IBM Software

Connect 2014

January 26–30 Orlando, Florida

ENERGIZING LIFE'S WORK

BP307: Practical Solutions for Connections Administrators –Tips and Scripts for Your Daily Business

Christoph Stoettner, Fritz & Macziol GmbH
Sharon Bellamy, Cube Soft Consulting Ltd.

IBM

Giving Credit

- This presentation mentions the following Copyrights and Trademarks

  - IBM® Notes®
  - IBM® Domino®
  - IBM® Connections
  - IBM® WebSphere®
  - IBM® DB2
  - IBM® AIX®
  - Tivoli®

  - Linux®
  - Java®
  - Microsoft® Windows®
  - Red Hat® Linux®
  - Twitter®
  - Skype®
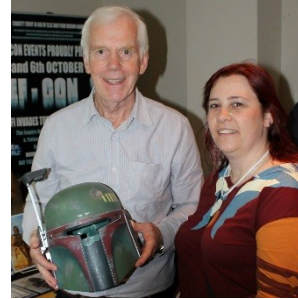
Connect 2014

Who Are We?

Christoph Stoettner

Bavarian, dad of two, likes hiking

- Administrator
- Specialized in the infrastructure of IBM Connections and IBM Domino
- Lover of Linux

Sharon Bellamy

Totally obsessed with anything Star Wars related

- Administrator
- Specialized in the infrastructure of IBM Connections and IBM WebSphere
- Newly discovered lover of Linux

Agenda

- Installing and Configuring
  - Autostart
    - IBM WebSphere
    - DB2 (Linux)
    - IBM HTTP Server
  - Performance Tuning DataSources
  - Setting J2EE Security Roles
  - Configure JVM Log Files
  - Set JVM Heap Sizes
  - HTTPServer and mod_deflate

- Business as Usual
  - Check External ID against LDAP
  - Activate and Deactivate Users
  - Synchronize User External IDs
  - Work with Policies
  - Adding Policies to personal or community libraries
  - Database reorganisation
 - Backup DB2 (online, offline)

Connect 2014

Agenda (2)

- Troubleshooting
  - Application state
  - Database access
  - Scheduler

- Documenting
  - JVM Heap Sizes
  - JVM Log Settings
  - Used Ports within WebSphere
  - WebSphere Variables

Disclaimer & Caution

- With scripts
  - Shell / BASH / ZSH / KSH / SH, Jython / JACL
  - Powershell / Batch / VB, SQL
- You can...
  - Save a lot of time!
  - **Change many things in seconds!**
- TIPPS:
  - Be Careful! Think twice!
  - Create Backups
  - Install a Testsystem
  - Document your changes
- **All shown scripts can be downloaded from Github and OpenNTF (Download link on Slide 61)**
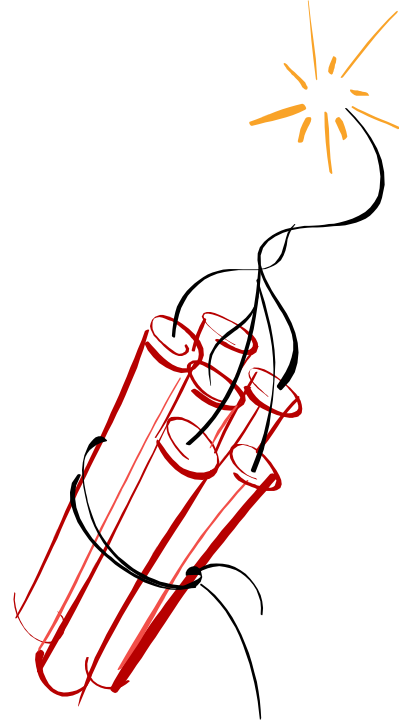
Use all scripts shown in this slides or downloaded from our repositories WITHOUT WARRANTY and at your own risk!

Connect 2014

Installing & Configuring

Autostart IBM WebSphere Application Server

- Many different ways found and discussed
- Easiest and most reliable way
  - Deployment Manager and Nodeagents as Services
  - Application Servers through Monitoring Policies
- Starting Application Servers through Service, Batch or Shell Script has often side effects
  - Problems with Cluster Failover
  - Dependencies
- Register Services with wasservice.bat|sh
- or Download Linux Init Script from Tim Clark
- Change Monitoring Policy
- Remember to set Monitoring Policy to "Stopped" when you install Fixes!

Connect 2014

Autostart IBM WebSphere Application Server
Register Service (Linux)

```
#!/bin/bash
cd $WAS_HOME/bin
./wasservice.sh -add Dmgr -serverName dmgr -profilePath /opt/IBM/WebSphere/AppServer/profiles/Dmgr01 \
 -stopArgs '-username wasadmin -password password'
./wasservice.sh -add Node -serverName nodeagent -profilePath /opt/IBM/WebSphere/AppServer/profiles/AppSrv01 \
 -stopArgs '-username wasadmin -password password -stopservers'
chkconfig --levels 2345 --add Dmgr_was.init on
chkconfig --levels 2345 --add Node_was.init on
```

```
[root@cnxwas1 ~]# ls /etc/init.d/
abrt-ccpp      auditd           haldaemon    lvm2-lvmetad   nfs        psacct       rpcidmapd    sshd
abrtd          blk-availability halt         lvm2-monitor   nfslock    quota_nld    rpcsvcgssd   sysstat
abrt-oops      cpuspeed         ip6tables    mdmonitor      Node_was.init  rdisc    rsyslog      udev-post
acpid          crond            iptables     messagebus     ntpd       restorecond  sandbox      vmware-tools
adminctl       cups             irqbalance   netconsole     ntpdate    rngd         saslauthd    vmware-tools-thinprint
apachectl      Dmgr_was.init    kdump        netfs          portreserve rpcbind     single
atd            functions        killall      network        postfix    rpcgssd      smartd
```

Connect 2014

Autostart IBM WebSphere Application Server
Register Service (Windows)

- `cd %WAS_HOME%/bin`

- `wasservice.bat –add Dmgr –serverName dmgr –profilePath D:\IBM\WebSphere\AppServer\profiles\Dmgr01 –encodeParams –restart true –startType automatic –stopArgs "-username wasadmin –password password"`

- `wasservice.bat –add Node –serverName nodeagent –profilePath D:\IBM\WebSphere\AppServer\profiles\AppSrv01 –encodeParams –restart true –startType automatic –stopArgs '-username wasadmin –password password -stopservers'`

Connect 2014

Autostart IBM WebSphere Application Server
Set Monitoring Policy

- ISC:
  - Open each Application Server (1 – 15 x)
  - Server Infrastructure – Java and Process Management – Monitoring Policy
  - Change Node restart state to "RUNNING"
- WSADMIN:
  - `./wsadmin.sh -lang jython -f cfgMonitoringPolicy.py`
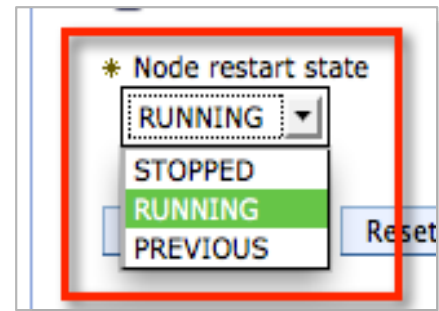
```
[root@cnxwas1 bin]# wsadmin -lang jython -f cfgMonitoringPolicy.py
WASX7209I: Connected to process "dmgr" on node cnxwas1CellManager01
ymentManager
Which state do you want to set? (S|R|P)(STOPPED|RUNNING|PREVIOUS)R
Set nodeRestartState for FEB_server1 to: RUNNING
Set nodeRestartState for Cluster1_server1 to: RUNNING
Set nodeRestartState for Cluster2_server1 to: RUNNING
Set nodeRestartState for InfraCluster_server1 to: RUNNING
Set nodeRestartState for ConversionMember1 to: RUNNING
Set nodeRestartState for ViewerMember1 to: RUNNING
Set nodeRestartState for DocsMember1 to: RUNNING
Syncronizing nodecnxwas1Node01
```

Autostart (Windows & Linux)
IBM HTTP Server

- Windows Installer create a Service for IHS and Admin Service
- Easiest way for Linux | AIX:
  - Create Symbolic Link:
    - ln -s /opt/IBM/HTTPServer/bin/apachectl /etc/init.d/
    - ln -s /opt/IBM/HTTPServer/bin/adminctl /etc/init.d/
  - Add Service
    - chkconfig –add apachectl
    - chkconfig –add adminctl

```
/etc/init.d/abrt-ccpp
/etc/init.d/abrtd
/etc/init.d/abrt-oops
/etc/init.d/acpid
/etc/init.d/adminctl  -> /opt/IBM/HTTPServer/bin/adminctl
/etc/init.d/apachectl -> /opt/IBM/HTTPServer/bin/apachectl
/etc/init.d/atd
/etc/init.d/auditd
```

```
[root@cnxwas1 bin]# chkconfig --list
Dmgr_was.init   0:off   1:off   2:on    3:on    4:on    5:on    6:off
Node_was.init   0:off   1:off   2:on    3:on    4:on    5:on    6:off
abrt-ccpp       0:off   1:off   2:off   3:on    4:on    5:on    6:off
abrtd           0:off   1:off   2:off   3:on    4:on    5:on    6:off
acpid           0:off   1:off   2:on    3:on    4:on    5:on    6:off
adminctl        0:off   1:off   2:on    3:on    4:on    5:on    6:off
apachectl       0:off   1:off   2:on    3:on    4:on    5:on    6:off
atd             0:off   1:off   2:off   3:on    4:on    5:on    6:off
auditd          0:off   1:off   2:on    3:on    4:on    5:on    6:off
```

Autostart (CentOS / Red Hat)
DB2

- DB2 V9 is started through /etc/inittab entry
  - inittab is deprecated in RHEL/CENTOS 6
  - https://www-304.ibm.com/support/docview.wss?uid=swg21497220
- DB2 V10.1 can handle /etc/init/db2fmcd.conf
- In my case /etc/init/db2fmcd.conf wasn't enough
- I added following script (copy of db2fmcd) to /etc/init for each DB2 instance:

```
description 'Fault Monitor is the DB2 database facil
 instance that exits permaturely.'
version 'DB2 v10.1.0.1'

start on stopped rc RUNLEVEL=[2345]
stop on starting rc RUNLEVEL=[016]

console output
respawn
respawn limit 10 120

exec /opt/ibm/db2/V10.1/bin/db2fm -i db2inst1 -U
~
```

Configure Data Sources
Performance and Precautionary

- Performance Tuning IBM Connections
    - Increase min- and maxConnections of Data Sources
        - Performance Tuning Guide IBM Connections 4.0
        - Performance Tuning Guide Addendum
    - Review these settings periodically with "Tivoli Performance Viewer"
- IBM Connections Forum:
  After Update to IBM Connections 4.5 Errors on createOrWaitForConnection (Ressource jdbc /search)

searchJDBC					
☑	—	CreateCount ?	10.0	1.0	10.0
☑	—	CloseCount ?	0.0	1.0E20	0.0
☑	—	PoolSize ?	10.0	1.0	10.0
☐		FreePoolSize ?	9.0	1.0	9.0
☐		WaitingThreadCount ?	0.0	1.0E20	0.0
☐		PercentUsed ?	1.0	1.0	1.0
☐		UseTime ?	459.36392	0.1	45.936394
☐		WaitTime ?	0.0	1.0E20	0.0

Connect 2014

Configure Data Sources (2)

Demo / Video

Connect 2014

Configure Data Sources

- 18 Data Sources to Change (about 100 mouse clicks)
- Why not using a script:
  - wsadmin.sh -lang jython -f cfgDataSource.py
  - About 30 seconds to change all needed parameters of all Data Sources
- Start with Performance Tuning Guide and Addendum
- Monitor values!

Data sources > **FNOSDS** > **Connection pools**

Use this page to set properties that impact the timing of connecti performance of your application. Consider the default values care changing these values.

Configuration

General Properties

Scope

cells:cnxwas1Cell01

* Connection timeout

180   seconds

* Maximum connections

200   connections

* Minimum connections

75   connections

* Reap time

180   seconds

Connect 2014

Set J2EE Security Roles
Initial set

- First found on Klaus Bilds Blog: http://kbild.ch
- Saves half an hour within IBM Connections Installation
- Extended version with LDAP Group support and input option
  - No need to edit the script
- Two versions:
  - Restricted
    - Each application ask for credentials, no data visible for anonymous Users
  - Unrestricted
    - Default Settings, some content is visible to Anonymous Users
- Remember:
  - Applications restart automatically, when you change J2EE Roles

Connect 2014

Set J2EE Security Roles (2)
Demo

Demo / Video

Connect 2014

J2EE Security Roles
Backup

- CR and Fixpack Installations pre IBM Connections 4.0 often reset J2EE Roles to Default
- Problems:
    - Restricted environments can be visible to Internet Users (Search Bots)
        - Check with Google: site:yourconnectionshost
    - Configuration needs time and documentation (who is allowed to administrate, moderate …)
- Script writes text files as backup to a local folder
- Roles of all installed applications (IBM Docs, Forms Experience Builder,...)
- ./wsadmin.sh -lang jython -f cfgJ2EERoleBackup.py

Connect 2014

J2EE Security Roles (2)
Backup

Demo / Video

Connect 2014

J2EE Security Roles
Restore

- Backups of Security Roles can be restored
- Advantages:
  - You can edit the backup files to add or change users
  - Backup of Dev or QA Systems can be restored in production (Admin Users and Groups must exist there)
- ./wsadmin.sh -lang jython -f cfgJ2EERoleRestore.py

☐	search-admin	None	wasadmin AConnections	CNXAdmins
☐	global-moderator	None	wasadmin Aconnections	CNXModerators
☐	admin	None	wasadmin AConnections	CNXAdmins
☐	dsx-admin	None	wasadmin AConnections	CNXAdmins
☐	widget-admin	None	wasadmin AConnections	CNXAdmins

Connect 2014

J2EE Security Roles (2)
Restore

Demo / Video

Connect 2014
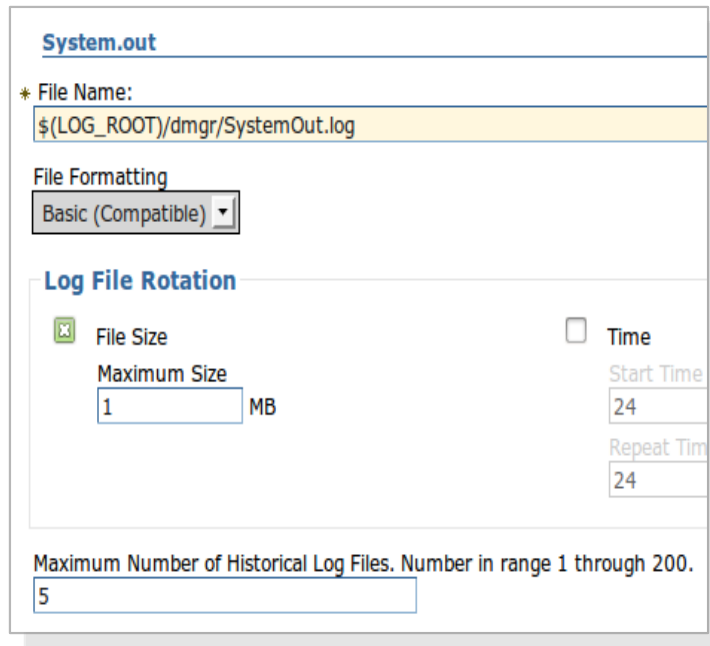
Configure JVM Log Files
Size and History

- Default Setting for JVM Log Files (SystemOut.log & SystemErr.log):
  - Size: 1 MB
  - No historical Log Files
  - Too small to troubleshoot errors
- Better:
  - Size: 20 – 40 MB
  - 5 historical Log Files
- Must be configured on Dmgr, nodeagents and application servers
- wsadmin.sh -lang jython -f cfgLogFiles.py

System.out

* File Name:

$(LOG_ROOT)/dmgr/SystemOut.log

File Formatting

Basic (Compatible)

Log File Rotation

☒ File Size   ☐ Time

Maximum Size   Start Time

1   MB   24

                               Repeat Tim

                               24

Maximum Number of Historical Log Files. Number in range 1 through 200.

5

Connect 2014

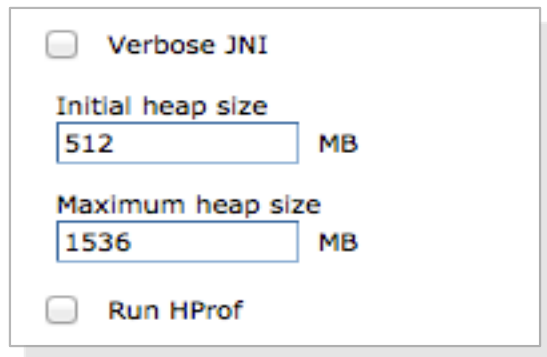# Configure JVM Log Files (2)
Size and History

Demo / Video

Connect 2014

Set JVM Heap Sizes
Dmgr, Nodeagent and Application Servers

- Performance Tuning Guide provides some proposals for JVM Max Heap and Initial Heap
- Must be set on Deployment Manager, Nodeagents and Application Servers
- You can monitor through Verbose Garbage Collection
  - minHeap = maxHeap can increase performance up to 10%
  - WebSphere Tech Journal
- Script: cfgJVMHeap.py
  - Shows actual size of initialHeapSize and maximumHeapSize for all JVM
  - Asks initialHeapSize and maximumHeapSize for all JVM
  - "Return" leaves actual setting

Set JVM Heap Sizes
Dmgr, Nodeagent and Application Servers

Demo / Video

Connect 2014

IBM HTTP Server and mod_deflate
Savings

- Loading Homepage (Firefox Developer Tools – Net Module)
  - mod_deflate disabled, Browser Cache disabled: 6.2 MB
  - mod_deflate enabled, Browser Cache disabled: 1.5 MB
  - mod_deflate disabled, Browser Cache enabled: 1.3 MB
  - mod_deflate enabled, Browser Cache enabled: ~0.26 MB (259.0 kB)
  - approx 80% saved
- Loading My Profile (Firefox Developer Tools – Net Module)
  - mod_deflate disabled, Browser Cache disabled: 4.8 MB
  - mod_deflate enabled, Browser Cache disabled: 1.3 MB
  - mod_deflate disabled, Browser Cache enabled: 0.5 MB
  - mod_deflate enabled, Browser Cache enabled: ~0.13 MB (129.0 kB)
  - approx 75% saved

Connect 2014

IBM HTTP Server and mod_deflate
Activating mod_deflate

- Detailed descriptions:
  - Blogpost Sharon Bellamy: http://tinyurl.com/lk8f398
- Uncomment / Activate Module
  - LoadModule deflate_module modules/mod_deflate.so
- DeflateCompressionLevel 9
  - Highest amount of compression
  - Depending on the load and size of your HTTP server this may use a lots of CPU time
  - Needs to be monitored and tuned for your specific server

Connect 2014

IBM HTTP Server and mod_deflate
Activating mod_deflate (add to Virtual Host)

```
# Ensure that proxies do not deliver the wrong content
Header append Vary User-Agent env=!dont-vary
<IfModule mod_deflate.c>
    SetOutputFilter DEFLATE
    AddOutputFilterByType DEFLATE application/*
    AddOutputFilterByType DEFLATE text/*
    # Netscape 4.x has some problems…
    BrowserMatch ^Mozilla/4 gzip-only-text/html
    BrowserMatch ^Mozilla/4\.0[678] no-gzip
    BrowserMatch \bMSI[E] !no-gzip !gzip-only-text/html

    # Don't compress already-compressed files
    SetEnvIfNoCase Request_URI .(?:gif|jpe?g|png)$ no-gzip dont-vary
    SetEnvIfNoCase Request_URI .(?:exe|t?gz|zip|bz2|sit|rar)$ no-gzip dont-vary
    SetEnvIfNoCase Request_URI .(?:avi|mov|mp3|mp4|rm|flv|swf|mp?g)$ no-gzip dont-vary
    SetEnvIfNoCase Request_URI .pdf$ no-gzip dont-vary
    DeflateCompressionLevel 9
</IfModule>
```

Connect 2014

Check External IDs against LDAP
Through all applications

- Sometimes User can't logon to single Connections Applications
- ExtIDs are out of sync
- Several Error messages
- Script to check if LDAP UUIDs (GUID, SID) are equal to Connections UUID
  - Edit cnxMemberCheckExIDByEmail.py
  - You must edit the script and change following:
    - Path to JDBC Driver
    - DB User and Password
    - DB Host, Port, peopleDB name
  - Script reads PROF_GUID from peopleDB through JDBC
    - Check UUID in Applications

```
# add the jar to your classpath, then import it
# better to read WebSphere variable PROFILES_JDBC_DRIVER_HOME
sys.path.append( '/opt/IBM/JDBC/db2jcc4.jar' )
import com.ibm.db2.jcc.DB2Driver as Driver

# Change User and Password
props = Properties()
props.put( 'user', 'lcuser' )
props.put( 'password', 'password' )

# Change Hostname, Port and maybe DB Name
conn = Driver().connect( 'jdbc:db2://cnxdb2.stoeps.local:50000/PEOPLEDB',
props )

stmt = conn.createStatement()
```

Connect 2014

Check External IDs against LDAP (2)
Through all applications

Demo / Video

Connect 2014

Deactivate and Activate Users
One step

- After rename or sometimes without real reason
  - Users get out of sync
  - They can open Profiles, but no other Application
  - Or they have problems with a single App
  - Deactivating and Reactivating through ProfilesService can be a resolution for this
- When you want to reactivate a user you must provide UID and EMAIL (was deleted through Deactivate)
- Script: cnxMemberDeactAndActByEmail.py
  - Stores UID and Mail in memory
  - You must edit the script and change following:
    - Path to JDBC Driver
    - DB User and Password
    - DB Host, Port, peopleDB name

```
# add the jar to your classpath, then import it
# better to read websphere variable PROFILES_JDBC_DRIVER_HOME
sys.path.append( '/opt/IBM/JDBC/db2jcc4.jar' )
import com.ibm.db2.jcc.DB2Driver as Driver

# Change User and Password
props = Properties()
props.put( 'user', 'lcuser' )
props.put( 'password', 'password' )

# Change Hostname, Port and maybe DB Name
conn = Driver().connect( 'jdbc:db2://cnxdb2.stoeps.local:50000/PEOPLEDB',
props )

stmt = conn.createStatement()
```

Deactivate and Activate Users
One step - Demo

Demo / Video

Connect 2014

Sync External IDs of all Users in all Connections Apps

- Sometimes LDAP IDs and UUID within Connections come out of sync
- After changing the LDAP System a complete resync is needed
- You have to call MemberService.syncAllMembersByExtId for each Application
- cnxMemberSyncAllByEXID.py resyncs all Applications for all Users

```
updateOnEmailLoginMatch (t)rue or (f)alse) t
Sync all Members by EXTID for Activities,  syncAllMembersByExtId request processed
Sync all Members by EXTID for Blogs,  syncAllMembersByExtId request processed
Sync all Members by EXTID for Communities,  syncAllMembersByExtId request processed
Sync all Members by EXTID for Dogear,  syncAllMembersByExtId request processed
Sync all Members by EXTID for Files,  syncAllMembersByExtId request processed
Sync all Members by EXTID for Forums,  syncAllMembersByExtId request processed
Sync all Members by EXTID for News,  syncAllMembersByExtId request processed
Sync all Members by EXTID for Wikis,  syncAllMembersByExtId request processed
[root@cnxwas1 bin]#
```

Connect 2014

Work with Files Policies (2)

Demo / Video

Connect 2014

Work with Files Policies

- Creating or editing Policies is ~~sometimes~~ a pain
- Library size must be provided as Long (e.g. 2 GB = 2147483648L)
- Edit example
  - `FilesPolicyService.edit("2d93497d-065a-4022ae25-a4b52598d11a", "My Policy", 2147483648L)`
  - Find UUID of Policy to edit, copy the size from calculator …
- wsadmin.sh -lang jython -f CnxFilesPolicies.py

Work with Files Policies (2)

Demo / Video

Connect 2014

Add Policies to Personal and Community Libraries

- You need UUID from Policy and Community
  - Community Listing provides too much information, hard to find UUID
  - Example assign Policy
    - FilesLibraryService.assignPolicy("f0d01111-9b21-4dd8-b8be-8825631cb84b", "2d93497d-065a-4022ae25-a4b52598d11a")
- Script POC
  - cnxLibraryPolicies.py
  - Listing of all Communities and Policies
- To Do:
  - Search Option

```
wsadmin>FilesLibraryService.browseCommunity("title", "true", 1, 20)
[{maximumSize=524288000, size=0, percentUsed=0.0, summary=Test Mailfunktion, createDate=Tue Oct 08 1
1:56:05 CEST 2013, policyId=00000000-0000-0000-0000-000000000001, externalContainerId=2db62e12-0d87-
44a1-a769-f7d432aede4d, themeName=default, label=W2fd48efc9129_4cfb_aafa_babbd2d1f7e0, title=ALL, ow
nerUserId=00000000-0000-0000-0000-000000000000, type=community, id=05d468f0-c523-473d-b7ef-89442aca2
4d4, externalInstanceId=W2fd48efc9129_4cfb_aafa_babbd2d1f7e0, lastUpdate=Tue Oct 08 11:56:05 CEST 20
13}, {maximumSize=32212254720, size=0, percentUsed=0.0, summary=Sammlung von Anwendungsbeispielen, I
ntegration von Anwendungen, Erfolgsgeschichten, createDate=Tue Sep 10 07:26:40 CEST 2013, policyId=3
df87d00-691a-4fd9-95b4-cbcadc47c49d, externalContainerId=983d2724-8634-4c3e-ae0b-7b6de0c7fca3, theme
Name=default, label=W1cbed014db46_400a_a979_56ccd9033a8e, title=Best Practice - CNX, ownerUserId=000
00000-0000-0000-0000-000000000000, type=community, id=26ed0755-2633-4282-af8b-d836163ffcc3, external
InstanceId=W1cbed014db46_400a_a979_56ccd9033a8e, lastUpdate=Tue Sep 10 07:26:40 CEST 2013}, {maximum
```

Connect 2014
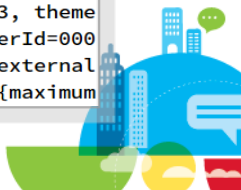
Add Policies to Personal and Community Libraries

Demo / Video

Connect 2014

DB2 - Database Optimization

- Performance Tuning Guide:
  - Reorganization (change physical data arrangement on disc) should be done when a significant amount of data is added
  - Runstat should be run regularly to ensure that queries are being executed optimally
- Reorganization can be done with SQL Scripts which can be found in connections.sql folder of Connections Wizards Package
- Runstat can be configured through automatic maintenance

Connect 2014

DB2 - Database Optimization
Reorganisation

- Create a scheduled job (Windows Scheduler or Cron)
  - crontab -e
    - 15 5 * * 6 cd /opt/install/Wizards/connections.sql;./reorg.sh
    - Runs Script each saturday at 5:15 am
- Use a script within Wizards-Folder
- Linux (call Script as Instance Owner from Wizards/connections.sql):

```
# line end with @
for db in activities blogs cognos communities dogear files forum libraries.gcd libraries.os metrics mobile wikis ; do
        db2 -td@ -vf $db/db2/reorg.sql
done
# homepage and profiles use ; for line end
for db in homepage profiles ; do
        db2 -tvf $db/db2/reorg.sql
done
```

- Windows

```
FOR %A IN (activities blogs cognos communities dogear files forum libraries.gcd libraries.os metrics mobile wikis) DO db2 -td@ -vf %A\db2\reorg.sql

FOR %A IN (homepage profiles) DO db2 -tvf %A\db2\reorg.sql
```

Connect 2014

DB2 - Database Optimization
Runstats

- Configure Automatic Maintenance through IBM Data Studio for one database
  - Online Maintenance Window
  - Offline Maintenance Window
  - Backup Policy
  - Reorg Policy
  - Runstats Policy
- Save commands to a SQL Script

Connect 2014

DB2 – Automatic Maintenance

- Edit the Command in IBM Data Studio

```
CONNECT TO HOMEPAGE;
UPDATE DATABASE CONFIGURATION USING auto_db_backup ON auto_reorg ON auto_runstats ON auto_prof_upd ON auto_stats_prof ON;
CALL SYSPROC.AUTOMAINT_SET_POLICY ('MAINTENANCE_WINDOW', BLOB('<?xml version="1.0" encoding="UTF-8"?><DB2MaintenanceWindows xmlns="
CALL SYSPROC.AUTOMAINT_SET_POLICY (  'AUTO_BACKUP', BLOB('<?xml version="1.0" encoding="UTF-8"?><DB2AutoBackupPolicy xmlns="http://w
CALL SYSPROC.AUTOMAINT_SET_POLICY (  'AUTO_REORG', BLOB('<?xml version="1.0" encoding="UTF-8"?><DB2AutoReorgPolicy xmlns="http://www
CALL SYSPROC.AUTOMAINT_SET_POLICY (  'AUTO_RUNSTATS', BLOB('<?xml version="1.0" encoding="UTF-8"?><DB2AutoRunstatsPolicy xmlns="http
CONNECT RESET;
```

- Copy five lines:
  - "Update Database …"
  - Four call statements (CALL SYSPROC ...) to a new sql file
- Create a Batch / Shell Script

```
databases=$(db2 list database directory | grep alias | awk '{print $4}' | sort)

for database in ${databases[@]}
do
 if [$database != "TOOLSDB" | $database != "toolsdb"] ; then
    echo $database
    db2 "connect to $database"
    db2 -tvf automaint.sql
    db2 "connect reset"
 else
    echo "Skip $database"
 fi
done
```

Connect 2014

DB2 Backup
Online and Offline

- Configure Online and Offline Backups through Automatic Maintenance
- Create backup Scripts and use with cron or Windows scheduler
- You must prepare the databases for Online Backups
  - Set a path for Archive Logs
  - List databases
  - IMPORTANT: logarchmeth1 disk:$archLogs

```
# Path to archive Logs
archLogs=/opt/db2archivelogs

# get all databases of db2 instance
databases=$(db2 list database directory | grep alias | awk '{print $4}' | sort)

# Loop through list of databases:
for database in ${databases[@]}
do
 echo $database
db2 update database configuration for $database using LOGARCHMETH1 LOGRETAIN AUTO_DEL_REC_OBJ ON num_db_backups 1 rec_his_retentn 0 logarchmeth1 disk:$archLogs
done
```

- You must create an Offline Backup after starting these script!!!

Connect 2014

DB2 Database Offline Backup

- You must create an Offline Backup after starting these scripts
- You (and WebSphere) can't connect to databases until this is done

```
# Set Backup-Directory, change to your environment
export DBBACKUPPATH=/opt/db2backup
# get all databases of db2 instance
databases=$(db2 list database directory | grep alias | awk '{print $4}' | sort)

# Loop through list of databases:
for database in ${databases[@]}
do
 echo $database
db2 backup database $database to $DBBACKUPPATH COMPRESS
done
```

DB2 Database Online Backup

- Includes Logs in the Backup
- Call this Script regularly to get backups to the given time
- Or use Automatic Maintenance
  - DB2 decides the time when backup is created
    - Max time between backups
    - when 10 MB data is changed

```
# Set Backup-Directory, change to your environment
export DBBACKUPPATH=/opt/db2backup
# get all databases of db2 instance
databases=$(db2 list database directory | grep alias | awk '{prin

# Loop through list of databases:
for database in ${databases[@]}
do
 echo $database
 db2 backup database $database ONLINE to $DBBACKUPPATH COMPRESS INCLUDE LOGS
done
```

Create or update the backup policy

Backup policy option

Backup criteria

Specify the criteria that determines how frequently this database will be back

- ○ Optimize for database recoverability (more frequent backups)
- ○ Balance database recoverability with performance
- ○ Optimize for database performance (less frequent backups)
- ◉ Customize the criteria

Criteria details

Maximum time between backups: 1 Day

Maximum log space used between backups: 10 MB

Connect 2014

DB2 Database Restore Online Backup
thanks to kbild.ch

- Drop database you want to restore (Example BLOGS)
    - db2 drop database blogs
- Create database through create-Scripts of Wizards-Folder
    - cd /opt/install/Wizards/connections.sql/blogs/db2
    - db2 -td@ -vf createDb.sql
- Grant access to database
    - db2 -td@ -vf appGrants.sql
- Restore Data
    - db2 restore database BLOGS from /opt/db2backup REPLACE EXISTING
    - db2 restore database BLOGS LOGS from /opt/db2backup LOGTARGET /opt/db2logs
    - db2 rollforward database BLOGS to end of logs overflow log path "(/opt/db2logs)"
    - db2 rollforward database BLOGS complete overflow log path "(/opt/db2logs)"
- Reorganize database
    - db2 -td@ -vf reorg.sql

Connect 2014

Are All Applications running

- To check If all IBM Connections Applications are running
  - Go to ISC – Applications – Application Types - WebSphere Enterprise Applications
  - Start wsadmin.sh -lang jython -f checkAppStatus.py
  - Get a grouped list with running and stopped applications
- Create a Batch / Shell Script to call this regularly or use it with a Monitoring Software

Can WebSphere connect to DataSources

- To check If all Data Sources can be reached
  - Go to ISC – Resources – JDBC – Data sources
  - Check all Data Sources and click Test connection
- Use a script
  - wsadmin.sh -lang jython -f checkDataSource.py

```
Messages
  The test connection operation for data source FNGCDDS on server dmgr at
  node cnxwas1CellManager01 was successful.
  The test connection operation for data source FNGCDDSXA on server dmgr at
  node cnxwas1CellManager01 was successful.
  The test connection operation for data source FNOSDS on server dmgr at node
  cnxwas1CellManager01 was successful.
  The test connection operation for data source FNOSDSXA on server dmgr at
  node cnxwas1CellManager01 was successful.
  The test connection operation for data source activities on server dmgr at node
  cnxwas1CellManager01 was successful.
  The test connection operation for data source blogs on server dmgr at node
```

```
Connection to DataSource successful:

        FNGCDDS
        FNOSDS
        IBM_FORMS_DATA_SOURCE
        activities
        blogs
        communities
        dogear
        files
        forum
        homepage
        metrics
        mobile
        news
        oauth provider
        profiles
        search
        wikis
```

Connect 2014

Delete Scheduler
wsadmin and Database

- Sometimes scheduled Tasks from IBM Connections never end
- Example: Update of Search Index hangs
- First step
  - Wsadmin.sh -lang jython
  - execfile("connectionsConfig.py")
  - Scheduler.listAllTasks()
  - Scheduler.clearAllTasks()
  - Restart Connections Servers/Clusters
- Second step, after Scheduler were recreated, Job still is there with old date values
  - You have to reset Schedulers from Database
  - Wizards/connections.sql/search/db2/clearSched.sql
  - clearSched.sh Script deletes all Schedulers in all Databases
    - Save in Wizards/connections.sql

Connect 2014

JVM Heap Sizes
Dmgr, Nodeagent, Application Servers

- Many places to look for this values
- Script to collect it and print it out:
  - Wsadmin.sh -f checkJVMHeap.py

```
[root@cnxwas1 bin]# wsadmin -f checkJVMHeap.py
WASX7209I: Connected to process "dmgr" on node cnx
nager
cnxwas1Cell01 - cnxwas1CellManager01 - dmgr
        initialHeapSize: 512
        maximumHeapSize: 512

cnxwas1Cell01 - cnxwas1Node01 - FEB_server1
        initialHeapSize: 756
        maximumHeapSize: 756

cnxwas1Cell01 - cnxwas1Node01 - nodeagent
        initialHeapSize: 0
        maximumHeapSize: 0

cnxwas1Cell01 - cnxwas1Node01 - Cluster1_server1
        initialHeapSize: 256
        maximumHeapSize: 2048
```

JVM Log Settings
Dmgr, Nodeagent, Application Servers

- Documentation of JVM Log Settings
- Wsadmin.sh -lang jython -f checkLogFiles.py

```
Log setting for: cnxwas1CellManager01    dmgr

        LogSettings SystemOut:
          [baseHour 24]
          [fileName $(LOG_ROOT)/dmgr/SystemOut.log]
          [formatWrites true]
          [maxNumberOfBackupFiles 10]
          [messageFormatKind BASIC]
          [rolloverPeriod 24]
          [rolloverSize 30]
          [rolloverType SIZE]
          [suppressStackTrace false]
          [suppressWrites false]

        LogSettings SystemErr:
          [baseHour 24]
          [fileName $(LOG_ROOT)/dmgr/SystemErr.log]
          [formatWrites true]
          [maxNumberOfBackupFiles 10]
          [messageFormatKind BASIC]
          [rolloverPeriod 24]
          [rolloverSize 30]
          [rolloverType SIZE]
          [suppressStackTrace false]
          [suppressWrites false]
```

Connect 2014

Used Ports
Dmgr, Nodeagent, Application Servers

- Documentation of all Ports used in your WebSphere Cell
- Wsadmin.sh -lang jython -f checkPorts.py

```
webserverNode cnxwas1.stoeps.local
        WEBSERVER_ADDRESS : cnxwas1.stoeps.local : 80
        WEBSERVER_ADMIN_ADDRESS : cnxwas1.stoeps.local : 8008

cnxwas1CellManager01 dmgr
        BOOTSTRAP_ADDRESS : cnxwas1.stoeps.local : 9809
        CELL_DISCOVERY_ADDRESS : cnxwas1.stoeps.local : 7277
        CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS : cnxwas1.stoeps.local : 9402
        CSIV2_SSL_SERVERAUTH_LISTENER_ADDRESS : cnxwas1.stoeps.local : 9403
        DCS_UNICAST_ADDRESS : * : 9352
        DataPowerMgr_inbound_secure : * : 5555
        IPC_CONNECTOR_ADDRESS : ${LOCALHOST_NAME} : 9632
        ORB_LISTENER_ADDRESS : cnxwas1.stoeps.local : 9100
        SAS_SSL_SERVERAUTH_LISTENER_ADDRESS : cnxwas1.stoeps.local : 9401
        SOAP_CONNECTOR_ADDRESS : cnxwas1.stoeps.local : 8879
        WC_adminhost : * : 9060
        WC_adminhost_secure : * : 9043

cnxdocsNode01 nodeagent
        BOOTSTRAP_ADDRESS : cnxdocs.stoeps.local : 2809
        CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS : cnxdocs.stoeps.local : 9202
        CSIV2_SSL_SERVERAUTH_LISTENER_ADDRESS : cnxdocs.stoeps.local : 9201
        DCS_UNICAST_ADDRESS : * : 9353
        IPC_CONNECTOR_ADDRESS : localhost : 9629
        NODE_DISCOVERY_ADDRESS : cnxdocs.stoeps.local : 7272
        NODE_IPV6_MULTICAST_DISCOVERY_ADDRESS : ff01::1 : 5001
        NODE_MULTICAST_DISCOVERY_ADDRESS : 232.133.104.73 : 5000
```

Connect 2014

WebSphere Variables
All Scopes

- Good starting point for Troubleshooting too
- Documentation
- Wsadmin.sh -lang jython -f checkVariables.py

```
SCOPE: cells/cnxwas1Cell01/nodes/webserverNode/servers/cnxwas1.stoeps.local
        SERVER_LOG_ROOT                         ${LOG_ROOT}/cnxwas1.stoeps.local
        WAS_SERVER_NAME                         cnxwas1.stoeps.local
        WEB_INSTALL_ROOT                        /opt/IBM/HTTPServer

SCOPE: cells/cnxwas1Cell01
        ACTIVITIES_CONTENT_DIR                  /opt/IBM/Connections/data/shared/activities/content
        ACTIVITIES_HOME                         /opt/IBM/Connections/activities/activities/activities
        ACTIVITIES_JDBC_DRIVER_HOME             /opt/IBM/JDBC
        ACTIVITIES_STATS_DIR                    /opt/IBM/Connections/data/shared/activities/statistics
        ACTIVITY_STREAM_SEARCH_INDEX_DIR        /opt/IBM/Connections/data/local/news/search/index
        ACTIVITY_STREAM_SEARCH_REPLICATION_DIR  /opt/IBM/Connections/data/shared/news/search/indexReplication
        AUDIT_FILE_ROOT_DIR                     /opt/IBM/Connections/data/shared/audit
        BLOGS_CONTENT_DIR                       /opt/IBM/Connections/data/shared/blogs/upload
        BLOGS_HOME                              /opt/IBM/Connections/blogs/blogs/blogs
        BLOGS_JDBC_DRIVER_HOME                  /opt/IBM/JDBC
```

Connect 2014

Version Information
WebSphere and Connections

- IBM WebSphere show installed Version and Hotfixes
  - $WAS_HOME/profiles/Dmgr01/bin/historyInfo.sh
- Show all Installed Fixes of IBM Connections
  - cd $CONNECTIONS_ROOT
  - ./updateSilent.sh -fix -installDir /opt/IBM/Connections

```
IBM Connections
Update Installer Version 4.5.0.0, Dated 10/20/13

Listing installed fixes:
  Fix name: LO75060-IC4500-CR01-Homepage
  Fix name: LO75060-IC4500-CR01-MobileAdmin
  Fix name: LO76350-IC4500-CR02-Bookmarks
  Fix name: LO76350-IC4500-CR02-MobileAdmin
  Fix name: LO77120-IC4500-CR03-Container
  Fix name: LO75060-IC4500-CR01-CCM
  Fix name: LO76350-IC4500-CR02-Help
  Fix name: LO75060-IC4500-CR01-Common
  Fix name: LO75060-IC4500-CR01-Proxy
  Fix name: LO77120-IC4500-CR03-CCM
  Fix name: LO77975
  Fix name: LO75060-IC4500-CR01-Wikis
  Fix name: LO77120-IC4500-CR03-Blogs
```

```
0.0-WS-WASND-IFPM71430
all
0.0
0.0-WS-WASND-IFPM71430_8.0.0.20130122_1330
/ibm/InstallationManager/logs/20140101_2025.xml
-01-01 20:43:06+0100
ess
```

Connect 2014

Resources

Add On

- Menu for all Jython Scripts
- Wsadmin.sh -lang jython -f cnxmenu.py

```
WebSphere and Connections Administration
----------------------------------------

 1 Configure DataSources (cfgDataSource.py)
 2 Backup J2EE Roles of all Applications (cfgJ2EERoleBackup.py)
 3 Restore J2EE Roles of all Applications (cfgJ2EERoleRestore.py)
 4 Set J2EE Roles initially (restricted) (cfgJ2EERolesRestricted.py)
 5 Set J2EE Roles initially (unrestricted) (cfgJ2EERolesUnrestricted.py)
 6 Configure JVM Heap Sizes (cfgJVMHeap.py)
 7 Configure SystemOut/Err Log Size (cfgLogFiles.py)
 8 Configure Monitoring Policy (cfgMonitoringPolicy.py)
 9 Check if all Apps are running (checkAppStatus.py)
10 Check Database connections (checkDataSource.py)
11 Check JVM Heap Sizes (checkJVMHeap.py)
12 Check SystemOut/Err Log Sizes (checkLogFiles.py)
13 Check / Show all used ports (checkPorts.py)
14 Show WebSphere Variables (checkVariables.py)
15 Work with Files Policies (cnxFilesPolicies.py)
16 Work with Libraries (cnxLibraryPolicies.py)
17 Check External ID (all Apps & Profiles) (cnxMemberCheckExIDByEmail.py)
18 Deactivate and Activate a User in one step (cnxMemberDeactAndActByEmail.py)
19 Deactivate a User by email address (cnxMemberInactivateByEmail.py)
20 Synchronize ExtID for all Users in all Apps (cnxMemberSyncAllByEXID.py)
21 Exit
```

Connect 2014

Download the shown scripts

- You can download all scripts (and some more) WITHOUT WARRENTY and at your own risk:

  - https://github.com/stoeps13/ibmcnxscripting

- OpenNTF Project since 21st november 2014 – Administration Scripts for WebSphere

  - http://preview.tinyurl.com/otmq6mj

Connect 2014

Contact Details

- Christoph Stoettner
    - Skype: christophstoettner
    - Twitter: stoeps
    - Blog: http://www.stoeps.de
    - http://about.me/stoeps
- Sharon Bellamy
    - Twitter: socialshazza
    - Blog: http://dilf.me.uk/socialshazza & http://cube-soft.co.uk
    - http://about.me/sharonbellamy

Connect 2014

Other Sessions at Connect

- SHOW301 : Make Your IBM Connections Deployment Your Own: Customize It!
  Thursday 8:00 – 9:45
- BOF304 : IBM Connections Installation and Administration - Best Practices, Tips and Tricks
- BP304 : What We Wish We Had Known: Becoming an IBM Connections Administrator

Connect 2014

Thank You!

Your feedback is important!

- Access Connect Online to complete your session surveys using any:
    - Web or mobile browser
    - Connect Online kiosk onsite

Connect 2014

Acknowledgements and Disclaimers

Connect 2014