

Best and worst practices deploying IBM Connections

Christoph Stoettner
panagenda

SUTOL
Conference2016

November 10-11, Prague



TIMETOACT GROUP
SOFTWARE & CONSULTING

Christoph Stoettner

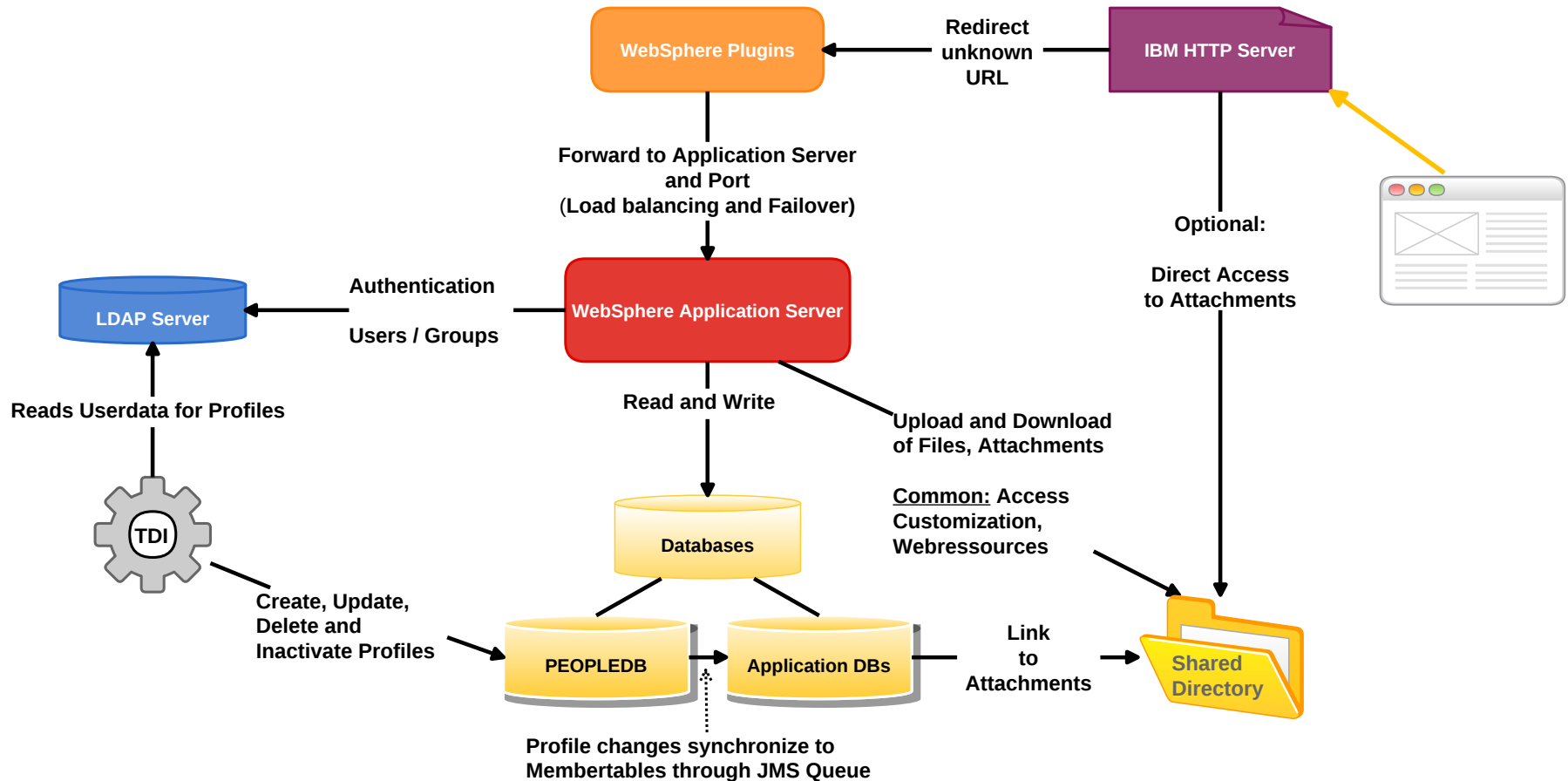


□ @stoeps
□ [linkedin.com/in/christophstoettner](https://www.linkedin.com/in/christophstoettner)
□ www.stoeps.de
□ christophstoettner
☎ +49 173 8588719
christoph.stoettner@panagenda.com



- **Senior Consultant at panagenda**
- **IBM Notes / Domino since 1999**
- **IBM Connections since version 2.5 / 2009**
- **Many years of experience in:**
 - Migrations
 - Administration and Installation
 - Performance Analysis
- **Joined panagenda in 2015 focusing in:**
 - IBM Connections Deployment and Optimization
 - IBM Connections Monitoring
- **Husband of one & father of two, Bavarian**

Main Components



System Requirements

- Follow Strictly
- Check Regularly
- All versions
 - <http://short.stoepts.de/vwzrv>
- IBM Connections 5
 - <http://short.stoepts.de/mspdi>
- IBM Connections 5.5
 - <http://short.stoepts.de/cnx55sysreq>
- Check all Notes
- Download PDF
 - About 100 pages

Product
IBM Connections 5.5
Detailed System Requirements

Report filters

Available Reports

- 5.5 CR1 maintenance level
- 5.5 initial version
- 5.5 CR1 maintenance level

Utilities

- Regenerate Anytime
- Print
- Download PDF
- Provide feedback

Notes

- Data as of 2016-10-20 02:20:05 EDT
- Disclaimers
- New Design!
- View new features

Product: IBM Connections 5.5 CR1

Support for prerequisite:
WebSphere Application Server Network Deployment 8.5.5

Print

Prerequisite Maintenance Levels Components

Product support for prerequisite maintenance levels, current and future -->

Deployment Unit	8.5.5	8.5.5.1	8.5.5.2	8.5.5.3	8.5.5.4	8.5.5.5	8.5.5.6	8.5.5.7	8.5.5.8	8.5.5.9	8.5.5.10
Server	✘	✘	✘	✘	✘	✘	✔ (1)	✔ (1)	✔ (1)	✔ (1)	✘

Notes: (1)

IBM Connections v5.5 relies on the Java default version SDK 1.6 for WebSphere Application Server Network Deployment.

Installation Documentation

- Be careful with non-official documentation documents
- Sometimes wrong dependencies mentioned (**only trust System Requirements**)
- Statement if something is supported does not mean it's licensed
 - Example (from Update strategy for IBM Connections 5.0): DB2 10.5 FP4 in <http://www-01.ibm.com/support/docview.wss?uid=swg21683118>
 - Connections 5.0 License Agreement does not contain a 10.5 License! -> No download in PA possible

DB2 Enterprise Server Edition Version 10	
	DB2 Enterprise Server Edition Version 10
	Minimum Supported
CR1	10.1 FP4 (10.0.1.4) 10.1 FP4 (10.0.1.4)
CR2 (and above)	10.1 FP4 (10.0.1.4) 10.5 FP4 (10.5.0.4)

Prepare A Installation Documentation

- <http://www.ibm.com/support/knowledgecenter/en/SSYGQH>
 - Contains mixed informations of all Operating Systems and Database Type
 - If you install often, create your own Install documentation
- **Check Performance Tuning Guides**
 - Not available for 5.5 until now
 - Check 4.0, 4.5 and 5.0 to get an idea
- **Read all lists before you follow them**
 - e.g. “point 13: if you use Linux, don’t follow point 8, do ... instead”
 - Nothing found in the actual documentation, but had this multiple times

Prepare Your Installation

- **Download all needed Software Packages**
- **Download IBM Connections 5.5**
 - **List with Part Numbers (but with all possible Software):**
<http://www-01.ibm.com/support/docview.wss?uid=swg24041291>
 - Don't forget mandatory Fixes from
<http://www.ibm.com/fixcentral>
 - **Download WebSphere Fixpack 9:**
<http://www-01.ibm.com/support/docview.wss?uid=swg24041819>

Save Time

- **Download and Install Installation Manager separate**
 - Version 1.8.3 or newer 64 Bit
 - Do not use the one packaged with Connections
 - You can install all other products without updating IM
- **Directly install Fix pack Versions**
 - Add Fixes and Original File to Installation Manager Repository List
 - Connections 5.5 CR1
(works with 5.0 CR2 and newer, but not 5.0 CR1)
 - WebSphere Application Server ND 8.5.5.9
 - DB2 10.5FP5 Universal or ESE
(without 10.5.0 package, no need to download)

Sizing

- Be prepared for future growth
- Do not overact
 - Some hundred users mostly won't need a large deployment
- I'm not a fan of multi-instance database machines
 - If I run in database performance issues I split the databases to different machines
 - Performance tuning guide
 - Multi-instance is best practice, **if you have enough resources**

Key points: If possible, deploy the databases used by IBM® Connections Version 5.0 on 64-bit hardware, with each database deployed in its own database instance, **if sufficient physical memory is available.**

Minimum Requirements

- 4 | 8 GB memory is often too less, better start with 10 or 12 GB
 - Memory swapping kills **ALL** tuning efforts
- CPU cores
 - 2 cores minimum only on small tiny deployments
 - Thumb rule:
I calculate one core for each JVM (expensive with PVU license)
- Disk
 - Using network storage or virtualized servers
 - Easier to extend

Connections5505

Minimum
In: Memory requirement for x86-32/64 and POWER Intel (x86-32 or x86-64 compatible server systems) and POWER systems Per IBM Connections node:

Application Node:
- 2 Two processor cores per server, 2.0 GHz CPU speed, or higher
- 4 Minimum 4 GB of memory for IBM Connections Server
- 8 - For enterprise-scale deployments, at least 16 GB of memory is recommended

Database server:
- 2 Two processor cores per server, 2.0 GHz CPU speed, or higher
- 4 Minimum 4 GB of memory
- 8 - For enterprise-scale deployment, at least 16 GB of memory is recommended

50 GB of available disk space after installation and configuration of the base operating system

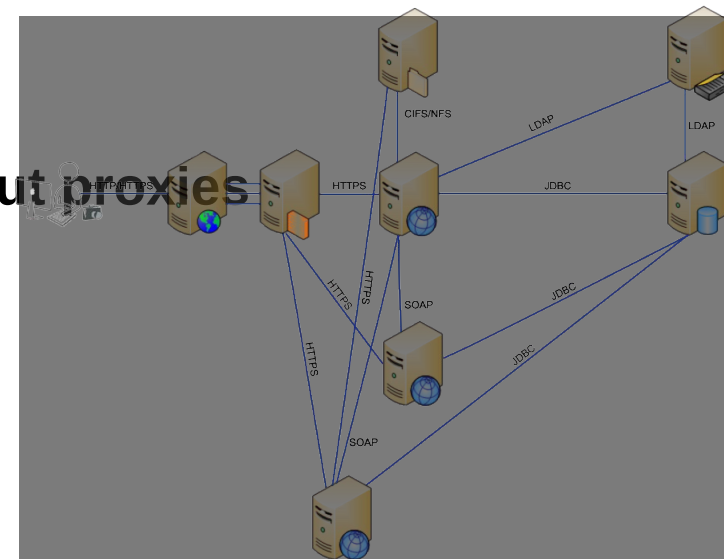
General Installation

- **Download all needed software packages**
 - Always check System Requirements before you install
- **Source and Destination Paths shouldn't contain spaces**
 - Don't install from or to folders with a space
 - e.g. ~~Installation Manager~~ | InstallationManager
 - avoid "c:\Program Files\IBM"
 - Use c|d|e:\IBM
- **Different operating systems need special settings**
- **Always use the operating system where you have the best skills**



Network

- **Name lookup / DNS**
 - All servers must be resolvable (hosts is not a workaround)
 - Knowing the protocol
 - Avoid Round Robin
 - No Authentication failover in WebSphere with Round Robin!
- **Network storage (file locking is important)**
 - NFS v4 / SMB|CIFS
 - No DFS
- **Reverse Proxies / Proxies**
 - Always test your deployment without proxies
 - Activate after successful testing





Register WAS as a service

- **Services for Deployment Manager and NodeAgent(s)**
 - wasservice.bat|sh
- **Map service to a technical user**
 - any Active Directory User is possible
 - allowed to read / write network share with Shared Content
- **Service can parse commands to nodeagent**
 - -stopArgs "<NA commands>"
- **Configure monitoring policy (if required)**

```
Usage: stopNode [options]
options:
  -stopservers [-saveNodeState]
  -quiet
  -logfile <filename>
  -replacelog
  -trace
  -timeout <seconds>
  -statusport <portnumber>
  -connType <connector type>
  -port <portnumber>
  -username <username>
  -password <password>
  -profileName <profile>
  -help
```

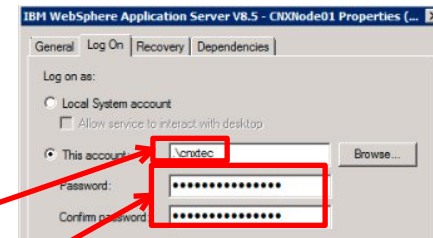
WasService.bat|sh – Register service

- Create a local filebased user to stop the service
 - Operator Role is enough

```
cd D:\IBMCNX\WebSphere\AppServer\bin
```

```
WASService.exe
```

```
-add CnxNode01
-serverName nodeagent
-profilePath d:\ibmcnx\websphere\appserver\profiles\CNXNode01
-stopArgs "-username wasadmin -password password -stopservers"
-userid cnxtec -password password
-encodeParams
-restart true
-startType automatic
```



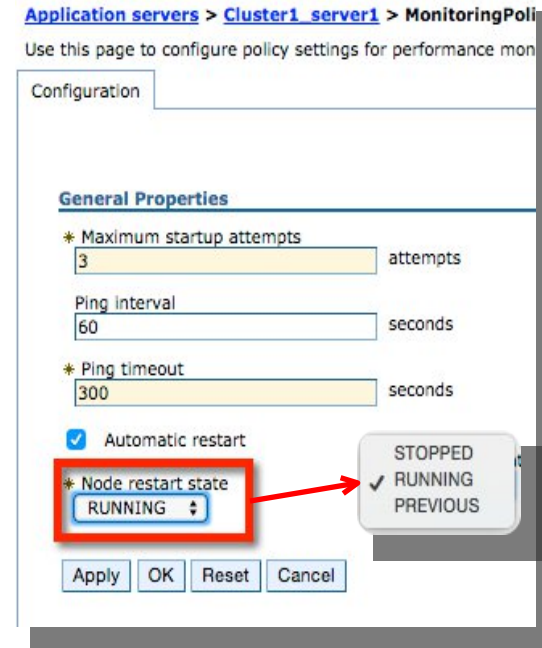
parsed to nodeAgent

stops AppServer

IBM WebSphere Application Server V8.5 - CNXNode01	Controls th...	Started	Automatic	.\cnxtec
IBM WebSphere Application Server V8.5 - CNXNode02	Controls th...	Started	Automatic	.\cnxtec
IBM WebSphere Application Server V8.5 - cnxwin5CellManager01	Controls th...	Started	Automatic	.\cnxtec

Monitoring Policy

- **Each Application Server**
 - Change Node restart state to "**RUNNING**"
- **Must set this to STOPPED before performing updates**
 - Or use syncNode.bat|sh after applying an update
- **Increase Timeout on Windows**
 - Default timeout for service shutdown = 30 seconds
 - From around 5 Application Servers
 - Increase Value at:
HKEY_Local_Machine:
SYSTEM\CurrentControlSet\Control\WaitToKillServiceTimeout



Directories & Syncing

- **Prepare your LDAP**
 - Better data within LDAP → better Profiles
 - Login Items must be unique
 - E-Mail-Address
 - UID
- **Switching Authentication directories**
 - Need some planning
- **Dependencies**
 - Quality of LDAP data
 - Plans to activate SPNEGO
 - Domino Mail Integration

Report-to Chain

- Henning Kunz
- Christoph Stoettner

[Full Report-to Chain](#)
[Same Manager](#)

Christoph Stoettner

Senior Consultant
panagenda
Heppenheim , Hessen , Germany
+49 6252 67939-
christoph.stoettner@panagenda.com
Local Time: 3:35 PM

[Send Email](#) [Download vCard](#)

[Recent Updates](#) [Contact Information](#) [Background](#)

Name: **Christoph Stoettner**
Office number: +49 625
Mobile number: +49 173
Fax number: +49 625
Office email: christoph.stoettner@panagenda.com
Job title: Senior Consultant

```
organizationalUnit:  
cubesoft  
OU=cubesoft,DC=virtual,DC=home,DC=local  
[ Writable ]  
18/07/2013 17:22:40  
18/07/2013 17:22:40  
204860  
204860  
cubesoft  
CN=Organizational-Unit, CN=Schema, CN=Configuration, DC=virtual, DC=home, DC=local  
{C918CD4F-D3EE-48DB-8574-3873C2AD1C15}
```

OU=cubesoft,DC=virtual,DC=home,DC=local - Solterra LDAP Browser

Scope Pane: Solterra LDAP Browser

- cubesoft/AD
- CN=Builtin
- CN=Computers
- CN=cubesoft
- CN=cadmins
- CN=Connections Admin
- CN=cubesoft_employee
- CN=Michael Griffith
- CN=Molly Dog
- CN=Nathan James
- CN=Sharon Bellamy
- OU=Domain Controllers
- OU=external
- CN=ForeignSecurityPrincipal
- OU=cosplay
- CN=Infrastructure
- CN=LostAndFound
- CN=NTDS Quotas
- OU=People
- CN=Program Data
- CN=System
- CN=Users
- ldap://ForestDnsZones.virtual
- ldap://DomainDnsZones.virtual
- ldap://virtual.home.local:389

Find what:

objectClass: CN

List View HTML View

Federated Repositories Best Practice

- Leave the file based wasadmin enabled
 - Fallback if LDAP Bind Credentials changed
 - Solving problems with Federated Repositories
- Default does not allow this
(you have to disable security through wsadmin to change configuration)

Global security

Global security > Federated repositories

By federating repositories, identities stored in multiple repositories can be managed in a single, virtual realm. The system, in one or more external repositories, or in both the built-in repository and one or more external repositories.

General Properties

+ Realm name
defaultWIMFileBasedRealm

+ Primary administrative user name

Server user identity

Automatically generated server identity

Server Identity that is stored in the repository

Server user ID or administrative user on a Version 6.0.x node

Password

Ignore case for authorization

Allow operations if some of the repositories are down

Repositories in the realm:

Add repositories (LDAP, custom, etc)... Use built-in repository Remove

Check this box

Allow operations if some of the repositories are down

Logs – adjust language WebSphere

- Change log language to English (IBM will love you for this)
- WebSphere
 - Add "-Duser.language=en -Duser.region=US" to Generic JVM arguments of
 - Each application server (Process definition – Java Virtual Machine)
 - dmgr (System Administration – Deployment Manager – Process Definition ...)
 - nodeagents (System Administration – Node agents – nodeagent – Process Def ...)

```
Generic JVM arguments
-Xacpolicy:gencon -Djava.awt.headless=true -Duser.language=en
-Duser.region=US
```

Logs – adjust language TDI

- TDI
 - edit ibmdisrv.bat|sh
 - add -Duser.language=en -Duser.region=US to LOG_4J variable
 - Linux:

```
# Log4j configuration file
LOG_4J="-Dlog4j.configuration=file:etc/log4j.properties -Duser.language=en -Duser.region=US"
"$TDI_JAVA_PROGRAM" $TDI_MIXEDMODE_FLAG -cp "$TDI_HOME_DIR/IDILoader.jar" "$LOG_4J" com.ibm.di.loader.ServerLauncher "$@" &
```

– Windows:

```
41 rem Take the supported any variables and pass them to Java program
42 set LOG_4J=-Dlog4j.configuration="file:etc\log4j.properties" -Duser.language=en -Duser.region=GB
43 set ENV_VARIABLES=%LOG_4J%
```

Rotate Logs

- **WebSphere Logs too small for Troubleshooting**
 - Default: 5 Logs 1 MB each (SystemOut and SystemErr)
 - Better 5-10 Logs 20 MB each
 - Setting for each Application Server
 - remember Nodeagents and Dmgr
- **Change this as soon as your servers have been created**

[Application servers](#) > [InfraCluster_server1](#) > [InfraCluster_server1](#) > JVM Logs

Use this page to view and modify the settings for the Java virtual machine (JVM) System.out and System.err logs for a managed application server. The System.out and System.err streams of the JVM to independent log files. The System.out log is used to monitor application server. The System.err log contains exception stack trace information that is used to perform problem analysis. Other application server and all of its applications. JVM logs are also created for the deployment manager and each node manager. Changes on the Runtime panel apply immediately.

Configuration **Runtime**

General Properties

System.out

* File Name:

File Formatting

Log File Rotation

File Size Time

Maximum Size MB Start Time

Rotate Logs

- **IBM Connections 5.5 – SET BY DEFAULT!!**
 - **Install.log**

Update WebContainer Thread Pool settings: [['maximumSize', 75], ['minimumSize', 50]]

Update SystemOut.log settings: [['maxNumberOfBackupFiles', 30], ['baseHour', 24], ['rolloverSize', 10], ['rolloverPeriod', 24], ['rolloverType', 'TIME']]

Update SystemErr.log settings: [['maxNumberOfBackupFiles', 30], ['baseHour', 24], ['rolloverSize', 10], ['rolloverPeriod', 24], ['rolloverType', 'TIME']]

- **Result:**

The screenshot shows the configuration for the **System.out** log. The file name is `${SERVER_LOG_ROOT}/SystemOut.log` and the file formatting is set to **Basic (Compatible)**. Under the **Log File Rotation** section, the **File Size** option is selected, with a maximum size of **10 MB**. The **Time** option is also selected, with a start time of **24** and a repeat time of **24 hours**. At the bottom, the **Maximum Number of Historical Log Files** is set to **30**.

- **So your logs are stored 30 days, independent of size**

Rotate IBM HTTP Server Logs

- **Default: no max size for access_log and error_log**
- **Often some GB of Log files**
 - Open with an Editor?
 - Disk size
- **Search for this lines in httpd.conf:**

```
CustomLog log/access_log common
```

- **(**

```
ErrorLog logs/error_log
```

```
# CustomLog log/access_log common
```

```
# ErrorLog logs/error_log
```


Rotate IBM HTTP Server Logs

- **Add:**

Linux:

```
CustomLog "|/opt/IBM/HTTPServer/bin/rotatlogs /opt/IBM/HTTPServer/logs/access_log.%Y%m%d 86400" common  
ErrorLog "|/opt/IBM/HTTPServer/bin/rotatlogs /opt/IBM/HTTPServer/logs/error_log.%Y%m%d 86400"
```

Windows:

```
CustomLog "|D:/IBM/HTTPServer/bin/rotatlogs.exe D:/IBM/HTTPServer/logs/access_log.%Y%m%d 86400" common  
ErrorLog "|D:/IBM/HTTPServer/bin/rotatlogs.exe D:/IBM/HTTPServer/logs/error_log.%Y%m%d 86400"
```

- **Delete Log Files older than x days (examples with 3)**

- Linux

```
crontab -e  
# Delete logfiles older than 3 days in logs  
10 0 * * * find /opt/IBM/HTTPServer/logs/*_log.* -mtime +3 -exec rm -rf {} \;
```

- Windows (Task Scheduler or Powershell)

```
forfiles -p "D:\IBM\HTTPServer\logs" -s -m *_log.* -d -3 -c "cmd /c del @file"
```

Rotate Logs DB2

- **db2diag.log**
- **Default: no maximum size**
 - **Default: %PROGRAMDATA%\IBM\DB2\instancename\DB2**
 - **Full C-Partition in Windows still hard to solve**

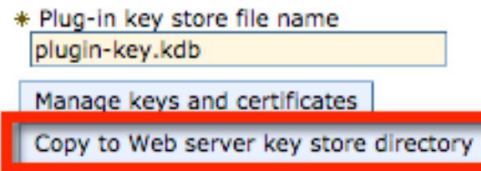
```
[db2inst1@cnx-db2 ~]$ db2 get dbm cfg |grep -i diagsize  
Size of rotating db2diag & notify logs (MB) (DIAGSIZE) = 0
```

```
[db2inst1@cnx-db2 ~]$ db2 update dbm cfg using DIAGSIZE 1024  
DB20000I The UPDATE DATABASE MANAGER CONFIGURATION command completed  
successfully.
```

```
[db2inst1@cnx-db2 ~]$ db2 get dbm cfg |grep -i diagsize  
Size of rotating db2diag & notify logs (MB) (DIAGSIZE) = 1024
```

HTTP Server Keystore

- **Several Reviews showed**
 - Keystore of WebSphere Plugin used for IHS SSL Key
 - Why is this worse?
 - What would you do when you get SSL Errors within Connections?



- This overwrites
 - SSL Key deleted
 - Backup?
- r Webserver

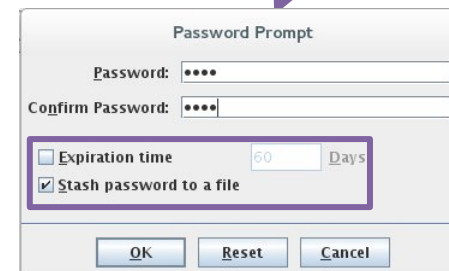
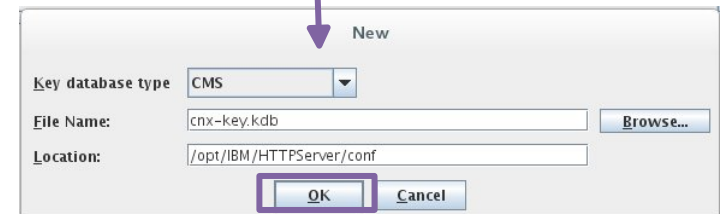
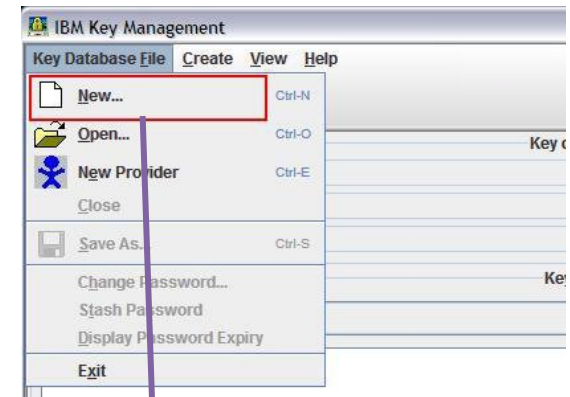
HTTP Server Key store

- **When you want to reuse Plugin Key store**
 - Import SSL Key into CMSKeyStore
 - But never seen this in the wild

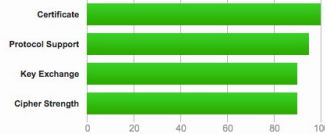
<input type="checkbox"/>	CMSKeyStore	CMSKeyStore for web server webserver1.	{cell}:cnxwin5Cell01: {node}:cnxWebserver: {server}:webserver1	\${CONFIG_ROOT}/cells/cnxwin5Cell01/nodes/cnxWebserver/servers/webserver1/plugin- key.kdb
--------------------------	-----------------------------	----------------------------------------------	----------------------------------------------------------------------	----------------------------------------------------------------------------------------------

HTTP Server Keystore

- **Best Practice - Create a separate key store for IHS**
 - Ikeyman will help you
 - Possible to use a wildcard
 - Then you can just copy it to use on dev / test machines
 - Backup the keystore before changes
 - Don't activate "Expiration time"
 - "Stash password to a file"
 - Creates a cnx-key.sth file
 - Used by IHS to open keystore



Overall Rating



Harden HTTP

- **Disable SSLv2 / v3**
 - Automatically disabled with 8.5.5.4
- **Check with hydra, nmap or ssllabs.com/ssltest/**

```

SSLProtocolEnable TLS
SSLProtocolDisable SSLv2 SSLv3
# Disable SSLCompression -> CRIME ATTACK
SSLCompression off
#Prefer ECDHE-RSA ciphers
SSLCipherSpec ALL NONE
SSLCipherSpec TLSv12 TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
SSLCipherSpec TLSv12 TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
SSLCipherSpec TLSv12 TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384
SSLCipherSpec TLSv12 TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
SSLCipherSpec ALL TLS_RSA_WITH_AES_128_GCM_SHA256
SSLCipherSpec ALL TLS_RSA_WITH_AES_256_GCM_SHA384
SSLCipherSpec ALL TLS_RSA_WITH_AES_128_CBC_SHA256
SSLCipherSpec ALL TLS_RSA_WITH_AES_256_CBC_SHA256
# Enabling this 3 ciphers mean A- rating on ssllabs, but without Connections is not working
SSLCipherSpec ALL TLS_RSA_WITH_AES_128_CBC_SHA
SSLCipherSpec ALL TLS_RSA_WITH_AES_256_CBC_SHA
SSLCipherSpec ALL SSL_RSA_WITH_3DES_EDE_CBC_SHA
# Enable HSTS
Header always set Strict-Transport-Security "max-age=31536000; includeSubDomains; preload"

```

```
[root@... conf]# nmap --script ssl-enum-ciphers -p 443 connections.
```

```

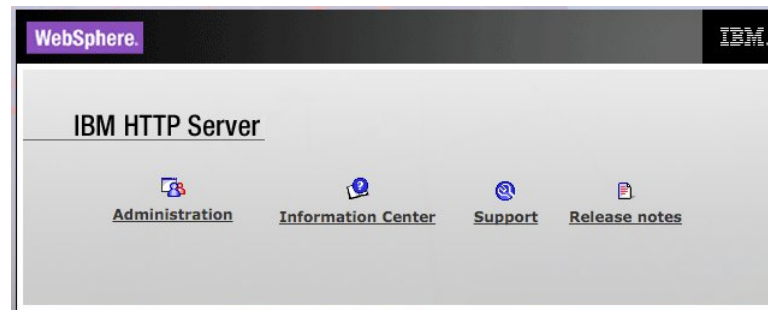
Starting Nmap 7.12 ( https://nmap.org ) at 2016-11-07 16:23 CET
Nmap scan report for connections. ....com (10.10.10.70)
Host is up (0.000067s latency).
rDNS record for 10.10.10.70: ....com
PORT      STATE SERVICE
443/tcp   open  https
| ssl-enum-ciphers:
|   TLSv1.0:
|     ciphers:
|       TLS_RSA_WITH_AES_128_CBC_SHA (rsa 2048) - A
|       TLS_RSA_WITH_AES_256_CBC_SHA (rsa 2048) - A
|       TLS_RSA_WITH_3DES_EDE_CBC_SHA (rsa 2048) - C
|     compressors:
|       NULL
|     cipher preference: server
|   TLSv1.1:
|     ciphers:
|       TLS_RSA_WITH_AES_128_CBC_SHA (rsa 2048) - A
|       TLS_RSA_WITH_AES_256_CBC_SHA (rsa 2048) - A
|       TLS_RSA_WITH_3DES_EDE_CBC_SHA (rsa 2048) - C
|     compressors:
|       NULL
|     cipher preference: server
|   TLSv1.2:
|     ciphers:
|       TLS_RSA_WITH_AES_128_GCM_SHA256 (rsa 2048) - A
|       TLS_RSA_WITH_AES_256_GCM_SHA384 (rsa 2048) - A
|       TLS_RSA_WITH_AES_128_CBC_SHA256 (rsa 2048) - A
|       TLS_RSA_WITH_AES_256_CBC_SHA256 (rsa 2048) - A
|       TLS_RSA_WITH_AES_128_CBC_SHA (rsa 2048) - A
|       TLS_RSA_WITH_AES_256_CBC_SHA (rsa 2048) - A
|       TLS_RSA_WITH_3DES_EDE_CBC_SHA (rsa 2048) - C
|     compressors:
|       NULL
|     cipher preference: server
|_ least strength: C

```

```
Nmap done: 1 IP address (1 host up) scanned in 1.50 seconds
```


Remove Index

- Remove all Files except index.html from <IHS_ROOT>/htdocs
- Rename index.html (e.g. 0815.html)
 - echo 1 > 0815.html
 - For testing you can access the file
- Add robots.txt



Performance Tuning Guides

- **4.0**
 - http://www-10.lotus.com/ldd/lcwiki.nsf/dx/IBM_Connections_4.0_Performance_Tuning_Guide
- **4.5 Addendum**
 - http://www-10.lotus.com/ldd/lcwiki.nsf/dx/IBM_Connections_4.5_Performance_Tuning_Guide_Addendum
- **5.0 CR1**
 - http://www-10.lotus.com/ldd/lcwiki.nsf/dx/IBM_Connection_V5_CR1_Tuning_guide
- **5.5 (June 2016)**
 - https://www-10.lotus.com/ldd/lcwiki.nsf/dx/IBM_Connections_V5.5_Tuning_guide
- **Read everything carefully**
- **Check and understand dependencies**

Worst Practise Example - Tuning

- Customer showed me a system with following infrastructure

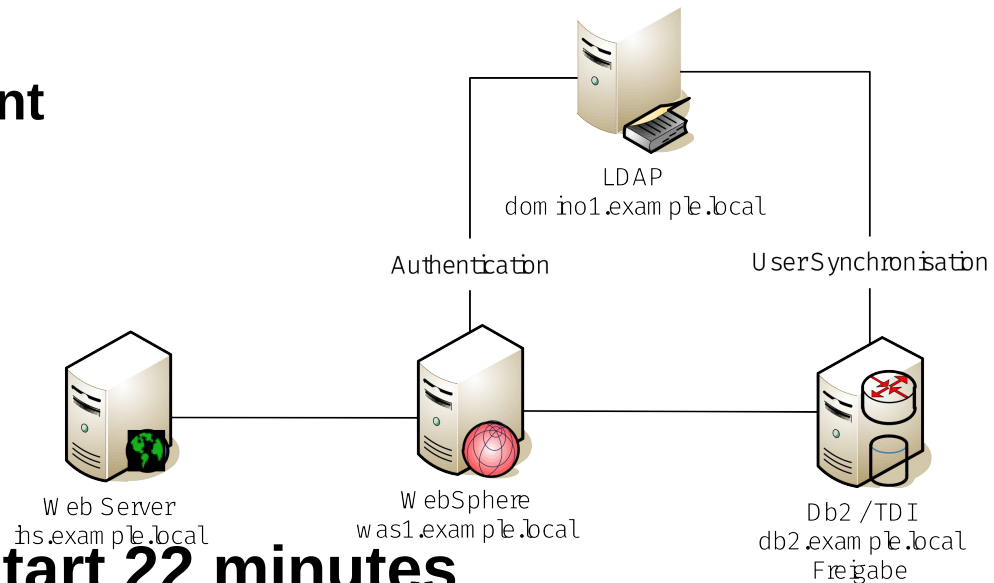
- **WebSphere**

- Large deployment
- 16 GB RAM
- 4 Cores

- **DB2**

- 12 instances
- 8 GB RAM
- 4 Cores

- **Connections restart 22 minutes**

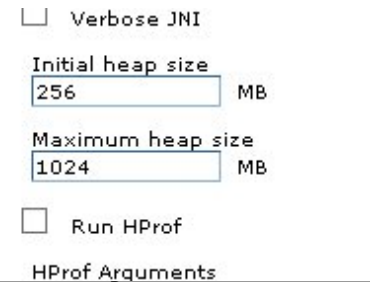


Solving the problem

- **Large deployment means about 15 JVM on the machine**
 - Restart shows 15 min 100% CPU usage
 - Adding 4 cores and restart time get down to 7 minutes
 - Other option would be midsize deployment, but then you have to reinstall Connections
- **Java Heap Sizes set to default (256 MB and 768 MB) -> increase to 1.5 – 2.5 GB**
- **Perf Guide mentions that multiple instances on DB2 only increase performance with enough resources**
 - But that was not the real problem
- **DataSource connectionPool Sizes are set to Default 1/10**
 - Increase this values to the proposals in the guide and ...
 - Restart time comes down under 3 minutes
- **Key point: read the complete guide**

Java Heap

- **Default Java Heap Sizes on Midsize Deployment: 2506 MB / application server**
- **Large Deployment depends on application: 0.5 to 2.5 GB**
- **Main point in memory tuning**
 - Never exceed the system memory
 - Swapping kills all your tuning efforts
- **Counting the JVM Heap sizes is not enough**
 - Maximum heap is not the maximum amount of memory uses!
 - Libraries, jars and so on count additional to memory usage
 - JVM memory usage may be 3 * JVM maximum Heap
- **Initial and maximum Heap Size should be equalized**
 - mentioned in IBM Connections 5.0 tuning guide



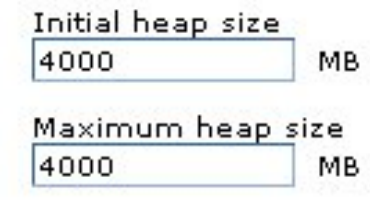
Verbose JNI

Initial heap size
256 MB

Maximum heap size
1024 MB

Run HProf

HProf Arguments



Initial heap size
4000 MB

Maximum heap size
4000 MB

IBM HTTP Server

- **Enable compression**
 - Important !!!!!
 - See Slides from [BP307 - IBM Connect 2014](#)
 - Save up to 70% network traffic
 - Minimal increase of CPU load
- **Enable file download through IHS**
 - Depend on your deployment
 - Often security forbids storage access from DMZ
- **If you have no access to file share from IHS -> Files should be installed in a separate Cluster**

Database Reorg

- **Performance of Connections is often database related**
- **IBM provides runstats.sql and reorg.sql Scripts**
 - Wizards\connections.sql\ - Run them after big amount of data is changed or added
 - Run on a weekly/monthly basis
- **No Scripts for (Create your own!)**
 - CCM
 - Docs
 - Surveys

What to Backup

- **Using an example Connections installation guide rarely explains backups**
 - These guides normally do not mention backup, or what to back up
 - Disk crash means data loss
- **Database backups through file backup are not supported and mostly not restorable**
- **Important!!!**
 - Database Backup through Online Backups can be taken when Connections is up
 - Offline backups are also possible
- **Ensure the file system & DB backup are run at the same time of day**
 - DB and Filesystem data will stay in sync – if you take your DB backup at midnight and the file system at midday they will be out of sync

Backup

- **Most important (minimum daily)**
 - Databases (offline or online)
 - Shared content
- **Important**
 - Configuration
 - WebSphere Application Server
 - Connections
 - IBM HTTP Server
 - TDI Solution
- **Test if restore is possible!!!!**
 - Several issues with WebSphere restores, where binaries weren't on the tape



Install Checklist

- **WebSphere Application Server**
 - Configure Federated Repository
 - LtpaToken, enable security
- **WebSphere Application Server Supplements (IHS, Plugins)**
- **DB2 (or other DBM)**
- **TDI**
- **Add Webserver to Dmgr (use configurewebserver.bat)**
- **Enable SSL on IHS**
- **Import IHS Root Key within WebSphere cell trust keystore (retrieve from port)**
- **Configure CCM**
- **Install optional Addons like Forms Experience Builder, IBM Docs, Cognos**

Documentation



Documentation

- **Everyone hates writing documentation**
- **BUT – make notes as you go, it doesn't need to be a full step by step guide with screenshots**
- **Document all customizations**
- **Any additional changes made**
- **Anything of note that deviates from the guides**
- **Lessons learnt or how you solved issues**
- **Use the scripts to output some of it**

Useful Tools

- **Editor with syntax highlighting**
 - Linux/Unix: vim, geany
 - Windows: notepad++, pspad, UltraEdit
- **Log Viewer**
 - tail -f
 - Baretail (<https://www.baremetalsoft.com/baretail/>)
 - Multitail (<https://www.vanheusden.com/multitail/>)
- **(Intercept) Proxy**
 - Fiddler (<http://www.telerik.com/fiddler>)
 - IBM support ask often for traces
 - Windows only
 - Burpsuite (<https://portswigger.net/burp/>)
 - OS independent

Useful Tools (2)

- **Browser**
 - Firefox (portable) / Firefox ESR
 - Chrome
 - IE (download Virtual Machine with different versions)
 - <https://www.modern.ie>
 - You can be sure there is no GPO applied
- **Network analyzer**
 - Wireshark (<https://www.wireshark.org/>)
 - SPNEGO Analysis
 - tcpdump (save pcap and analyse with Wireshark)
 - Nmap (Check SSL, Ports)
- **Unzip / Unarchiver**
 - 7-zip
 - WinRar
 - Do not use tar delivered with AIX! Use GNU tar

Links and References

- **IBM Connections System Requirements**
 - <http://www-01.ibm.com/support/docview.wss?uid=swg27012786>
- **IBM Connections Family Documentation**
 - <http://www.ibm.com/support/knowledgecenter/SSYGQH/welcome>
- **IBM Connections 4 Performance Tuning Guide**
 - https://www-10.lotus.com/ldd/lcwiki.nsf/dx/IBM_Connections_4.0_Performance_Tuning_Guide
- **IBM Connections 4.5 Performance Tuning Guide Addendum**
 - https://www-10.lotus.com/ldd/lcwiki.nsf/dx/IBM_Connections_4.5_Performance_Tuning_Guide_Addendum
- **IBM Connections 5 CR1 Performance Tuning Guide**
 - https://www-10.lotus.com/ldd/lcwiki.nsf/dx/IBM_Connection_V5_CR1_Tuning_guide
- **5.5 (June 2016)**
 - https://www-10.lotus.com/ldd/lcwiki.nsf/dx/IBM_Connections_V5.5_Tuning_guide

Useful Blogs

<http://ibmconnections.com>

<http://turtleblog.info>

<http://portal2portal.blogspot.de>

<https://www.urspringer.de>

<http://socialconnections.info>

<http://blog.robertfarstad.com>

<http://www.curiousmitch.com>

<http://techblog.gis-ag.info>

<http://ibmdocs.com>

<http://domino.elfworld.org>

<https://dontforgetthe0.com>

<http://www.ramsit.com/category/blog>

<https://milanmatejic.wordpress.com>

<http://dilf.me.uk/socialshazza>

<http://www.stoeps.de>

<http://scripting101.org>

<http://meisenzahl.org>

<http://martin.leyrer.priv.at>

<http://kbild.ch>

<http://www.notesgoddess.net>

<http://www.dominodiva.com>

<http://notesbusters.com>

<https://rob59blog.wordpress.com>

<http://connections101.info>

<http://brandrainer.blogspot.de>

<https://collaborationben.com>

