

# 1050 – TDI Solutions Best Practices with IBM Connections Deployments

*Christoph Stoettner – panagenda*



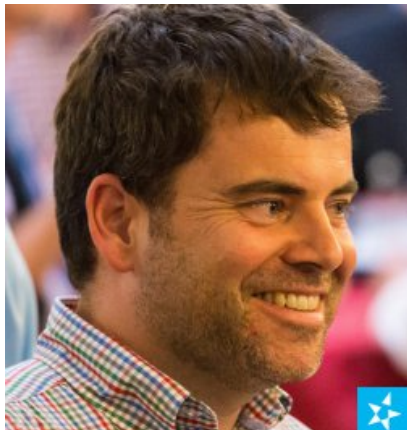
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# Christoph Stoettner



a @stoeps  
j christoph-stoettner

IBM **CHAMPION** 



- Senior Consultant – panagenda
  - IBM Notes / Domino since 1999
  - IBM Connections since version 2.5 / 2009
- Many years of experience in:
  - Migrations
  - Administration und installation
  - Performance analysis
- Joined panagenda in 2015 focusing in:
  - IBM Connections deployment und optimization
  - IBM Connections monitoring
- Husband of one & father of two, Bavarian



# Paths and General informations



- Default Values in []
  - true|[**false**]
    - valid values are true and false
    - false is the Default
- <CONNECTIONS\_ROOT>
  - C:|D:\IBM\Connections
  - /opt/IBM/Connections
- <WAS\_HOME>
  - C:|D:\IBM\WebSphere\AppServer
  - /opt/IBM/WebSphere/AppServer



# Paths and General informations



- <TDI\_HOME>
  - C:|D:\IBM\TDI
  - /opt/IBM/TDI
- <TDISol> (I do not use TDI\V7.1.1\tdisol)
  - C:|D:\IBM\TDI\tdisol
  - /opt/IBM/TDI/tdisol
- <TDI\_install\_dir>
  - C:|D:\IBM\TDI\V7.1.1
  - /opt/IDM/TDI/V7.1.1





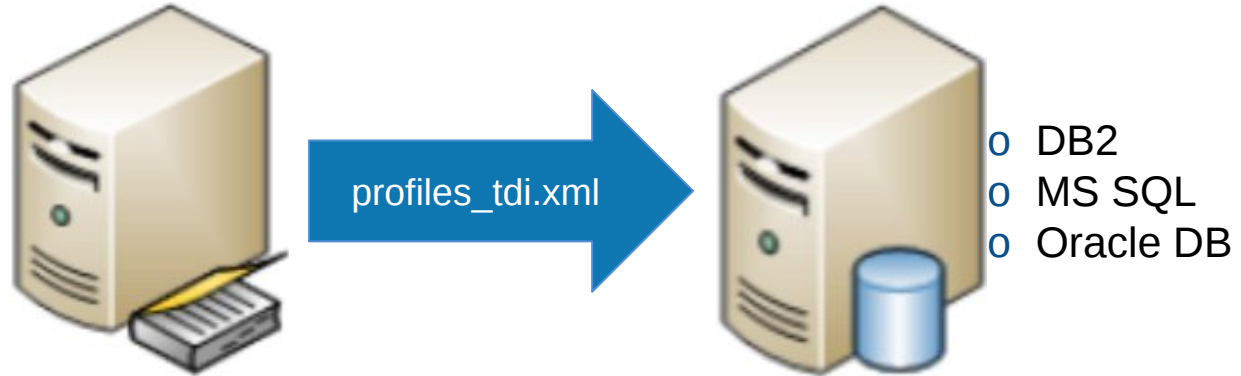


# Functionality of TDISol

- Read LDAP (searchBase, searchFilter)
- Create User Profiles (internal and external)
- Update User Profiles
- Delete | Inactivate User Profiles

## LDAP v3

- o Domino
- o IBM SDS
- o MS AD
- o Novell eDirectory
- o Oracle DS
- o Sun JSDS





# Install and Update TDI

- Use exactly the version and fixpack mentioned in System Requirements
- IBM Connections 5.0:

## Identity Management

Filter							
Supported Software	Version	Prerequisite Minimum	Product Minimum	Components	Operating System Restrictions?	Notes	Details
Tivoli Directory Integrator	7.1.1 and future fix packs	7.1.1	CR1		Yes	(1)	View

### ▼ Footnotes

(1) **FixPack 3** is a required package after installing TDI v7.1.1

[↑ Show in context](#)





# Install and Update TDI (2)

- IBM Connections 5.5
  - First version shown: SDI 7.2
  - ~~Download now points to TDI 7.1~~
  - All links updated (checked 29. Jan 2016)

Product: IBM Connections 5.5

Support for software:

**Tivoli Directory Integrator 7.1.1**

Software Maintenance Levels

Components

Product support for software maintenance levels, current and future ...>

Deployment Unit	7.1.1	7.1.1.1	...>
Desktop	✓ (1)	✗	✗
Server	✓ (1)	✗	✗
Mobile Device	✓ (1)	✗	✗

**Notes:** (1)

FixPack 3 is a required package after installing TDI v7.1.1.





# Install TDI Fixpack

- Shut down TDI.
- Download and extract 7.1.1-TIV-TDI-FP0003.zip
- Read 7.1.1-TIV-TDI-FP0003.README.html (within ZIP)
- Copy UpdateInstaller.jar to <TDI\_install\_dir>\maintenance

## Known issues

- TDI v7.1.1 Update Installer



Before you install Fix Pack 3, it is recommended that you patch your TDI Update Installer, so that Fix Pack 3 is applied properly. If the Update Installer patch is not applied the CE will fail to launch after `<TDI_install_dir>\bin\applyupdate -rollback` command is executed.

If the Update Installer patch is not applied the CE will fail to launch after “applyupdate –rollback”





# Install TDI Fixpack (2)

- On Windows:
  - `<TDI_install_dir>\bin\applyUpdates.bat -update TDI-7.1.1-FP0003.zip`
- On Unix :
  - `<TDI_install_dir>/bin/applyUpdates.sh -update TDI-7.1.1-FP0003.zip`
- Verify Installation
  - Run the following command to verify the latest fix applied
  - Windows: `<TDI_install_dir>\bin\applyUpdates.bat -queryreg`
  - Unix/Linux: `<TDI_install_dir>/bin/applyUpdates.sh -queryreg`



# Install and Update TDISol



- With IBM Connections 5
  - No special/separate update packages for TDISol
  - Extract initial version and update from
    - <CONNECTIONS\_ROOT>\tdisol\tdisol.zip|.tar
  - Do not use TDIPopulation from Connections Wizard
    - Different Formatting
    - No updates
- Prior versions
  - Download and Install new package from IBM Fix Central



# Tips and Best Practices



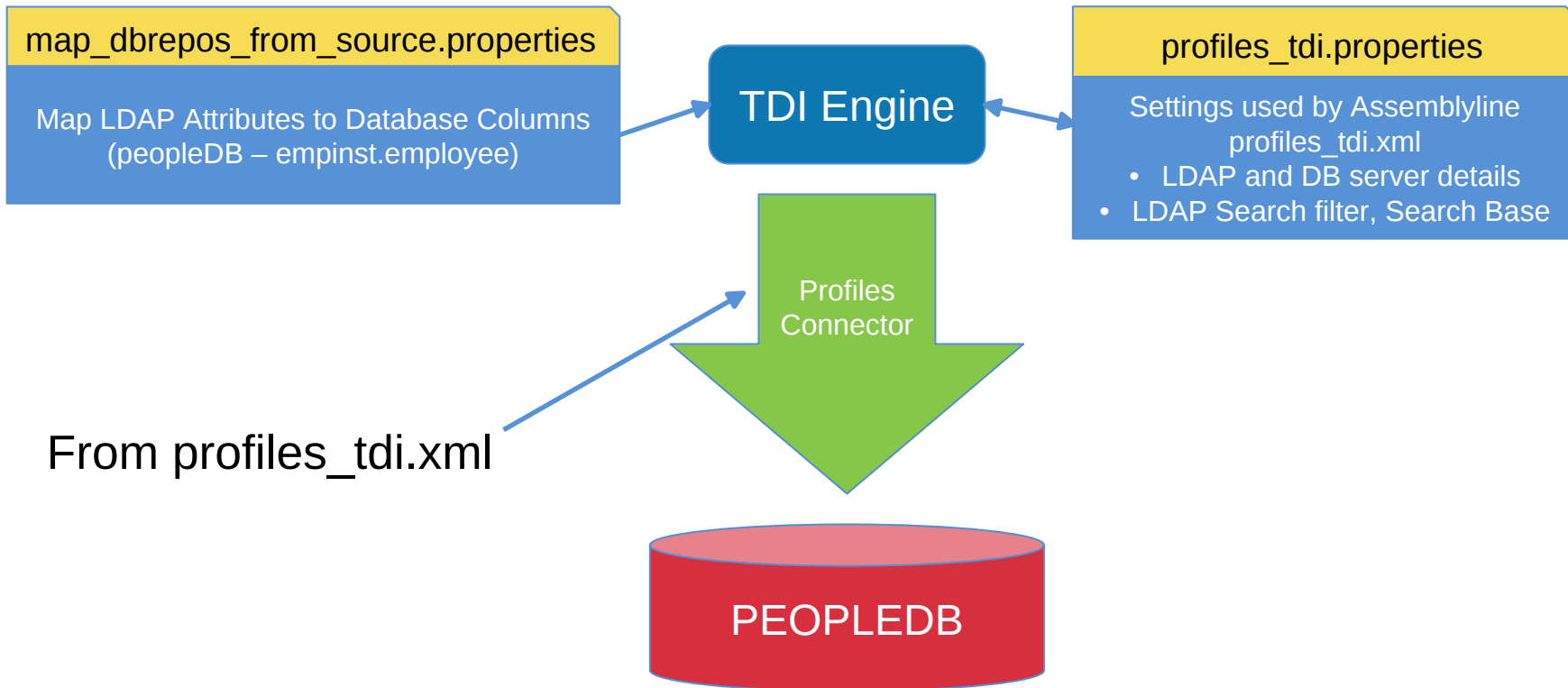
- Do not copy properties from old <tdisol> or Wizard-Folder
- Apply your changes step by step
  - Use Linux diff to find all changed values
  - Notepad++ and Compare Plugin
- Save your properties to a version control system like git or svn
  - Update after changes



# Overview



Make Every **Moment** Count



Source: Open Mic - Integrate IBM Connections Profiles with Tivoli Directory Integrator







# Files in TDISolution

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# Properties



- `map_dbrepos_from_source.properties`
  - Definition of LDAP Attribute to Database Column mapping
- `map_dbrepos_to_source.properties`
  - Only needed if you want to write back Profile data to LDAP
- `solution.properties`
  - Global TDI properties (Derby DB, Keyfiles)
- `profiles_tdi.properties`
  - Properties for TDISol Assemblyline
- `validate_dbrepos_fields.properties`
  - Validation parameters (max and min length of values)





# Mapping attributes

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# Map\_dbrepos\_from\_source.properties

- Mapping of LDAP attribute to peopleDB fields
- value=null
  - peopleDB field is not set
- value=attributename (e.g. email=mail)
- Be careful to not override editable fields of profiles
  - description=null
  - experience=null
- value={functionname}

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Value is calculated through JavaScript



# Map\_dbrepos\_from\_source.properties



- Important
  - UID, GUID
- Do not map other values as UID or GUID to this DB columns
- Possible errors
  - $\text{GUID} \neq \{\text{function\_map\_from\_objectGUID}\} \text{ or } \{\text{function\_map\_from\_dominoUNID}\}$ 
    - Group members in Communities not resolved
  - $\text{UID} \neq \text{ShortName or sAMAccountName}$ 
    - In prior versions problems during deletion





# Map\_dbrepos\_to\_source.properties

- A possible way to write back changes uses make in Connections Profiles to your LDAP
- Only fields not mapped in map\_dbrepos\_from\_source can be written to LDAP
- Domino:
  - You can't specify which database is updated, so all writes will end up in names.nsf
  - Be careful if you use Directory Assistance





# A word on sync\_updates\_hash\_field

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# sync\_update\_hash\_field

- Setting in profiles\_tdi.properties
- Possible values
  - UID(default)
  - email
  - GUID
- Matching accounts from LDAP and profilesDB are calculated with this value!
- Possible Problems
  - User renaming
  - Reuse of mail address or shortname (uid)





# sync\_update\_hash\_field=uid



- User is renamed
  - IBM Domino: UID/Shortname is multivalued
  - Microsoft Active Directory: 1. User deactivated, 2. new profile
- User retires
  - Profile gets inactivated or deleted
- User hires again (and gets his uid back)
  - User is reactivated
- Other User with same UID hires
  - Will get all data from old user account



# sync\_updates\_hash\_field=email



- User is renamed
  - User gets inactivated
  - New profile will be created
- User retires
  - Inactivated or deleted user within Profiles
- User hires again
  - User is reactivated
- Other User with same mail address hires
  - Will get all data from old user account
  - picture, tags, community membership



# sync\_updates\_hash\_field=guid



- User is renamed
  - All data synchronize with LDAP
- User retires
  - Inactivated or deleted user within Profiles
  - Within Domino the person document is deleted
- User hires again
  - Newly registered user has new guid
  - New profile
  - Duplicate login data -> no new profile
- You can use populate\_from\_dn\_file.bat / collect\_dns.bat to solve this





# Country, Worklocation ...

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# Country, Worklocation, Department not shown?



- You wonder why the Country is not shown in Profiles?
- Some database columns are not directly displayed
- Value in EMPINST.EMPLOYEE: PROF\_ISO\_COUNTRY\_CODE
  - Lookup in Table empinst.country
  - EMPINST.COUNTRY filled with isocc.csv and fill\_country.bat|sh
  - Default: small char isocodes

## isocc.csv (examples)

at;Austria  
au;Australia  
cz;Czech Republic  
de;Germany  
us;United States

## EMPINST.COUNTRY

PROF_ISO_COUNTRY_CODE	PROF_COUNTRY_DESC
ad	Andorra, Principality of
ae	United Arab Emirates
af	Afghanistan, Islamic State of
ag	Antigua and Barbuda
ai	Anguilla
al	Albania

## EMPINST.EMPLOYEE

PROF_UID	PROF_ISO_COUNTRY_...
ft	USA
jr	USA
pr	
d	USA
el	USA



# User not imported

- When your users add a country value with more than 3 characters
  - Profile will not be created
  - Map\_dbrepos\_from\_source.properties
    - countryCode=c
  - validate\_dbrepos\_fields.properties
    - countryCode=3



# Country not displayed



- Domino LDAP reads Country (LDAP Attribute c) from Person document -> Free Textfield, so you will find everything there
  - Capitals
  - Wrong abbreviation (like USA)
  - Complete country names
- Solution
  - Write a javascript function and rewrite the value in PEOPLEDB
    - Lowercase, Isocodes ...
  - Change values in Person documents
  - Add ISOCODES in Capitals to isocc.csv and use fill\_country.bat|sh
  - Customize profileDetails.ftl (and display ISOCODE)





# Worklocation

- map\_dbrepos\_from\_source.properties
  - workLocationCode=I
- Copy from TDISOL/samples workloc\_samples.csv to
  - TDISOL/workloc.csv
- Map value from I in workloc.csv to the StreetAddress
- Format:

```
workLocationCode;Street1;Street2;City;State;PostalCode
```
- Example:

```
WM;5 Technology Park Drive;;Westford;Massachusetts;01886  
LM;On the Way to Kimballs;;Littleton;Massachusetts;01460  
CC;PO BOX2;Blue Sky BLVD;Coronado;California;92118  
RN;Tropicana Hotel;Casino Row;Reno;Nevada;89501
```
- Run fill\_workloc.bat|sh





# Department, Organisation, EmployeeType



- Use
  - Deptinfo\_sample.csv & fill\_department.bat|sh
    - Not shown in default profileDetails.ftl (Connections 5.0)
  - Emptype\_sample.csv & fill\_emp\_type.bat|sh
  - Orginfo\_sample.csv & fill\_organization.bat|sh
- You can use TDI to create these csv-files
  - Parser: CSV
  - Source: SAP, LDAP, Databases ...



# Example



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**Local Time:** 12:17 AM





# Important properties

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# tdienv.bat|sh



- Configuration File for Environment variables
  - `export TDIPATH=/opt/IBM/TDI/V7.1.1`
  - `set %TDIPATH=D:\IBM\TDI\V7.1.1`
- All Scripts in TDISOL need this to find TDI Binaries
- Check if all shell scripts (\*.sh) are executable (755)
  - Zipped packages often loose Linux file attributes



# profiles\_tdi.properties



- Main configuration
  - LDAP Connection parameter
    - Host
    - Bind User and Password
    - LDAP Search and LDAP Base
  - Database parameter
    - JDBC Connection String
    - Database user and password





## profiles\_tdi.properties (2)

- Testing your configuration
  - sync\_updates\_show\_summary\_only=true|**[false]**
- Important properties
  - sync\_updates\_hash\_field=**[uid]**|guid|email
  - sync\_store\_source\_url=**[true]**|false
  - sync\_source\_url\_enforce=true|**[false]**
  - sync\_source\_url\_override=true|**[false]**
  - perform\_deletion\_or\_inactivate\_for\_sync=**[true]**|false
  - sync\_delete\_or\_inactivate=**[inactivate]**|delete



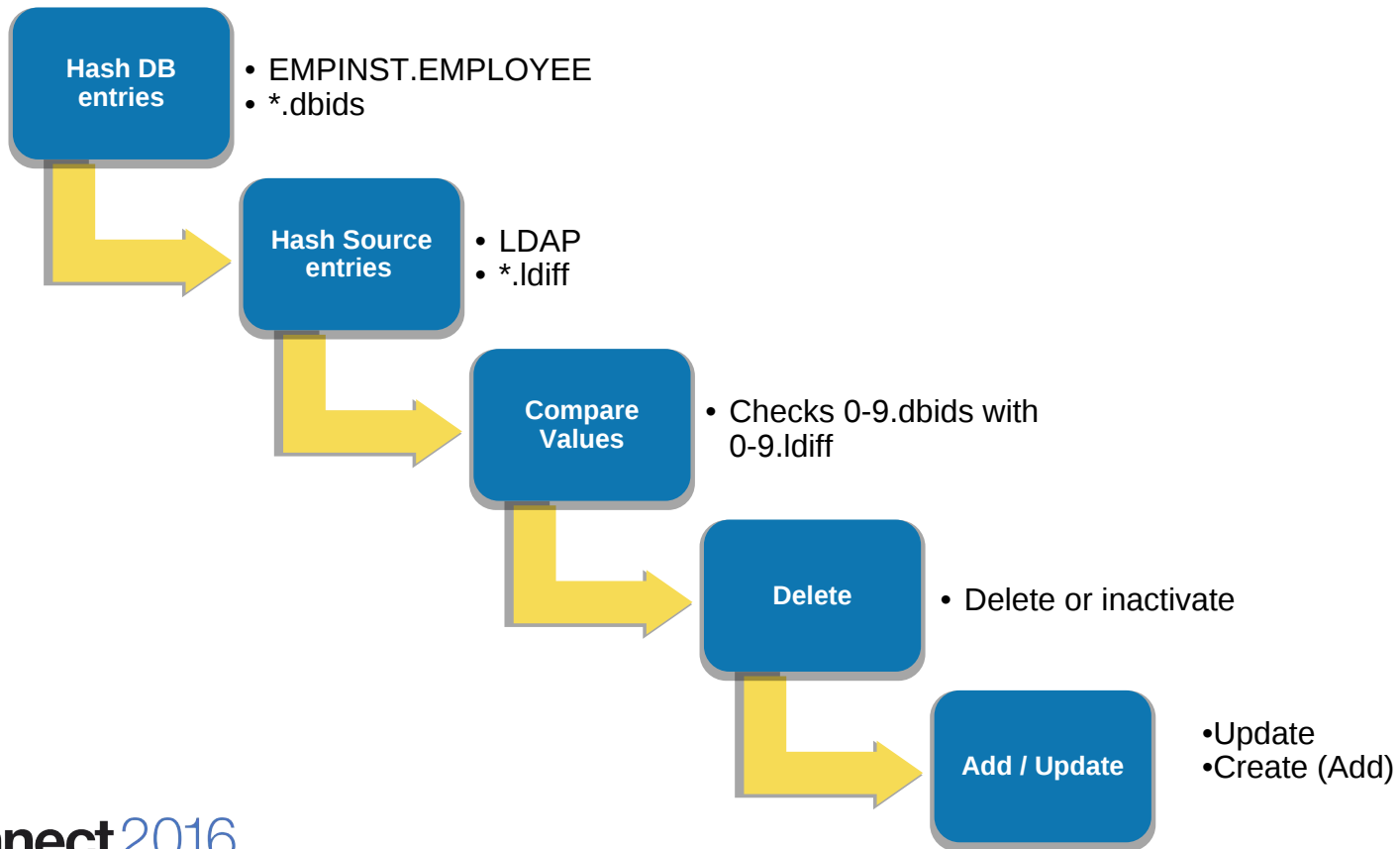
# validate\_dbrepos\_fields.properties



- Validation parameters (min and max length)
- Sometimes smaller than maximum database column definition
- There are Technotes, that special ones can be changed
- Do not change database columns
  - Update and Migration scripts may fail



# Sync\_all\_dns

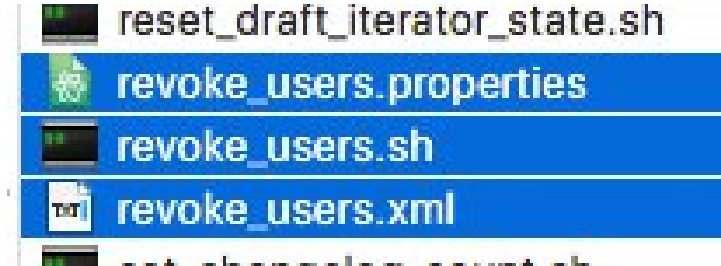






# Revoke inactive users

- Inactivating users only add state inactive
- Some country laws
  - demand removing pictures after some months
- After a period of time the author name is enough





# Remove Profiles inactivated since n days

- Copy samples/revoke\_\*.sh to <TDISOL>
- Edit revoke\_users.properties
  - keep\_for\_days=21
- revoke\_users.bat|sh validate
  - Check environment
- revoke\_users.bat|sh summary
  - revoke.ldif
  - revoke\_skip.ldif
- revoke\_users.bat|sh revoke

```
[root@klorel tdisol]# ./revoke_users.sh validate
[root@klorel tdisol]# ./revoke_users.sh summary
[root@klorel tdisol]# tail -n 9 revoke.ldiff
```

```
dn: CN=test-frank panagenda,o=panagenda
displayName: test-frank panagenda
guid: BA15C79E-E846-1ECC-C125-7ECA0055D042
key: ab21a9d3-44ed-476b-a529-0d91871c9a9f
uid: panatestfrank
lastUpdate: 2015-12-22 23:29:31.678
sys_usrState: inactive
```

```
[root@klorel tdisol]# ./revoke_users.sh revoke
[root@klorel tdisol]# ./revoke_users.sh summary
[root@klorel tdisol]# tail -n 9 revoke.ldiff
[root@klorel tdisol]# █
```





# External Users

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# Enable External Users

- Copy <TDISOL>, e.g. tdisol\_external
- Set in both <TDISOL> to true:
  - sync\_store\_source\_url
  - sync\_source\_url\_enforce
    - Prevents deactivating of Users of other <TDISOL>
  - sync\_source\_url\_override
- Tdisol\_external
  - External Users in different LDAP tree
  - Or with special LDAP attribute





# External Users in different LDAP (tree)

- Add LDAP (tree) to Federated Repository
  - Users need to authenticate on WebSphere
- Change
  - source\_ldap\_url
  - source\_ldap\_search\_base
  - source\_ldap\_search\_filter
- Add same values to
  - source\_ldap\_url\_visitor\_confirm
  - source\_ldap\_search\_base\_visitor\_confirm
  - source\_ldap\_search\_filter\_visitor\_confirm



# External Users in different LDAP (tree) (2)

- map\_dbrepos\_from\_source.properties
  - mode={func\_mode\_visitor\_branch}
  - Function will mark Users of this branch as External





# External Users with LDAP attribute

- Define a LDAP attribute which contains "external"
- Copy values of
  - source\_ldap\_url
  - source\_ldap\_search\_base
  - source\_ldap\_search\_filter
- To
  - source\_ldap\_url\_visitor\_confirm
  - source\_ldap\_search\_base\_visitor\_confirm
  - source\_ldap\_search\_filter\_visitor\_confirm



# External Users with LDAP attribute (2)



- map\_dbrepos\_from\_source.properties
  - mode=LDAP attribute
- All values except of "external" are interpreted as Internal!
- Easier to deploy, because no additional LDAP Tree or Server is needed







# Connections 5.5

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# Performance Improvements



- Several new files / scripts
- Check [https://www-01.ibm.com/support/knowledgecenter/SSYGQH\\_5.5.0/admin/admin/c\\_admin\\_profiles\\_improving\\_sync\\_performance.html](https://www-01.ibm.com/support/knowledgecenter/SSYGQH_5.5.0/admin/admin/c_admin_profiles_improving_sync_performance.html) for details
- Performance Improvements
  - Timestamp tracking
    - *sync\_updates\_use\_ldap\_timestamp*
  - Multi processing
    - *sync\_updates\_size\_model*





# Customization

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# Be careful – create a documentation

- You can use TDI Editor to change or add functions
- Updates?
  - Create a detailed documentation
  - TEST TEST TEST
- Alternatives
  - Use separate Assembly lines to add your stuff
  - Sync the needed values to your LDAP
    - With TDI





# Troubleshooting

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# Log Files

- <TDISOL>/logs
  - lbmdi.log
    - Main log file
  - PopulateFromDNFile.log
    - Log of populate\_from\_dn\_file
  - SyncUpdates.log
    - Log of sync\_all\_dns



# employee.\*



- Good starting point for troubleshooting
  - employee.adds
  - employee.delete
  - employee.error
  - employee.skip
  - employee.update
- *sync\_updates\_show\_summary\_only = true*
  - Dry run of sync\_all\_dns -> no changes written to DB





# Debugging

- profiles\_tdi.properties
  - debug\_managers|photos|pronounce|fill\_codes=true|[**false**]
  - debug\_draft|update\_profile|collect|special=true|[**false**]
- Global Debug
  - etc/log4j.properties (Default: **INFO**)
    - log4j.rootCategory=DEBUG, Default
- Analyse TDISOL/logs/ibmdi.log





# Adding Root Certificates to TDISol



- If you want to use LDAPS
- Edit solution.properties
  - Uncomment
    - javax.net.ssl.trustStore=key.jks
    - {protect}-javax.net.ssl.trustStorePassword=keystore-password
    - javax.net.ssl.trustStoreType=jks
- Create Keyfile & Add CA Certificate
  - \$JAVA\_HOME/jre/bin/keytool
  - keytool -import -alias <some string> -keystore key.jks -file your-key.pem



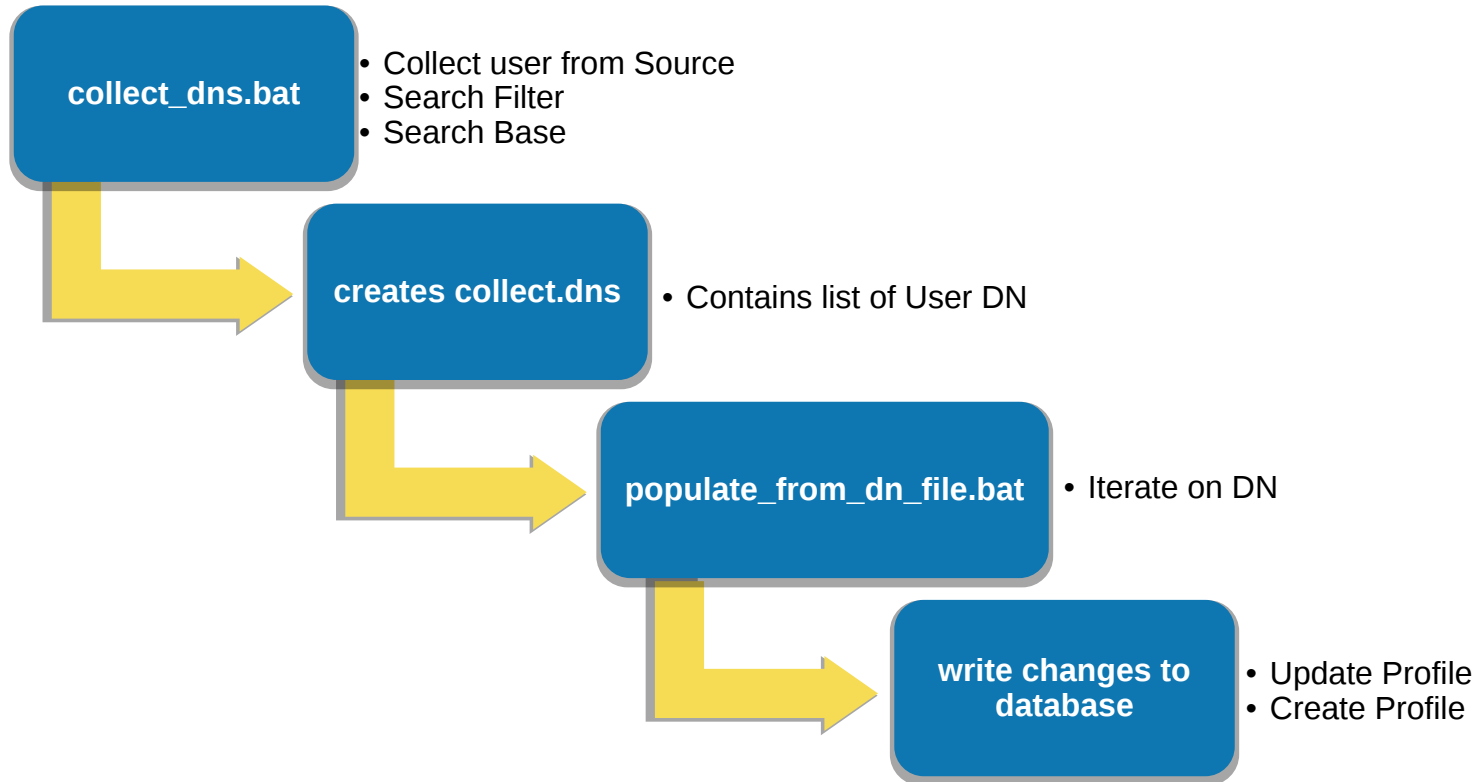


# Populate Users with separate commands

- Use `collect_dns.bat|sh` to check if
  - LDAP Connection is working
  - Search Filter & Search Base find all users
- Populate a single user
  - Delete all other from `collect.dns`
  - Run `populate_from_dn_file.bat|sh`
    - This shows that DB Connection is working
    - No delete or inactivate, just create & update
    - Iterate on \$DN -> solves issues with different GUID



# Collect\_dns & Populate\_from\_dn\_file



# Links



- IBM Fix Central – <http://www-933.ibm.com/support/fixcentral>
- Open Mic: Integrate IBM Connections Profiles with Tivoli Directory Integrator - <http://www-01.ibm.com/support/docview.wss?uid=swg27047226&aid=1>





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