ \$Value\$
- STATPUB_METRIC_DELIMITER=\$Newline\$

- Downloadable sample database on my blog

- Reference

- https://www.ibm.com/support/knowledgecenter/en/SSKTMJ_10.0.0/admin/stats_publish_other_external.htm



SAML Improvements

- Domino 9.0.1
 - Domino supports **ADFS 2.0/3.0**, TFIM SAML 1.1/2.0
Does not support Service Provider initiated authentication flows
- Domino 10
 - **ADFS 4.0** support
 - Supports Service Provider initiated flows
 - Domino 10 supports **any SAML 2.0** compliant IDP
 - There will be tested solutions but generally all standard SAML 2.0 implementations should work!



SAML Configuration Simplification

- Optimized dialogs
- Optimized configuration flow
- Updated Documentation
 - https://www.ibm.com/support/knowledgecenter/en/SSKTMJ_10.0.0/admin/secu_configuring_nonfederated_

Example JumpCloud SAML Config in idpcat.nsf



IdP Configuration

Basics | Client Settings | Certificate Management | Advanced | Administration

Basics

Import XML file

Host names or addresses mapped to this site: domino.nashcom.de; 192.168.100.216

Protocol version: SAML 2.0

State: Enabled

Federation product: AuthnRequest SAML 2.0 compatible

Service provider ID: https://domino.nashcom.de

Artifact resolution service URL:

Single sign-on service URL: https://sso.jumpcloud.com/saml2/saml2

IdP name (for your reference):

Comment
Imported file:



- JumpCloud-saml2-metadata.xml

Import time: 27.06.2018 23:57

IdP Configuration

Basics | Client Settings | Certificate Management | Advanced | Administration

Certificate Management Settings

Examine SP Certificate

Export SP XML

Company name: NashCom

Domino URL: https://domino.nashcom.de

Single logout URL: https://domino.nashcom.de

Certificate public hash value (base 64): ICSBhMWmDsmUGhNDYrJzRA==

Exported certificate:



- ServiceProvider.xml

JumpCloud Configuration



IDP ENTITY ID: [i](#)

https://domino.nashcom.de

IDP PRIVATE KEY: [i](#)

Upload IdP Private Key

IDP CERTIFICATE: [i](#)

Upload IdP Certificate

SP ENTITY ID: [i](#)

https://domino.nashcom.de

ACS URL: [i](#)

https://domino.nashcom.de/names.nsf?SAMLLogin

SP CERTIFICATE: [i](#)

Upload SP Certificate

SAMLSUBJECT NAMEID: [i](#)

email

SAMLSUBJECT NAMEID FORMAT: [i](#)

urn:oasis:names:tc:SAML:1.0:nameid-format:unspecified

SP CERTIFICATE: [i](#)

Upload SP Certificate

SAMLSUBJECT NAMEID: [i](#)

email

SAMLSUBJECT NAMEID FORMAT: [i](#)

urn:oasis:names:tc:SAML:1.0:nameid-format:unspecified

CONSTANT ATTRIBUTES: [i](#)

Name

+ add attribute

SIGNATURE ALGORITHM: [i](#)

RSA-SHA256

SIGN ASSERTION

DEFAULT RELAYSTATE: [i](#)

IDP-INITIATED URL: [i](#)

DECLARE REDIRECT ENDPOINT: [i](#)

IDP URL:

https://sso.jumpcloud.com/saml2/saml2

DISPLAY LABEL:

nashcom-jumpcloud



TLS Cipher selection in Server Document

- Domino 9.0.1 latest FPs
 - TLS 1.2 ciphers were not selectable in UI – notes.ini was used to enable
- **Domino 10.0.1**
 - All supported ciphers will be configurable in the UI
 - Enabled ciphers specified in notes.ini are pulled in during upgrade

The screenshot displays the Domino Server Document configuration interface. The 'Notes Network Ports' tab is active, showing 'Internet Ports...' and 'Proxies' sub-tabs. The 'SSL settings' section is expanded, showing the following configuration:

- SSL key file name: keyfile.kyr
- SSL protocol version (for use with all protocols except HTTP): Negotiated
- Accept SSL site certificates: No
- Accept expired SSL certificates: Yes
- SSL ciphers: ECDHE_ECDSA_WITH_AES_128_GCM_SHA256, RSA_WITH_3DES_EDE_CBC_SHA, RSA_WITH_AES_128_CBC_SHA256, ECDHE_RSA_WITH_AES_128_GCM_SHA256
- Enable SSL V2: (SSL V3 is always enabled) No

The 'Web' section is also visible, showing:

- TCP/IP port number: 80
- TCP/IP port status: Enabled
- Enforce server access settings: No
- Authentication options:

The 'SSL Cipher Settings' dialog box is open, showing a list of ciphers to be selected. The selected ciphers are:

- ECDHE_RSA_WITH_AES_128_GCM_SHA256
- ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
- RSA_WITH_AES_128_CBC_SHA256
- RSA_WITH_3DES_EDE_CBC_SHA

The dialog box also includes 'OK' and 'Cancel' buttons.



TLS Configuration

- Settings are in Server Doc and also Internet Site Doc
 - Server Document is updated automatically with values from the SSLCipherSpec if specified
 - CipherSpec is not used from notes.ini after upgrade!
- Take care: If you only have old ciphers configured which are marked as weak, you are ending up with no good supported ciphers
- You either need to correctly configure the ciphers you want
- Tip: Or configure no ciphers which will fall back to the standard best practices cipher list!
 - Usually there is no need to change the cipher list
 - Weak ciphers are disabled by default



Test your TLS Connection

- SSL Labs for external Websites
 - <https://www.ssllabs.com/ssltest/> for internal servers
- For internal servers use testssl.sh shell script
 - You can use <https://github.com/drwetter/testssl.sh>
 - Very detailed information about ciphers, certs and vulnerabilities
 - Simple Test: `openssl s_client -connect domino.nashcom.de:443 -tlsextdebug -status`



Notes-ID Vault Synchronization

- Domino 9.0.1
 - If a user used an old ID file with an old password, ID vault synching would stop
- Domino 10
 - After 7 days in this state, the ID in the Vault will be archived (renamed) and the current ID in use will be harvested into the vault - synching restarts
- Administrator can reset password on “archived” ID vault entry to recover it for user



ID Vault Serviceability

- Console log messages for Auto Detection and Resolution of mismatched password sync failure
 - First bad password ID Vault sync failure
 - If bad password ID Vault sync failure continues after 7 days , users' vault document is archived with a preceding
 - Next ID Vault sync from the user will re-harvest the id file into the ID Vault, allowing sync
- Requires notes.ini setting **ENABLE_AUTORECOVERY_FROMBADPASSWORD=1**



ID Vault Serviceability

- qvault tool scans ID Vault(s) and updates Person Doc for each vaulted user with VaultName and last sync time for vaulted users
 - To query and update Vault Info for all the users in all the ID Vaults, run "load qvault"
 - Will scan all the Vaults found on the server under the IBM_ID_VAULT directory.
 - Additional arguments can be used to scan/update a specific vault or user
 - Requires Notes.ini Setting **IDV_Enable_Vault_Scan=1**

```
> lo qvault -x "O=NashComVault" -u "CN=James Bond/O=NashCom/C=DE"  
QVR: Vault O=NashComVault  
QVR: User CN=James Bond/O=NashCom/C=DE  
QVR: Updated user CN=James Bond/O=NashCom/C=DE
```



"qvault" Servertask

- New Command-Line Tool to refresh ID information
 - Adds to fields to person docs
 - VTName → "O=NashComVault"
 - VTIDModTime → 09.03.2019 08:59:22 CET
- And also allows to archive/delete IDs from Vault

```
> lo qvault -?
```

```
Query Vault Tool.
```

```
Usage: load qvault [-x <vaultname> [-u <username> [-r | -a | -d]] | [-d]]
```

```
Usage: Usage: Add quotes around <vaultname> or <username> if the name contains a space
```

```
-x <vaultname> Scan O=VaultName
-x <vaultname> -u <username> Scan O=VaultName for UserName
-x <vaultname> -u <username> -r Revert Archived UserName in O=VaultName
-x <vaultname> -u <username> -a Archive UserName in O=VaultName
-x <vaultname> -u <username> -d Delete Archived UserName in O=VaultName
-x <vaultname> -d Delete All Archived Users in O=VaultName
```



ID Vault Serviceability

- People view shows the IDVault name column updated after the qvault tool ran
- Admin Client can refresh the IDVault info via UI also from People view

The screenshot shows the Admin Client interface with a table of users. The table has columns for Name, Telephone, Company, and E-Mail. The 'ID Vaults' column is highlighted in blue. A context menu is open over the 'ID Vaults' column, with the 'Scan Vault...' option highlighted in grey and a red box around it. A dialog box titled 'Scan Vault Information' is also visible, displaying the message: 'User CN=Daniel Nashed/O=NashCom/C=DE : found in vault O=NashComVault'.

Name ^	Telephone	Company ^	E-Mail	ID Vault
Bond , James			James Bond/NashCom/DE@NashCom-D10	ns
Brown , Jacky			Jacky Brown/NashCom/DE@NashCom-D10	ns
Doe , John			John Doe/NashCom/DE@NashCom-D10	ns
Feuerstein , Fred			Fred Feuerstein/NashCom/DE@NashCom-D10	ns
Nashed , Daniel			Daniel Nashed/NashCom/DE@NashCom-D10	ns
Smith , Jane			Jane Smith/NashCom/DE@NashCom-D10	ns



NSD Service removed on client and server

- For reliability reasons, Notes System Diagnostics (NSD) should not be run as a Microsoft Windows service on Notes clients or Domino servers
- It has been removed and should also be disabled in earlier versions!
- Reference
 - <https://www.ibm.com/support/docview.wss?uid=ibm10734889g>



New Notes HTTP Request Lotus Script Class

- It was very difficult in Lotus Script to create a HTTP request
 - E.g. you had to leverage Java to start a request and return the data etc.
- Now with Notes, Domino 10 you can create HTTP/HTTPs Get/Post requests
 - Small but very helpful new function for integrating other services – e.g. REST services!
- Supports HTTPs and authentication – but you have to set your own HTTP basic authentication headers
 - Trusted CA certificates are stored in a local file “cacert.pem”



HTTP Request Example

- Declare, Set basic authorization headers and invoke the request
- See my blog for the full example including a EncodeBase64 routine

```
Dim webRequest As NotesHttpRequest

Set webRequest = session.createhttprequest()

user = "john@acme.com"
password = "mypassword"
webRequest.maxredirects= 5
URL = "https://www.acme.com"

Call webRequest.Setheaderfield("Authorization", "Basic " + EncodeBase64 (user + ":" + password))
ret = webrequest.Get(URL)
```



HTTP Request Example

- Get all the response headers
- And return the complete response in "ret"

```
headers = webRequest.GetResponseHeaders()  
  
ForAll h In headers  
    MessageBox h  
End ForAll  
  
MessageBox ret
```



Domino Query Language (DQL)

- A new query language which can be used from
 - Lotus Script, Java
 - Node.js
- Very fast and flexible/powerful!
- Domino Query Language Documentation
 - <https://doc.cwpcollaboration.com/appdevpack/docs/en/domino-query-language.html>

DQL Lotus Script



- Fully integrated into Lotus Script and Java
- Lotus Script Documentation
 - https://www.ibm.com/support/knowledgecenter/en/SSVRGU_10.0.1/basic/H_NOTESDOMINOQUERY_CLASS

```
Dim session As New NotesSession
  Dim Query As String
  Dim lastname As String
  Dim db As New NotesDatabase ("", "names.nsf")
  Dim TheQuery As NotesDominoQuery
  Dim doccol As NotesDocumentCollection
  Set TheQuery = db.CreateDominoQuery()
  Call TheQuery.Setnamedvariable("vfirst", "daniel")
  Query = {firstname = ?vfirst}
  Set doccol = TheQuery.Execute(Query)
  MessageBox doccol.Count
```



The “Appdev Pack”

- The AppDev Pack adds Node.js support to IBM Domino version 10.0.1
- Three main components
 - A server-side component called Proton (servertask)
 - A Node.js module called domino-db.
A developer adds this module to a Node.js application.
The domino-db module uses Proton to perform bulk operations on documents in a server database
 - A Node.js based service called IAM (Identity and Access Management).
Access to Domino resources through RESTful APIs with standard OAuth2.0 authorization flows



Appdev Pack – Current State

- Appdev Pack 1.0.0 (2018 Q4 release)
 - Proton/domino-db
 - Linux support
 - CRUD document operations
 - Integral DQL support

 - Functional ID with client certificate authentication with SSL
 - Document encryption (functional ID)
 - Beta version of OAuth service for calendar and free/busy support
- Documentation:
 - <https://doc.cwpcollaboration.com/appdevpack/docs/en/homepage.html>



Appdev pack 1.0.0 features

- domino-db npm module for node.js
 - 4 classes, 21 functions
 - DominoDB class
 - useServer
 - Server class
 - useDatabase, getHostName, getConnection
- Database class
 - useDocument, createDocument, bulkCreateDocuments, bulkReadDocuments, bulkReadDocumentsByUnid, bulkDeleteDocuments, bulkDeleteDocumentsByUnid, bulkDeleteltems, bulkDeleteltemsByUnid, bulkReplaceltems, bulkReplaceltemsByUnid, bulkReplaceDocumentsByUnid, explainQuery, getServer, getFilePath
- Document class
 - getDatabase, getUnid, read (document), replaceltems, delete, deleteltems



Release Delivery cadence

- Domino – including DQL and Java/Lotusscript
 - V10, V11, etc. will proceed as always
- Features required for the Appdev pack will be released in fix packs
 - Appdev Pack – including domino-db, Proton and IAM/OAuth 2
 - Released in ~quarterly drops
 - Naming - v1.0.1 is the 2019 Q1 release, v1.0.2 for Q2 etc.



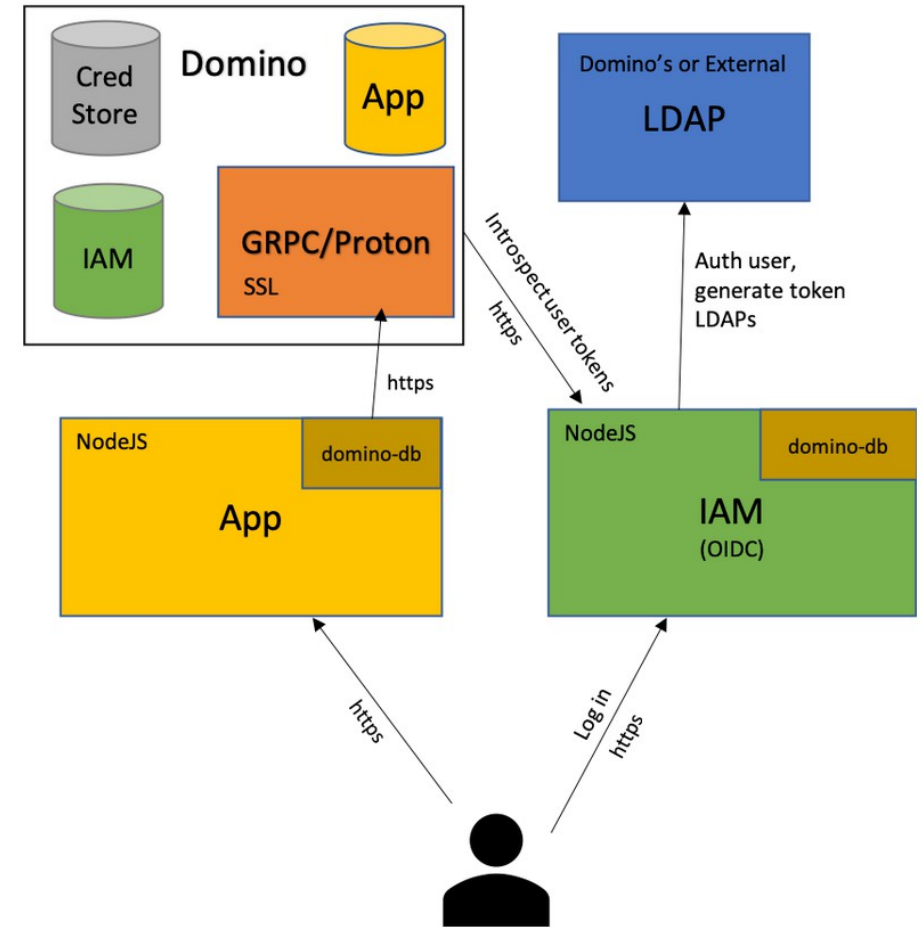
Appdev Pack 1.0.1 (Q1 2019 Release)

- Proton/domino-db
 - Windows support (includes core DSAPI filter)
 - Compute with form (update and read)
 - Display-only fields available for read
 - \$REF support (not DQL (yet)) – update and read
 - Node.js 10 supported (Node.js 8 support deprecated)
 - Improved session behavior (performance with IDVault)
 - And more! (see documentation)



Oauth2 solution – Authentication/Authorization

- Identity and Access Management (IAM) Node.js application (!) handles authentication and authorization
- IAM uses Domino as its data store using domino-db module calls
- LDAP provider can be Domino or other
- Application requests authorization to use user's data
- IAM acquires identification from LDAP, returns a token
- Application can use access token to access Calender and Freebusy APIs





Appdev Pack 1.0.1 (Q1 2019 release)

- IAM support (for OAuth 2.0)
- No longer pre-release – official release
- Simplified setup – wizard-driven
- Performance improvements over pre-release
- Pilot-mode – developer quick install with default options
- Implicit authentication flow – better CORS management to come in Domino 11 (same – origin policy override)

MarvelClient Essentials IBM Notes Management Solution



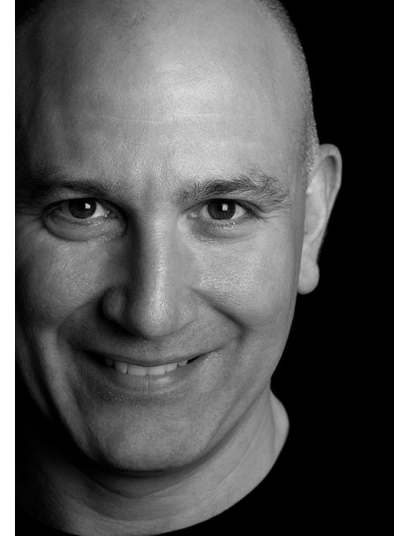
MarvelClient®

- The IBM® Notes® management solution MarvelClient Essentials from panagenda is provided with IBM Notes 10.0.1 client.
- Use MarvelClient Essentials to manage your Notes clients. You can:
 - Continuously analyze and visualize Notes workspace, client configuration, and operating system details.
 - Take stock of your client deployment complexity and inconsistencies.
 - Deploy files, such as your Notes 10 upgrade image, run programs, and manage the Windows registry.
 - Provide the IT, help desk, and management staffs with concrete Notes client details, facts, and figures.
 - Identify pitfalls during upgrades such as insufficient resources or non-standard installations.
 - Prepare an efficient upgrade path to reduce risk and help desk tickets
- Start Point for installation and information
 - Technote: <https://www.ibm.com/support/docview.wss?uid=ibm10737079>
 - Panagenda Website: <https://www.panagenda.com/essentials/>

Questions & Answers?



- Questions?
 - Now or later → nsh@nashcom.de
 - Current information on my blog → <http://blog.nashcom.de>
- Resources
 - Destination Domino
 - <https://ibm.com/destinationdomino>
 - Domino Ideas #dominoforever
 - <https://domino.ideas.aha.io>
 - Submit your most wanted features
 - Learn what others would like to see in Domino 11



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