

IBM Software

# Connect 2014

January 26–30 Orlando, Florida

ENERGIZING LIFE'S WORK

## Show 101: IBM Traveler Highly Availability - Deployment and Best Practices

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# About the Speaker

- **Daniel Nashed**

- Nash!Com – German IBM® Business Partner/ISV
- Member of The Penumbra group -- an international consortium of selected Business Partners pooling their talent and resources
- focused on Cross-Platform C-API, IBM® Domino® Infrastructure, Administration, Integration, Troubleshooting and IBM® Traveler
- Platform Focus: Microsoft® Windows® 32/64, Linux® and IBM AIX®
- Author of the Domino on Linux®/UNIX® Start Script



# Agenda

- **Introduction / Current State with Traveler Standalone**
  - Why Traveler HA and Traveler HA Infrastructure
- **Show and Tell Migrate to Traveler HA**
  - Install IBM® DB2® 10.1 and configure database
  - Migrate Servers into Traveler HA Pool
  - “Load-Balancer” Scenarios
  - Migration Scenarios
- **Administration, Best Practices, Tuning**
- **Q&A**



# Traveler Standalone

- **Works great and very stable**
  - Many customers are still running in standalone mode
- **Single Server can handle around 2000 devices**
  - Sizing is always done on the number of connected devices not users
  - Be aware that sizing should always take into account if users have multiple devices!
- **Uses a local state db (Derby based – “traveler/ntbdb” folder)**
  - Local database would not work for a “distributed” service like Traveler HA
- **Availability of Traveler is good**
  - Usually longest downtime is for Traveler update
  - And you should also plan a regular downtime for local derby database defragmentation
    - Can take hours for large Traveler servers if you have no regular defragmentation
    - Not needed any more once you moved to Traveler HA





# Why migrate to Traveler HA?

- **True High Availability solution**
  - Multiple separate Traveler Servers in a “pool”
- **Less “downtime” because Traveler HA servers can be migrated server by server**
  - Other servers in the pool handle the requests
  - Individual servers are updated but the service “Traveler” is available
- **Higher scalability**
  - Traveler Pool can handle up to 10000 devices
  - Single URL for all devices in a Traveler pool pointing to a central “Load-Balancer”
- **Also allows consolidation of multiple smaller Traveler servers**
  - Without reconfiguring devices!



# Requirements for Traveler HA

## ▪ **Licensing**

- Unless licensed via CEO (Complete Enterprise Option) or Domino Express license you have to license the Domino Server which hosts your Traveler Server
- **Mail-Server License** for Traveler standalone
- **Enterprise Server License** for Traveler HA

## ▪ **Multiple physical or virtual Traveler Servers**

- Works well also for larger Traveler servers in VMware® ESX® server environments
  - Take care on licensing in virtual environments

## ▪ **Relational Database**

- IBM® DB2® Workgroup Limited Use is included in the Domino Enterprise Server license
- Microsoft® SQL Server® needs separate license

## ▪ **Load-Balancer**

- You will need a “Load-Balancer” in front of your Traveler Servers to handle the requests



# Migrating to the latest Traveler Version

- **Traveler HA is available since 8.5.3 UP1**
  - But you should migrate to the most current Traveler Version if you can
  - If not at least upgrade to the latest 8.5.3 UP2 fixpack
  
- **Current Version: Traveler 9.0.1 IF2**
  - Requires the underlying Domino Server on the same version
  
  - Be aware that **Domino 9.x** has different Platform requirements
    - No support for Windows 2003 but support for Windows 2012 (R2)
    - Only supports SLES® 11 and RHEL® 6
  
  - Brings the local state database to the latest schema level
  - Has most current code for migrating to HA mode with remote DB2/SQL Server DB
  
  - Traveler 9.0.1 is the best supported version
    - You should always stay up to date with your Traveler servers (install the latest fixes)



# Latest Changes in Traveler 9.0.1

- **Current Version 9.0.1 IF2**

- **Device Support**

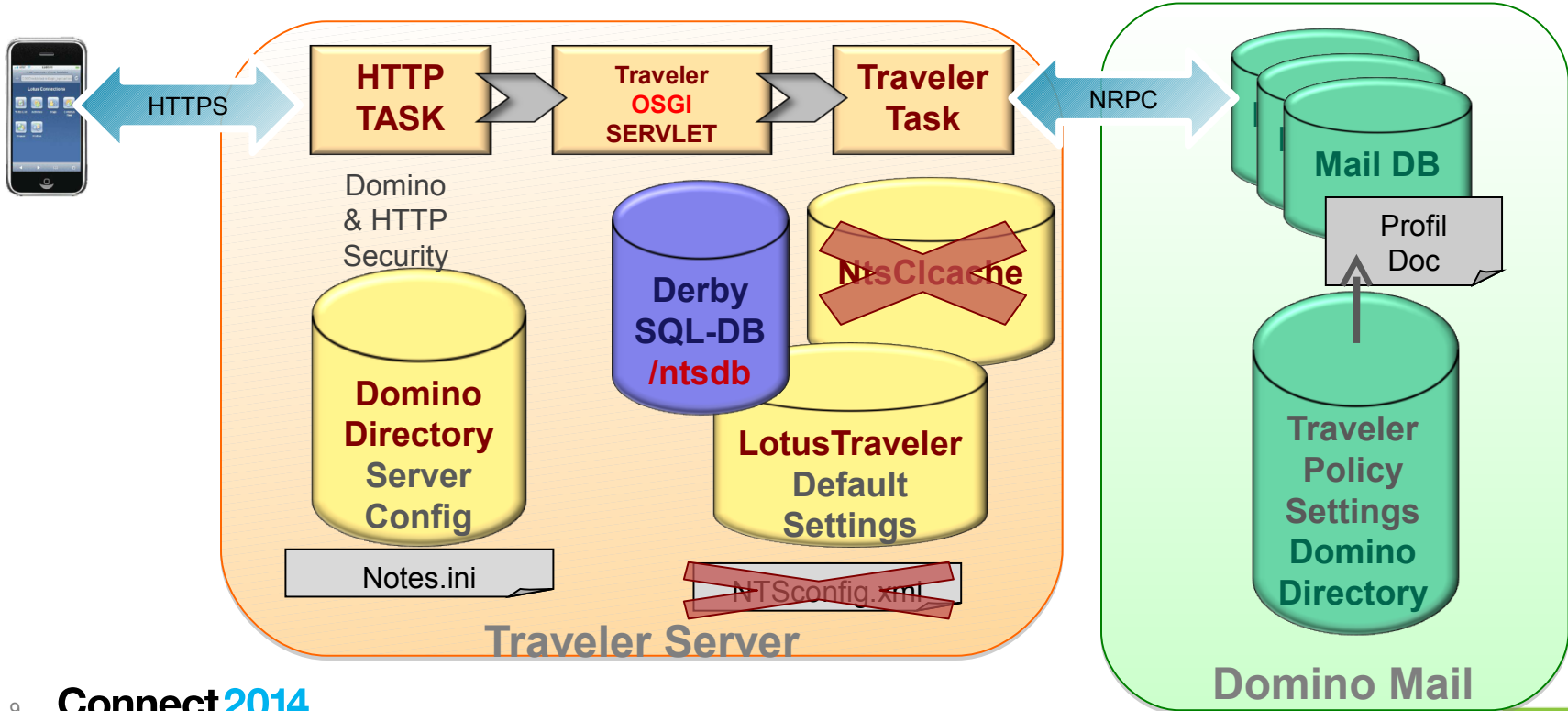
- BlackBerry® 10 device support → yes we see customers deploying BB10 in production
- Microsoft® Windows Phone® 7.5, 7.8, 8 device support
- Microsoft® Windows RT® /Windows 8® Pro tablet support
  - Mail, Contacts and Calendar using the built-in Exchange account
- Deprecated support for Microsoft Mobile and Nokia® Symbian® device clients
  - If you have an existing installation the client applications are not removed when updated
  - But new installations do not ship the client installers any more

- **Adaptive Initial Sync**

- First sync will only have current data
- Throttled full sync for all new devices depending on server load
- Important when you add many devices at the same time or in disaster recovery scenarios



# Classical Traveler Infrastructure



# Traveler Stand-Alone Changes introduce with 8.5.3 UP1

- **Before Traveler used a local XML File for configuration (NTSConfig.XML)**
  - Now all “NTS” settings are located in notes.ini (prefixed **NTS\_**)
    - Automatically migrated from XML File when you install a newer version
  - Important for Traveler HA to be able to have the same configuration on all Traveler servers
    - You can use a group to assign a Config Document with notes.ini settings for all servers
- **New “OSGI Servlet” replaces Servlet**
  - Traveler URL changes from **/servlet/traveler** to **/traveler**
    - Installer automatically creates redirection rule
    - You should use new URL for new devices and keep the old URL for existing devices
  - You can disable the Servlet engine in the Domino Tab
- **New web administration interface (XPages based)**
  - Optional for Traveler stand-alone, required for Traveler HA → more details later
  - Domino Upgrade Pack 1 is automatically installed with Traveler installer
  - Domino 9 contains all components → no “Upgrade Pack” needed → smaller installer



# Show and Tell Environment

- **Migration-Scenario**

- Already installed Traveler Server 9.0.1 with some devices
- We will quickly install a Traveler server on Windows and Linux

- **Windows 2008 R2 Server**

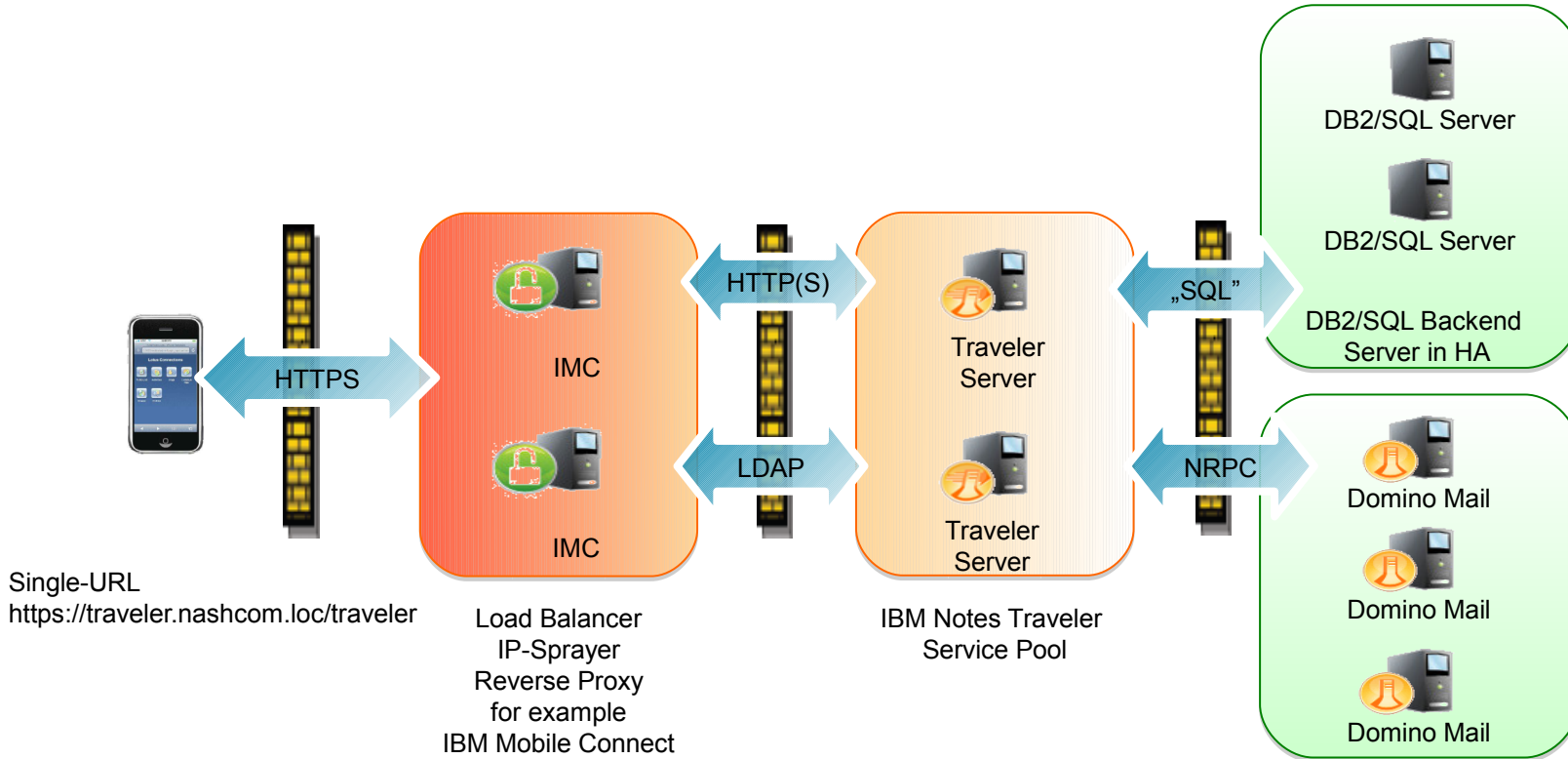
- Running Domino 9.0.1 and Traveler 9.0.1 64bit
- Running DB2 10.1 64bit
- IBM Data Studio 4.1
  
- In production you should always install DB2 on a separate machine

- **SLES 11 SP2**

- Running Domino 9.0.1 and Traveler 9.0.1 64bit



# High Availability Scenario





# Traveler HA

- **Pool of two or more servers**

- All Traveler servers in the pool have the same configuration and share the same relational state DB

- **All Traveler servers talk to each other**

- Relational database and Traveler Server should be located in the same “local” network

- **Low latency connection required**

- Only one Traveler servertask in the pool holds the back-end session for a user

- Back-end Session communicates with Mail Server for all devices of the same user
  - Session will be established on most available server

- OSGI Servlet of one Server talks to Traveler Servertask on all Traveler servers in the pool

- All front-end servlets communicate with the same back-end session independent which front-end servlet will receive a request

- **Important:** Required Ports between all Servers: **TCP 50125 and 50126**



# Migration Scenario

- **Already installed Traveler Server with existing users**
  - I copied the Derby state-db from my production server to my lab machine
    - Deleted **LotusTraveler.nsf**, replaced **traveler/ntsd**
      - First start will re-create LotusTraveler.nsf from ntsdb
      - LotusTraveler.nsf is only the front-end representation of the back-end data in state db
- **Updated Traveler to the latest and greatest release**
  - Just run the installer → works the same on Windows and Linux
    - Tip: Linux offers a response file based silent command line install
      - You can save the response file and use it for updates
      - Very fast way to install/update the server
- **We will migrate the server from stand-alone to HA mode**
  - And introduce a Linux based server to the pool



# Traveler Installation

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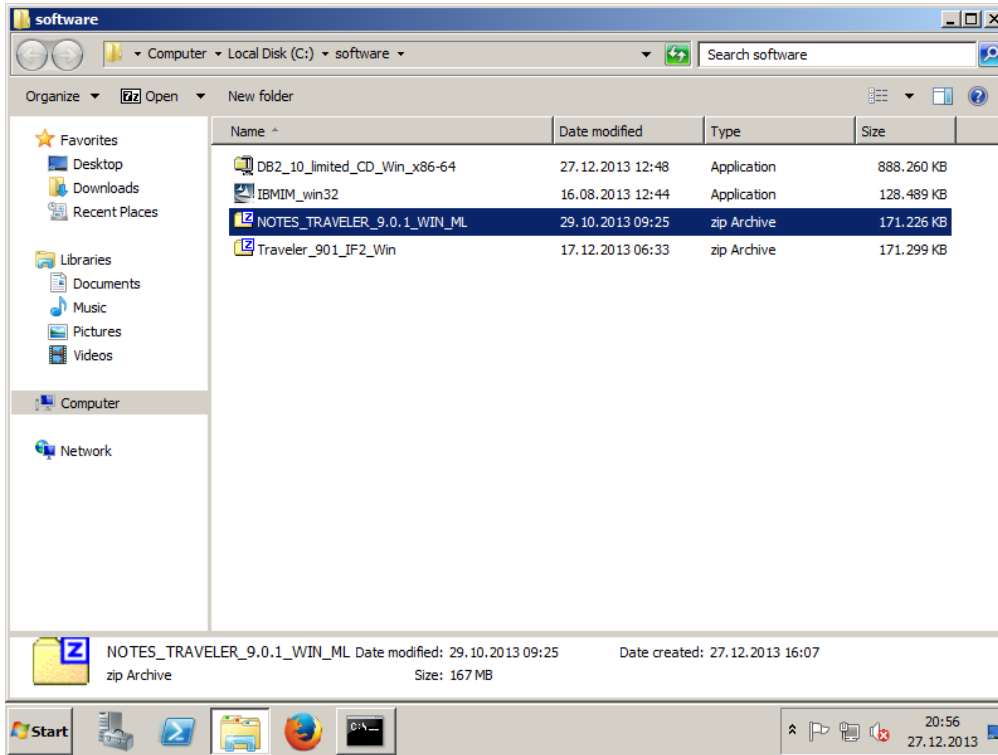
# Traveler Installation

- **Installation is straight forward**
  - Installer will make all changes for you
  - Shutdown Domino server first
- **Installation steps**
  - Installs all components
    - Servertask, OSGI Servlet, NTF Files
  - Adds some configuration parameters NTS\_\*
  - Changes Server home URL to /traveler
  - Creates redirect for **/servlet/traveler** to **/traveler**
  - Overwrite for authentication for Traveler URL **/traveler**
  - Sets External Server URL
  - Adds Traveler to the Servertasks= entry

■



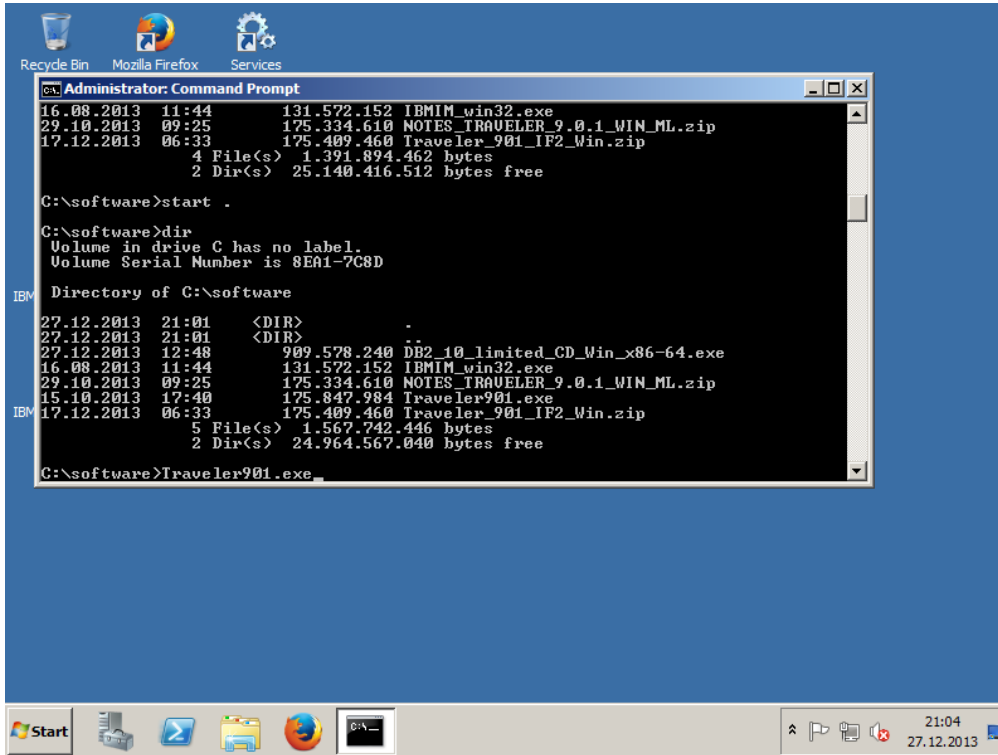
# Extract downloaded ZIP



- Extract to same folder



# Start Installation



```
Administrator: Command Prompt
16.08.2013 11:44 131.572.152 IBMIM_win32.exe
29.10.2013 09:25 175.334.610 NOTES_TRAVELER_9.0.1_WIN_ML.zip
17.12.2013 06:33 175.409.460 Traveler_901_IF2_Win.zip
                4 File(s) 1.391.894.462 bytes
                2 Dir(s) 25.140.416.512 bytes free

C:\software>start .

C:\software>dir
Volume in drive C has no label.
Volume Serial Number is 8E81-7C8D

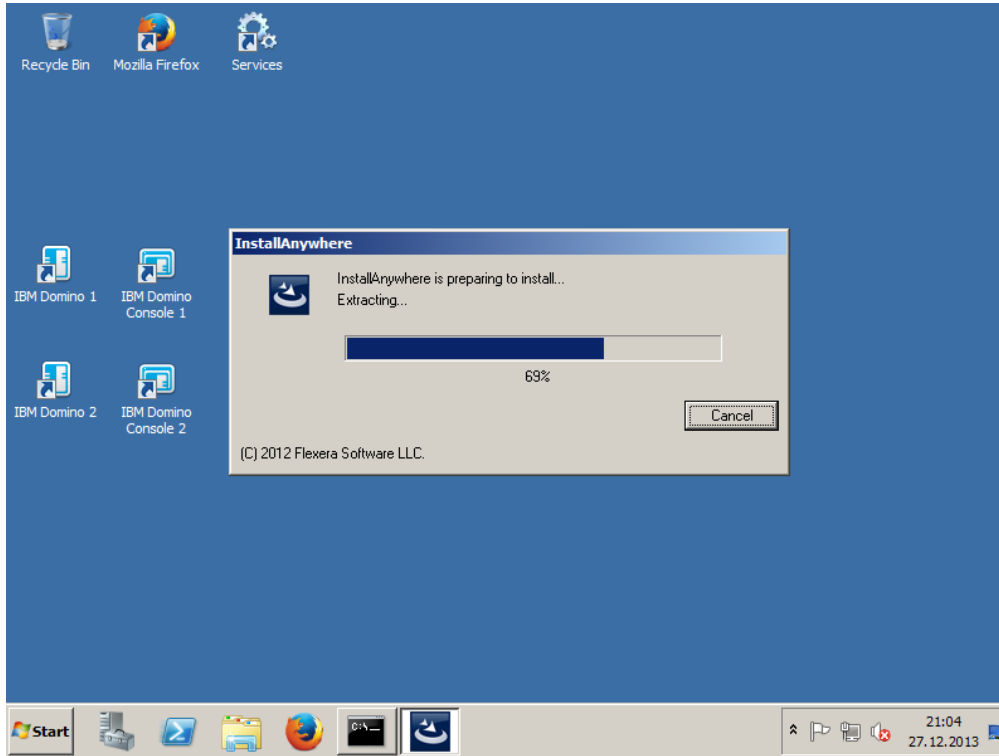
IBM Directory of C:\software
27.12.2013 21:01 <DIR> -
27.12.2013 21:01 <DIR> -
27.12.2013 12:48 909.578.240 DB2_10_limited_CD_Win_x86-64.exe
16.08.2013 11:44 131.572.152 IBMIM_win32.exe
29.10.2013 09:25 175.334.610 NOTES_TRAVELER_9.0.1_WIN_ML.zip
15.10.2013 17:40 175.847.984 Traveler901.exe
IBM 17.12.2013 06:33 175.409.460 Traveler_901_IF2_Win.zip
                5 File(s) 1.567.742.446 bytes
                2 Dir(s) 24.964.567.040 bytes free

C:\software>Traveler901.exe
```

- Invoke “Traveler901.exe”
  - Run as administrator



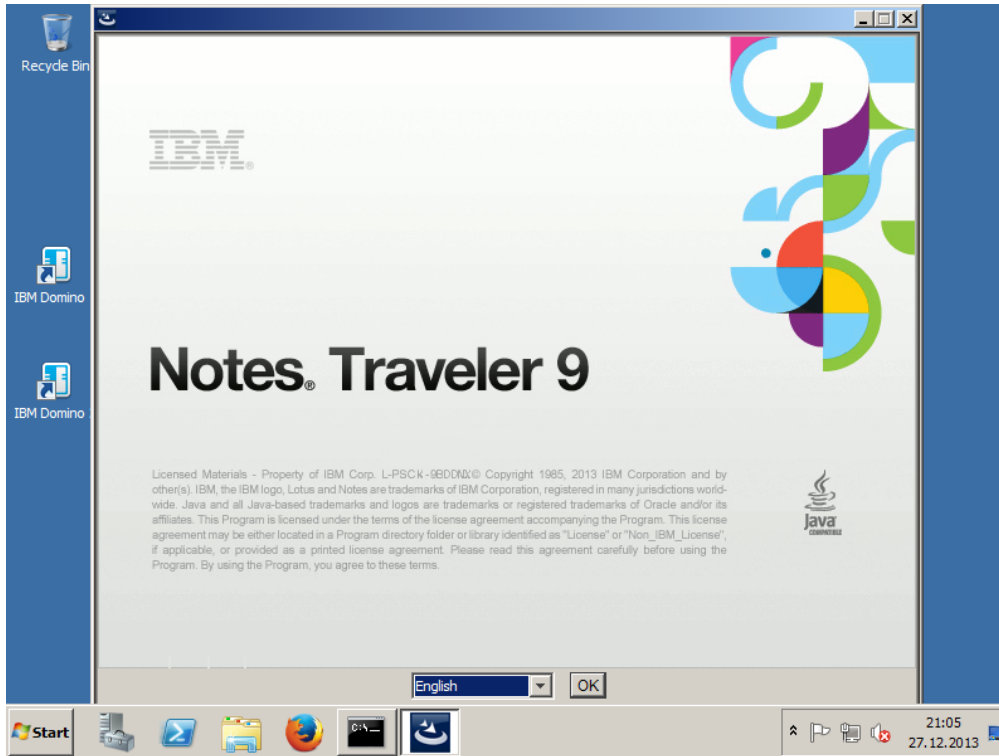
# Installing



- Installation is based on “InstallAnywhere”



# Select Language

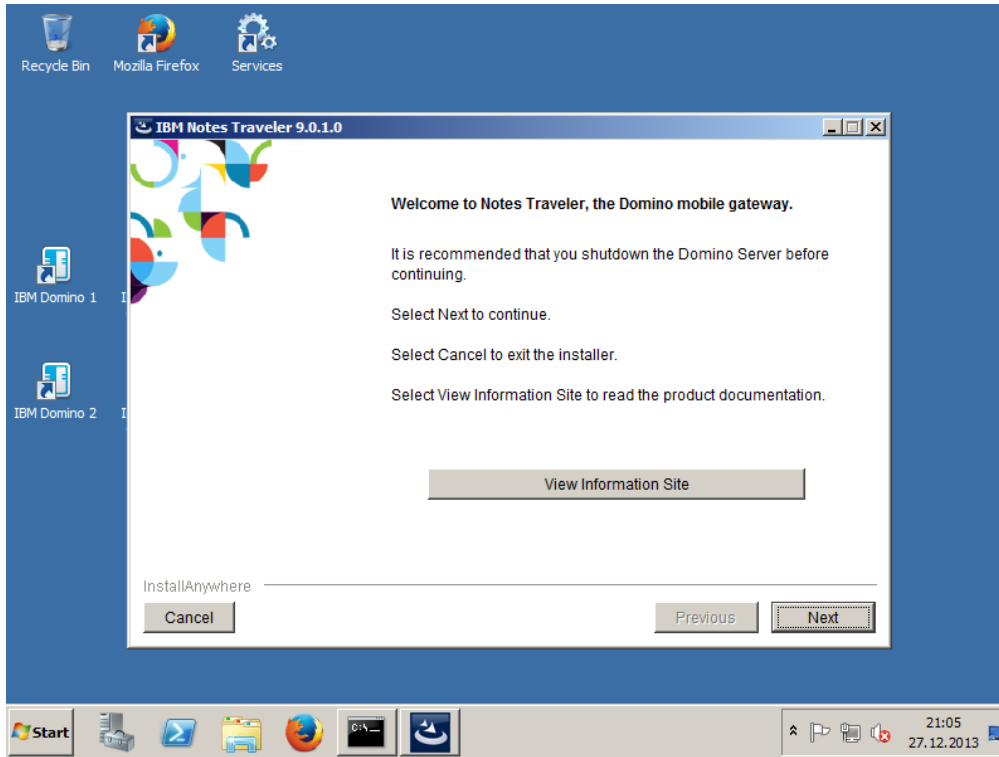


- **Language is not just the installer language!**
- **Chose the language used for LotusTraveler.nsf**
  - I would always chose "English"





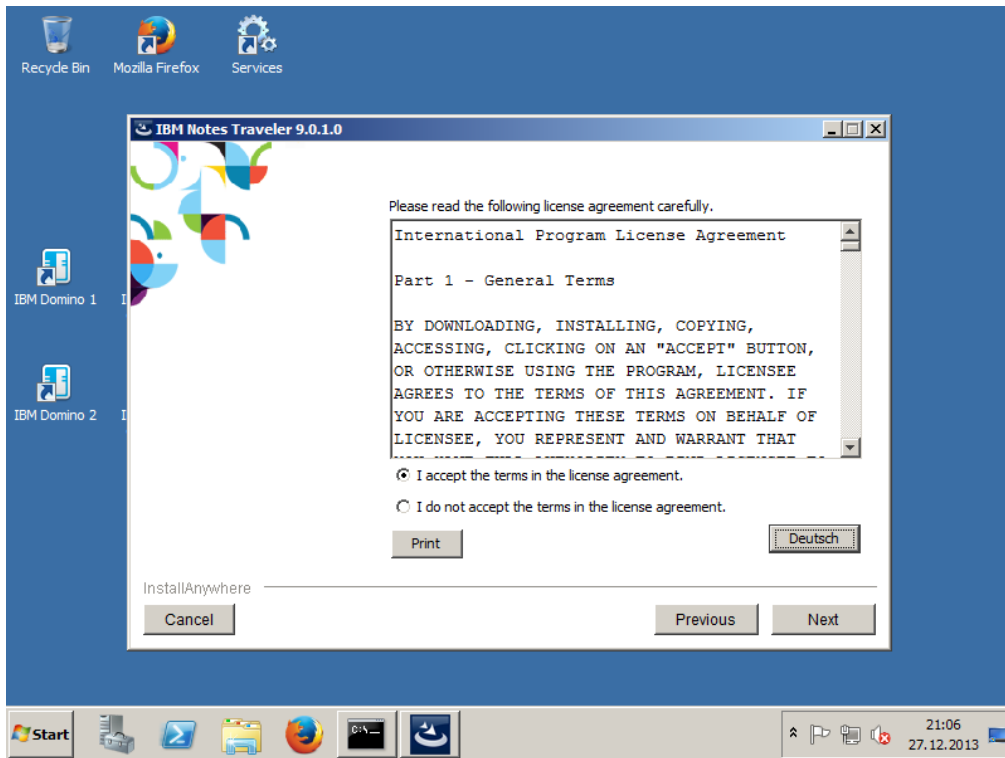
# Welcome Screen



- Press “Next” to continue



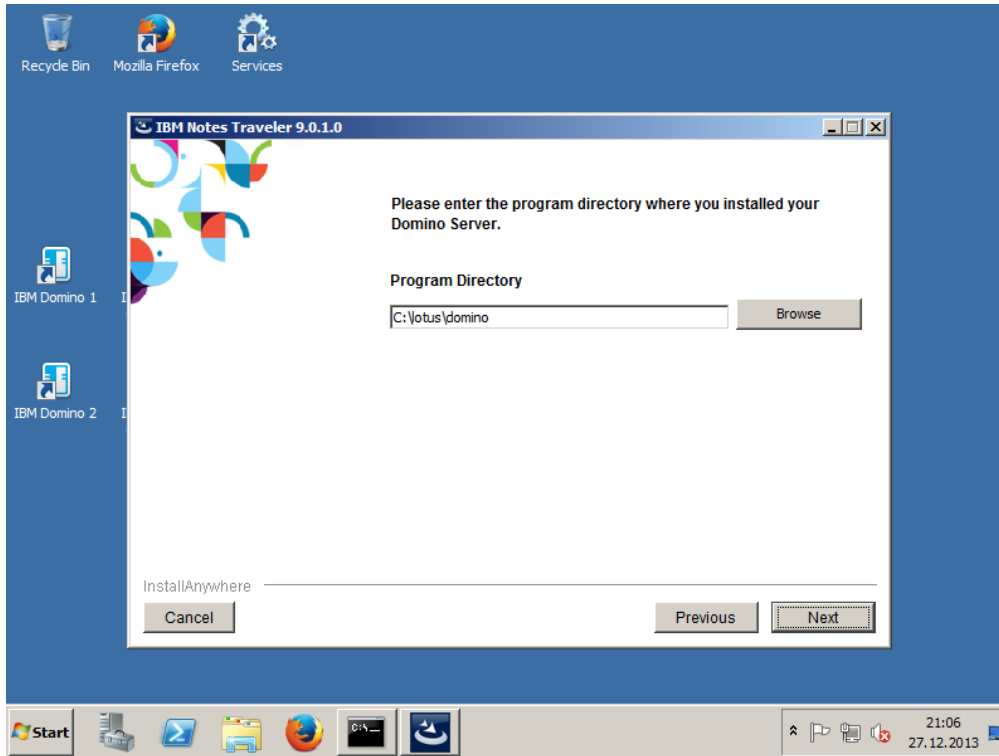
# License Agreement



- **Accept License Agreement**
- **Press “Next” to continue**



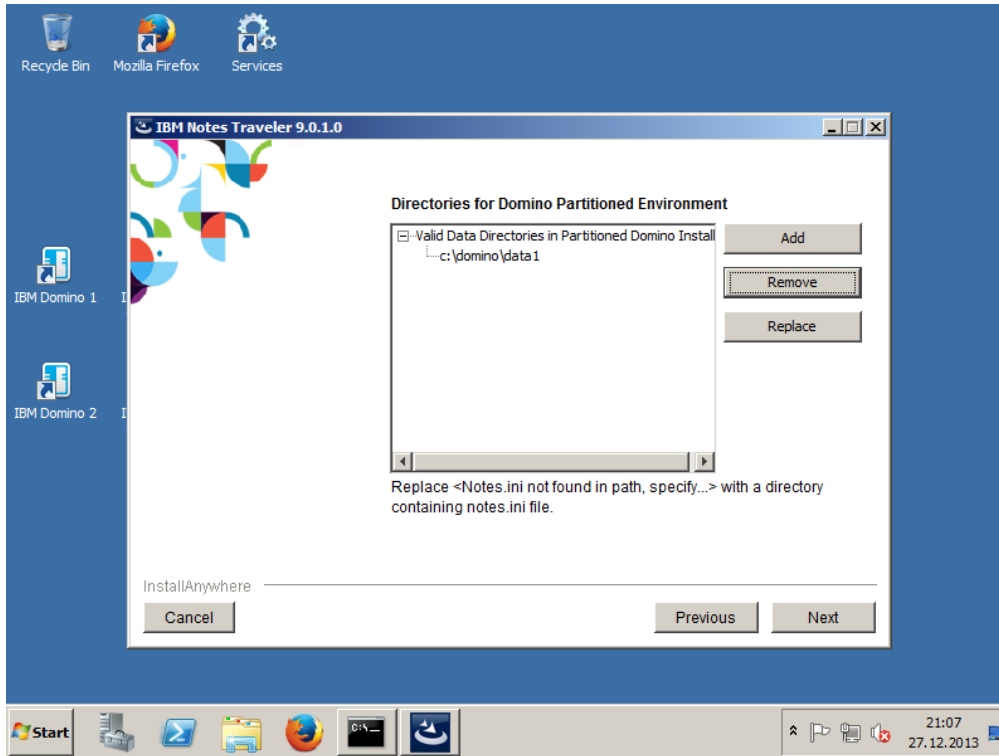
# Domino Program Directory



- **Specify IBM Domino Program Directory**
  - Suggested Directory should match
- **Press “Next” to continue**



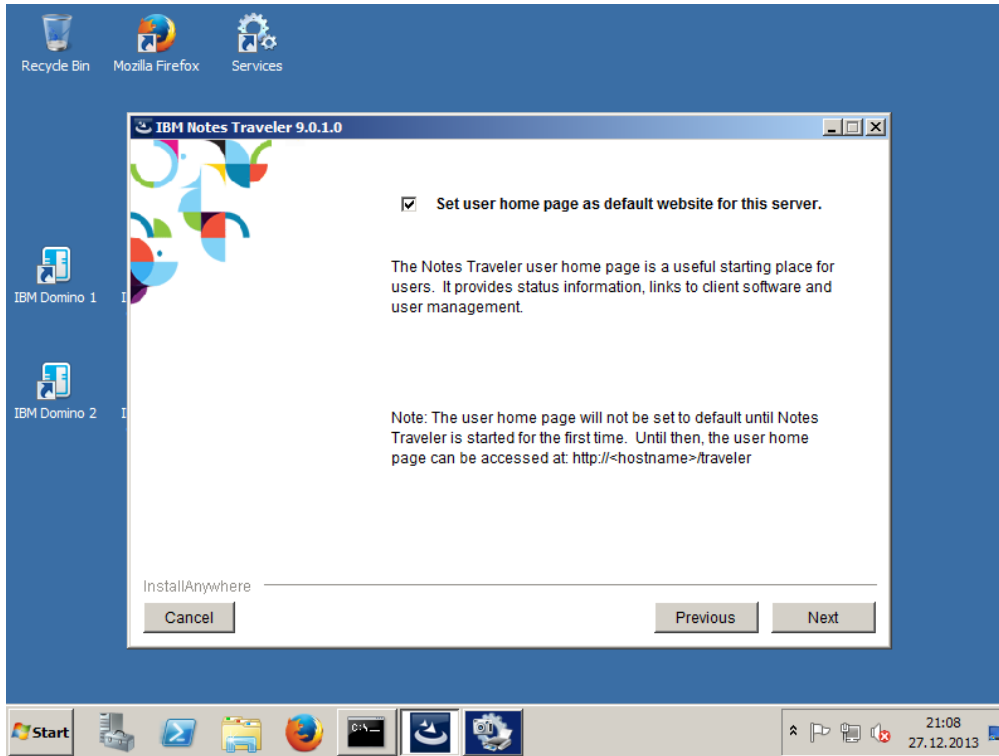
# Domino Data Directory



- **Specify IBM Domino Data Directory**
  - Suggested Directory should match
- **Press “Next” to continue**



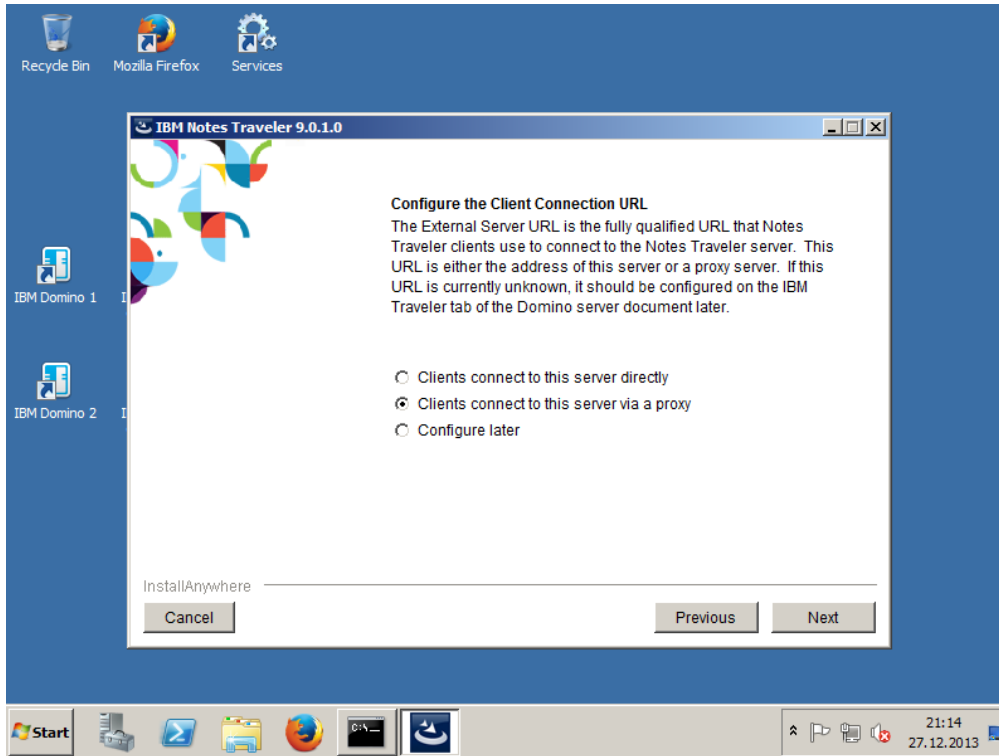
# Set Traveler Homepage



- **Enable “Set user home page as default for this server”**
  - Useful when user should use the self service page
    - /serveler
- **Press “Next” to continue**



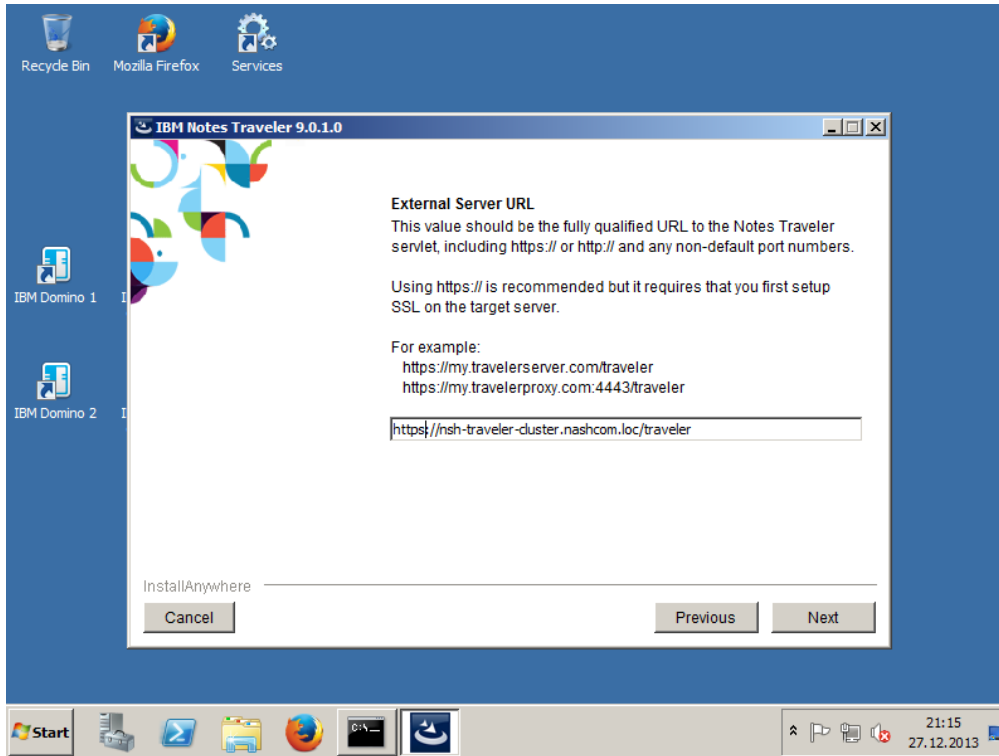
# Configure Client Connection URL



- Select “Clients connect to this server via proxy”
- Press “Next” to continue



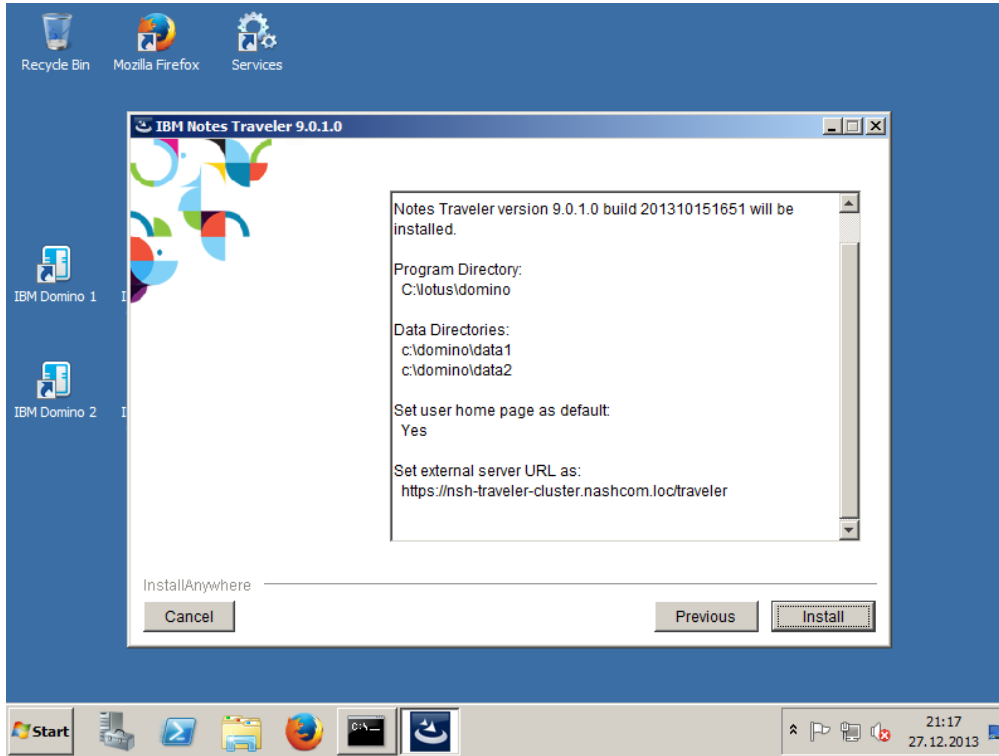
# Connection URL



- **Specify the external connection URL used for the Server**
  - You can also specify it manually in the server doc / traveler tab
- **Press “Next” to continue**



# Start Install

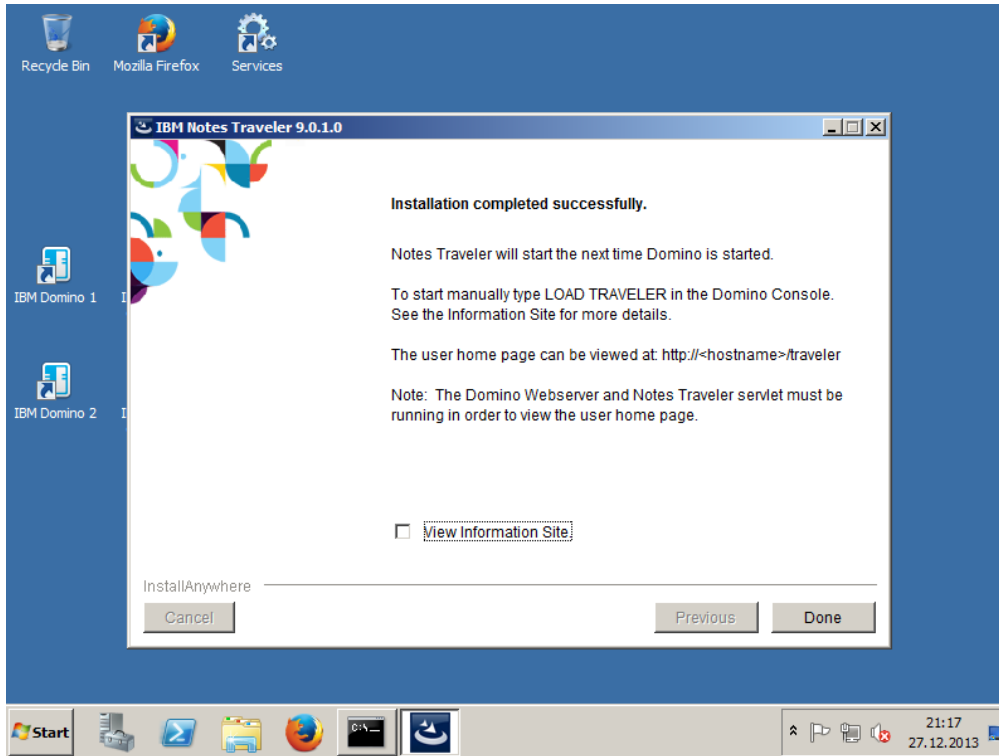


- **Review pre-installation summary**
  - Opps I added another partition ;-)
- **Press “Install” to continue with the actual install**





# Installation Completed



- Press “Done” to close the installer
- Traveler Server is now installed/updated
- Next server start will automatically start Traveler



# Install Traveler on Linux

- **Either using the graphical installer**
  - Very similar steps to Windows install
- **Or run the command-line based installer**
  - Response file install
  - Just set the install properties in “**installer.properties**”
    - DOMINO\_PROGRAM\_DIRECTORY=/opt/ibm/domino/notes/latest/linux
    - DOMINO\_DATA\_DIRECTORY\_1=/local/notesdata1
    - DOMINO\_NOTESINI\_DIRECTORY\_1=/local/notesdata1
    - LINUX\_USER\_NAME=notes1
    - NTS\_WEBSITE\_HOME=1
    - NTS\_SET\_EXTERNAL\_URL=https://nsh-traveler-cluster.nashcom.loc/traveler
  - And run **./silentInstall** as **root**



# Traveler Install on Linux

```
./silentInstall
Notes Traveler 9.0.1.0 build 201311221344
Silent install started..

Notes Traveler version 9.0.1.0 build 201311221344 will be installed.

Program Directory:

/opt/ibm/domino/notes/latest/linux

Data Directory:

/local/notesdata1

Set user home page as default:

Yes

Linux user name:  notes1

Linux group name:  notes

Installing files..

Installation completed successfully.
```



# Traveler Server Tab

- **Set Maximum Memory size at least to 1 GB as a starting point**
  - Usage should be monitored
  - More details later
- **Set Group to allow only selected users to access Traveler**
  - By Default every user with http password can access via Traveler
- **Disable “Port TCP Connections”**
  - Set it to 0
  - Not needed any more.
  - Old sync port for Nokia devices

Basics | Security | Ports... | Server Tasks... | Internet Protocols... | MTAs... | Miscellaneous | Transa

### Basics

Maximum Memory Size: 1024 MB

IPC Socket Ports: 50125, 50126

External Server URL: https://ns-traveler-cluster.nashcom.loc

### IBM Notes Traveler Access

Access server:  users listed in all trusted directories  
and  
TravelerUsers

Not access server:

Remote user commands: Enabled

User managed security: Enabled

### Log Settings

NOTE: All log settings are obsolete as of Notes Traveler 8.5.3 Upgrade Pack 1

Logging Level: Informational

Obsolete as of Domino 8.5.2: Off

SyncML Logging:

Package Log Filter: \*

Maximum File Size: 50 MB

Maximum Number of Activity Log Files: 10

Fields Logged - Privacy: Subject; Location; Address; Phone Number

### Auto Sync Settings

Monitor Polling Interval: 3 seconds

Port for TCP Connections: 0

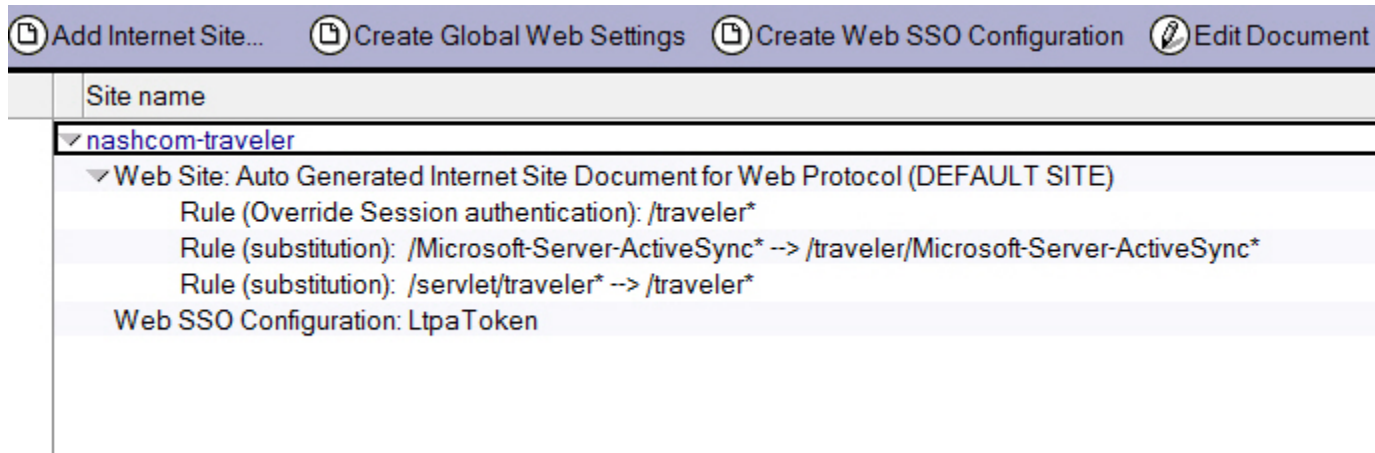
Heartbeat Algorithm: Indefinite Detection



# Traveler Internet Site Configuration

- **Automatically created documents**

- Internet Site
- Override Session Authentication → Basic Authentication for **/traveler**
- Redirects for old **/servlet/traveler** and ActiveSync requests



The screenshot displays a configuration interface with a top navigation bar containing four buttons: 'Add Internet Site...', 'Create Global Web Settings', 'Create Web SSO Configuration', and 'Edit Document'. Below the navigation bar is a table with a 'Site name' column. The first entry is 'nashcom-traveler', which is expanded to show its configuration details:

Site name
✓ nashcom-traveler
▽ Web Site: Auto Generated Internet Site Document for Web Protocol (DEFAULT SITE)
Rule (Override Session authentication): /traveler*
Rule (substitution): /Microsoft-Server-ActiveSync* --> /traveler/Microsoft-Server-ActiveSync*
Rule (substitution): /servlet/traveler* --> /traveler*
Web SSO Configuration: LtpaToken



# Tip - New Setting for Servers with Multiple IPs

- There have been issues with servers with multiple IPs
- Traveler selects the first IP that is not assigned to a loopback adapter
- You can control which one is used via notes.ini setting
  - NTS\_HOST\_IP\_ADDR=192.168.100.161
- Specially important for environments with multiple network-cards for external and internal traffic

```
HTTP JVM: 4804 [Traveler-InitConfig-12c8] INFO - Multiple host addresses were found:
HTTP JVM: 4804 [Traveler-InitConfig-12c8] INFO - 192.168.100.150
HTTP JVM: 4804 [Traveler-InitConfig-12c8] INFO - 192.168.100.160
HTTP JVM: 4820 [Traveler-InitConfig-12c8] INFO - 192.168.100.161 (Selected)
HTTP JVM: 4820 [Traveler-InitConfig-12c8] INFO - 192.168.100.162
HTTP JVM: 4898 [Traveler-InitConfig-12c8] INFO - Traveler 9.0.1.0 Build 201310151651
```



# Start Traveler Server

- **Test Data for Traveler environment**

- Copied data/**traveler/ntsdb** directory from my production environment before Traveler start
- Will create a new LotusTraveler.nsf if not present with data from state db
- LotusTraveler.nsf is “just” the external presentation for data in Derby state-db.

- **Start Domino**

- Automatically starts Traveler servertask
- Traveler servertask by default starts or restarts HTTP task

- **This is the base for our Traveler demo environment**

- We will migrate the Server to Traveler HA

- **Next step**

- Install DB2 Server



# Relational Database

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# Requirements

- **Remote DB2 or SQL Server database is required for Traveler HA**
  - Each Traveler “Pool” needs a separate Database
    - Depending on your infrastructure and the size of your Traveler installation, license requirements etc this is either a separate server or just another instance on an existing server
- **Supported Versions for Traveler 9.x**
  - DB2 Workgroup / Enterprise Server Edition v10.1 and higher level fixpacks
  - DB2 Workgroup Server Edition v10.1 and higher level fixpacks
  - DB2 Workgroup / Enterprise Server Edition v9.7 fixpack 5 and higher level fixpacks
  - Microsoft SQL Server Enterprise Edition 2008 (R2) SP1 CU1 or higher level fixpacks
  - **64-bit version recommended for all installations**



# Software Download

- **Download 64bit Version of DB2 10.1 for your platform of choice**
  - Limited Use Traveler has a separate software download
- **IBM DB2 V10.1 - Limited Use for Notes Traveler V9.0.x Multiplatform Multilingual eAssembly (CRM45ML)**
  - IBM DB2 10.1 - Limited Use for Windows on AMD64 and Intel EM64T systems (x64) Multilingual (CI6TYML)
  - IBM DB2 10.1 - Limited Use for Linux on AMD64 and Intel EM64T systems (x64) Multilingual (CI6TQML)
  - IBM DB2 10.1 - Limited Use for AIX Multilingual (CI6TTML)
  - ...
- **We will install DB2 10.1 64Bit for Windows**

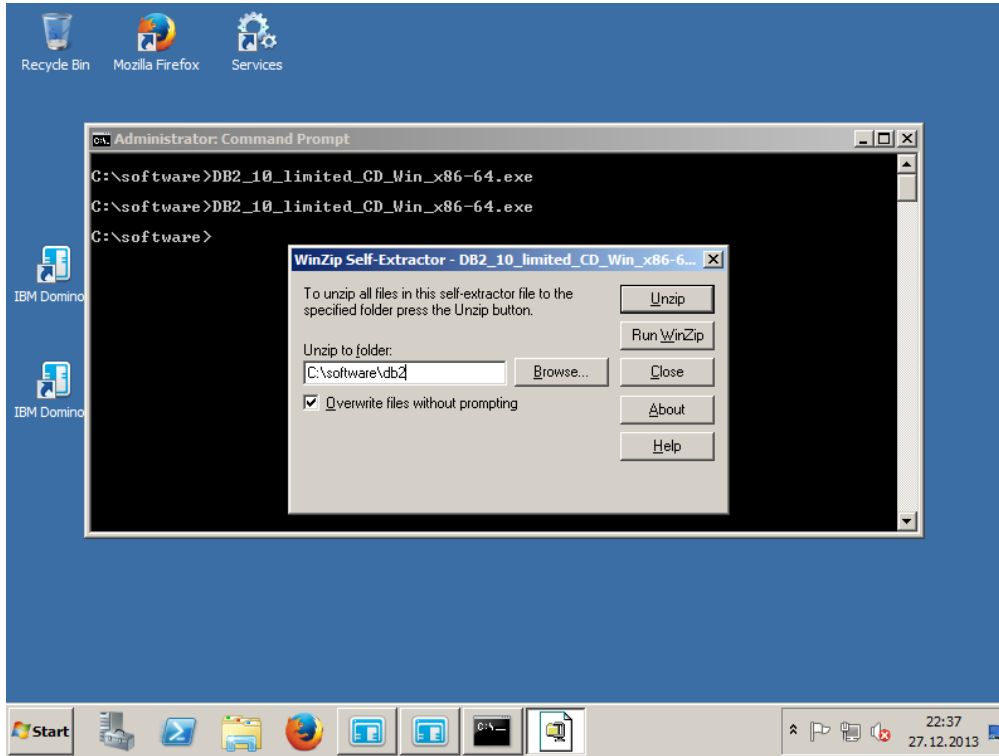


# DB2 Configuration and Sizing

- **You should have always separate disk for**
  - Database
  - Transaction Log
- **“Disk” means**
  - Separate **Physical Disk** on physical machine
  - Separate **VMDK** on ESX server
  - For a small environment separate disks might not be needed
    - But in a virtual environment it's not a big overhead and you should always have separate “disks”
  - This “Show and Tell” environment will use just a single disk with default disk configuration
  - More details about sizing the DB2 Server later in the session



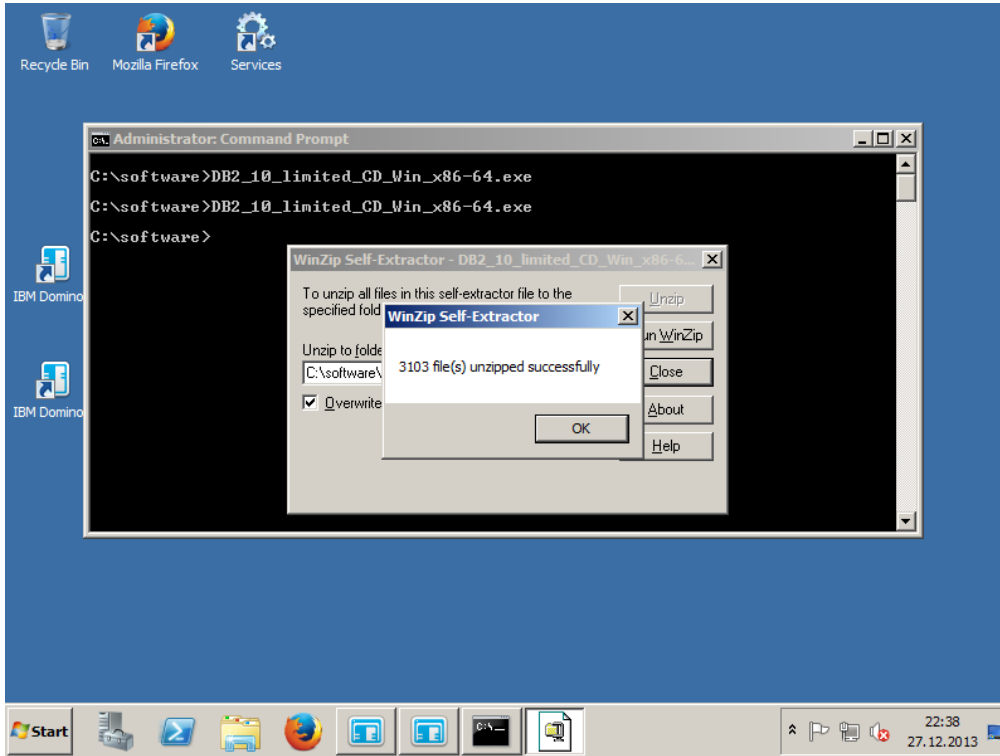
# Unpack DB2 Install Files



- **DB2 Ships in Self-Extracting ZIP**
  - Unzip in directory



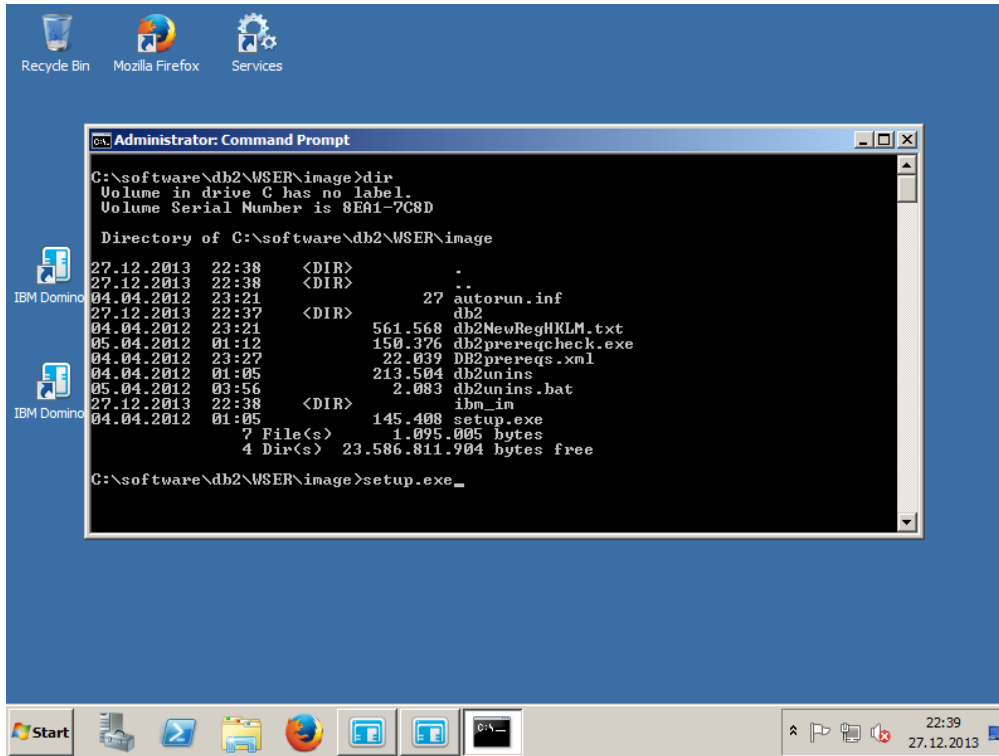
# Unzipped Install Files



- **3103 files extracted**



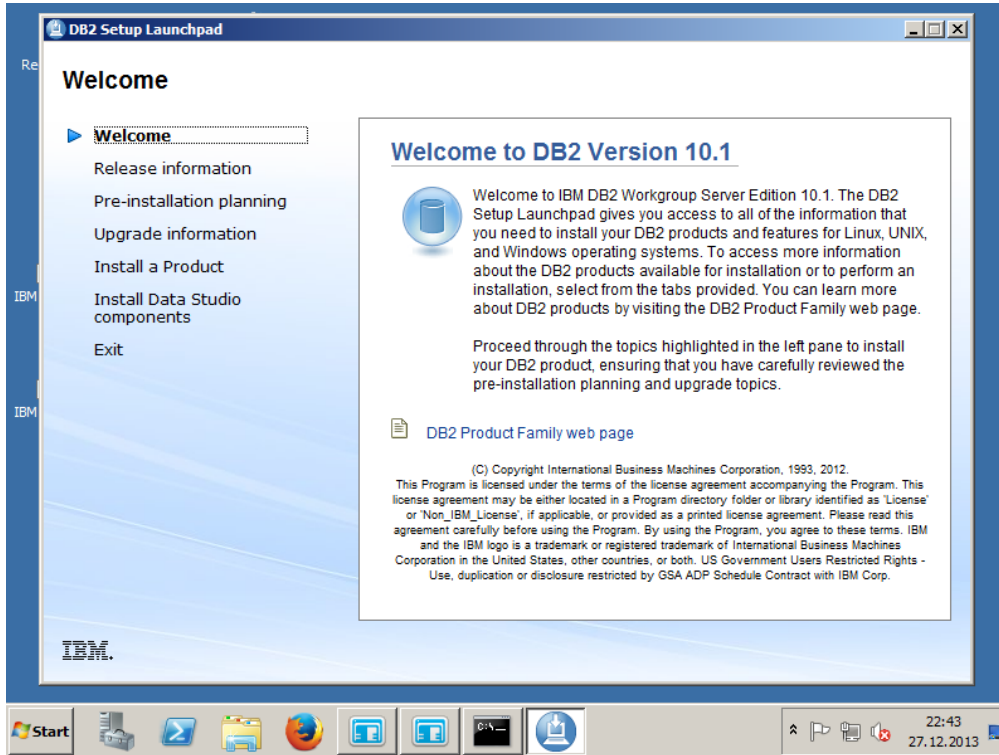
# Begin Installation



- **Run setup.exe**
  - Run as administrator



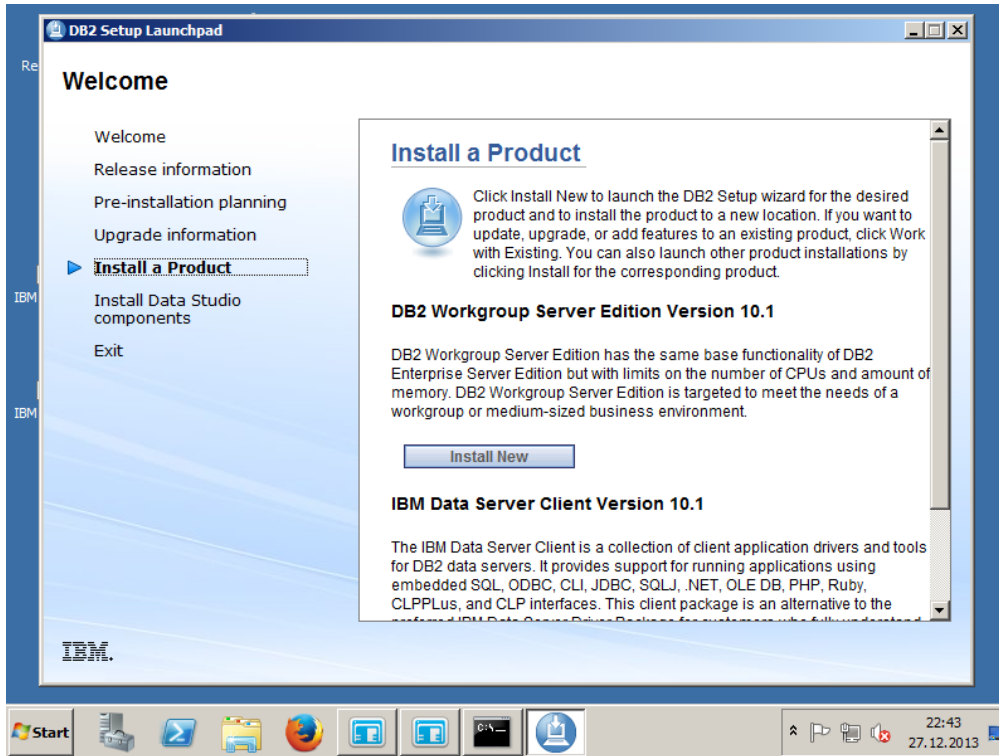
# DB2 Installer Welcome Screen



- Select “Install a Product”



# DB2 Installation

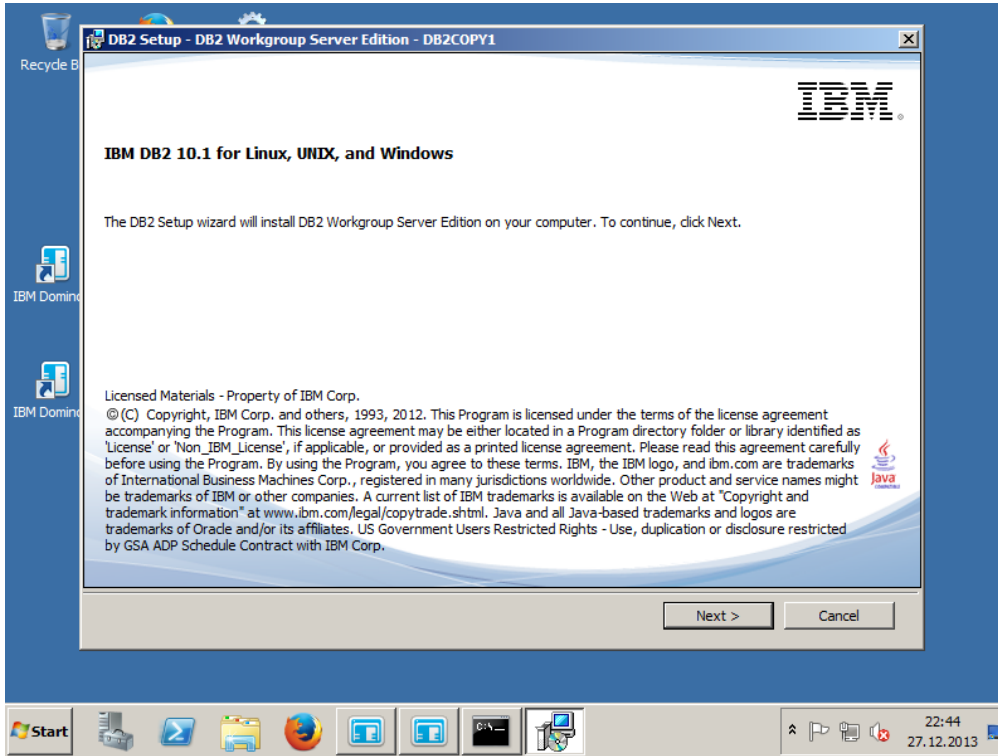


- Press “Install New” button for “DB2 Workgroup Server Edition Version 10.1”





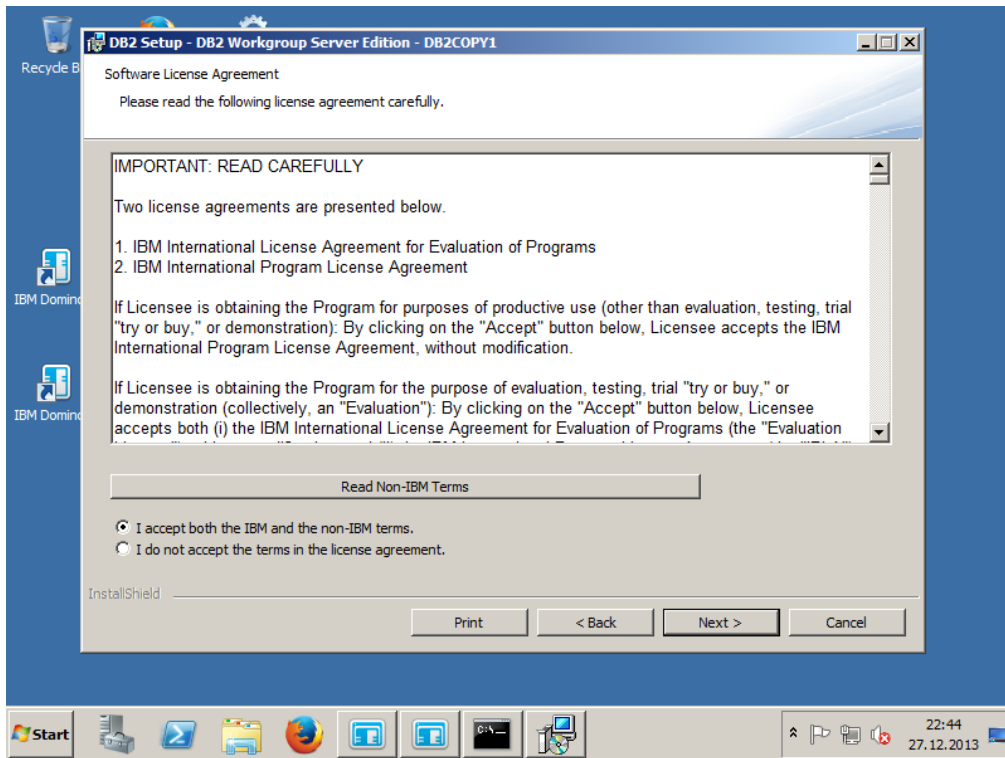
# Continue Installation Wizard



- Click “Next” to continue install



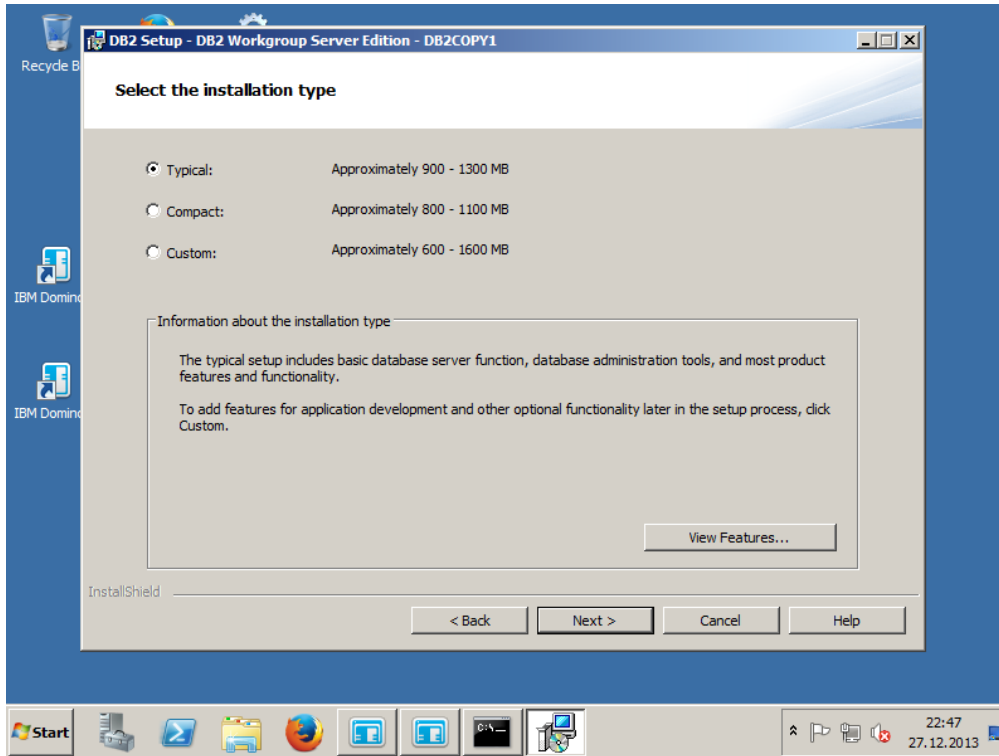
# License Agreement



- **Accept License Agreement**
- **Press “Next” to continue**



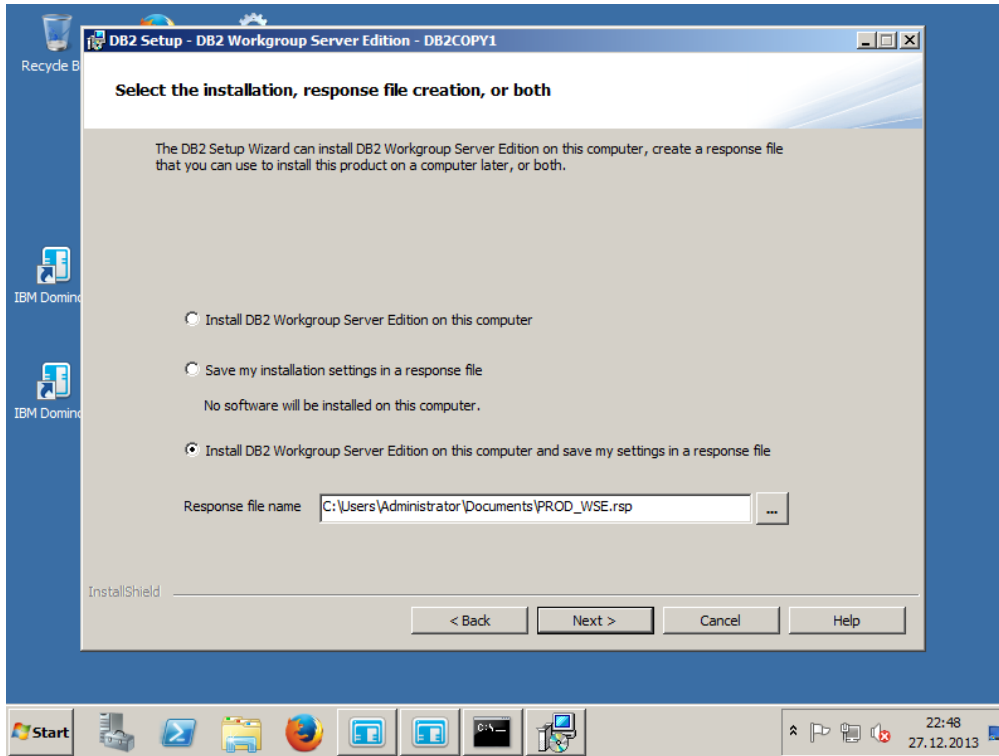
# DB2 Installation Type



- **Select “Typical” installation**
- **Press “Next” to continue**



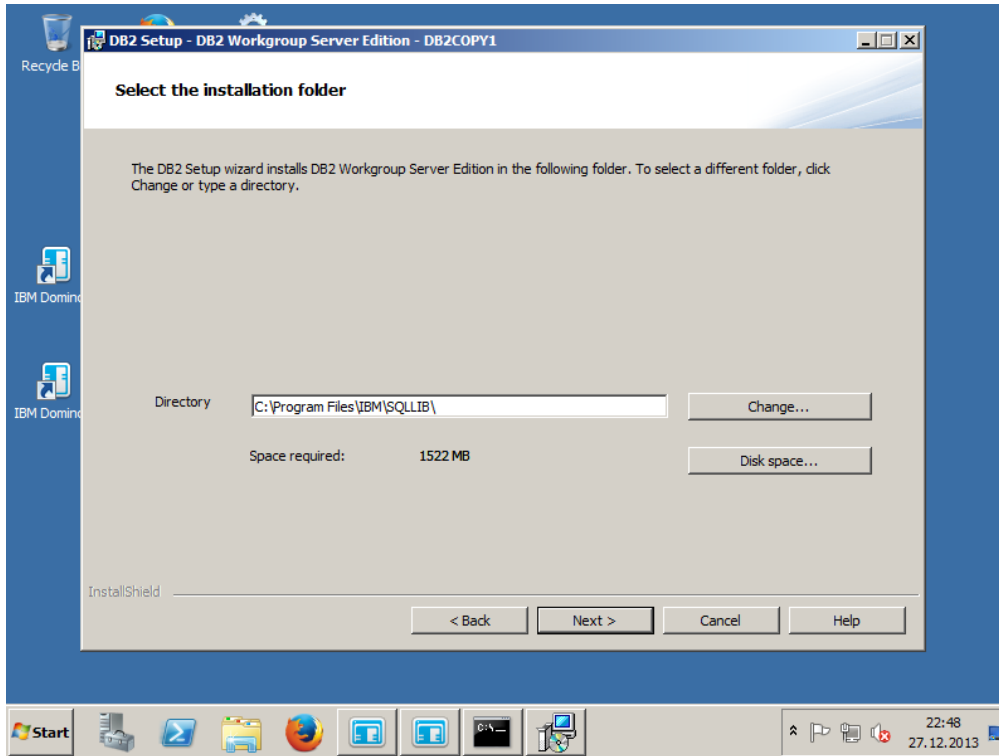
# Installation Response File Creation



- **Keep the selected response file recording just in case**
- **Press “Next” to continue**



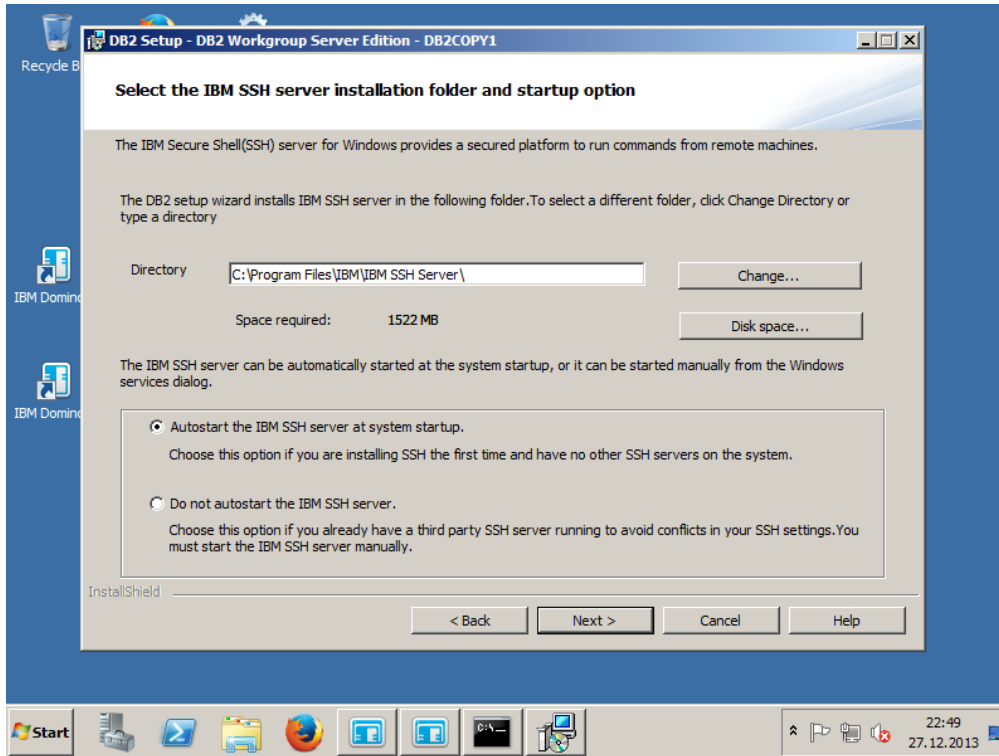
# DB2 Target Directory



- **Confirm the 64bit DB2 default installation directory**
  - “C:\Program Files\IBM\SQLLIB”
- **Check required disk space**
- **Press “Next” to continue**



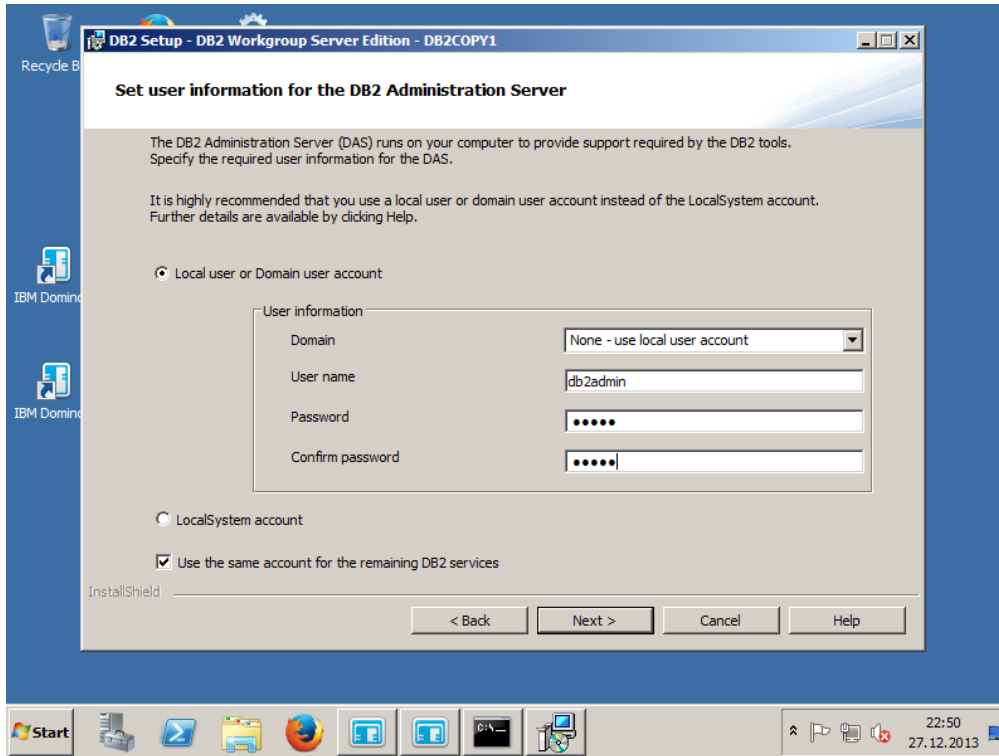
# IBM SSH Server



- **IBM SSH Server will be installed by default for administration purposes**
  - Keep the defaults
    - Target Directory and Autostart
- **Press “Next” to continue**



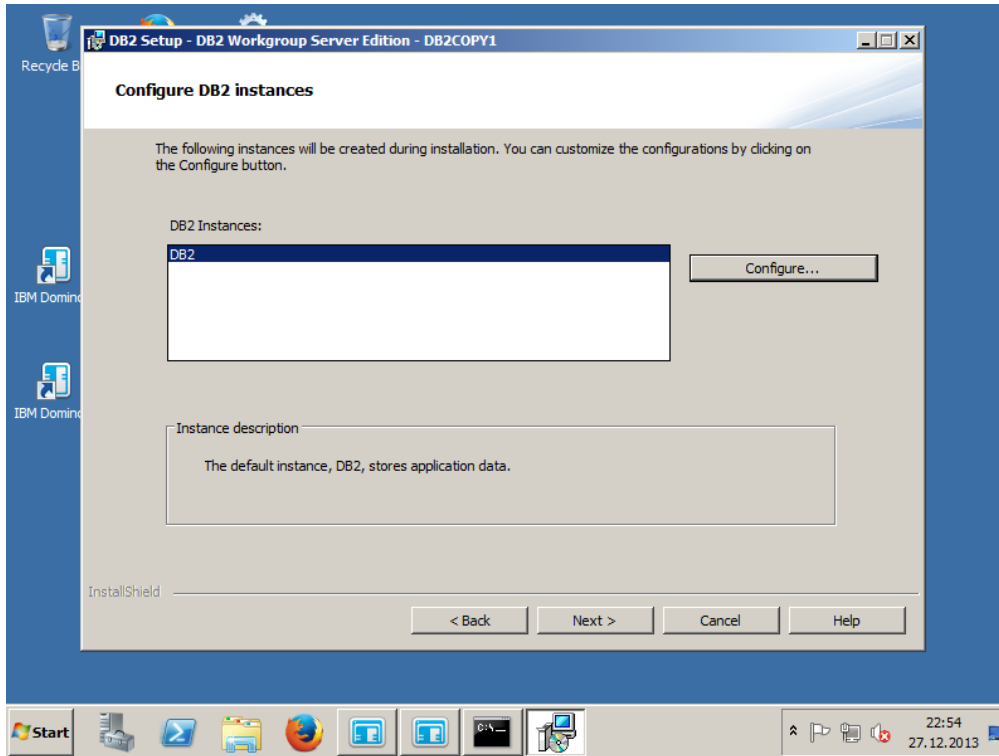
# Account for DB2 Administration



- **Let DB2 create a local/Domain administration account**
  - User: db2admin
  - Chose a password that meets your windows password policy
- **Enable “Use the same account for the remaining DB2 services”**
- **Press “Next” to continue**



# DB2 Instance

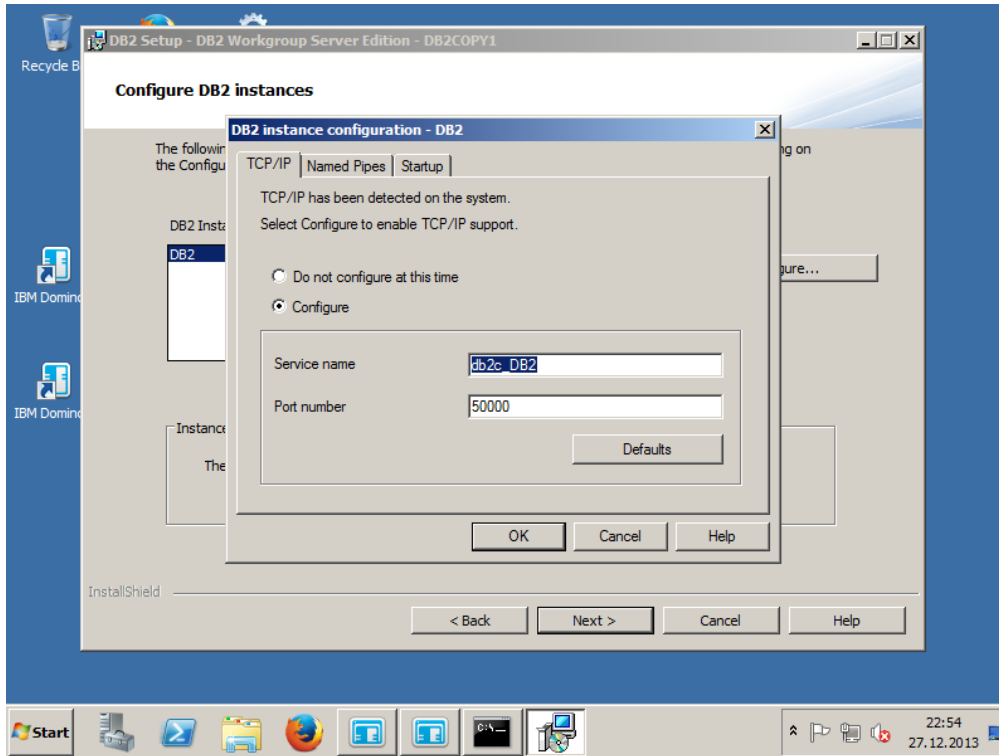


- **Keep the default settings for the instance “DB2”**
- **Press “Next” to continue**





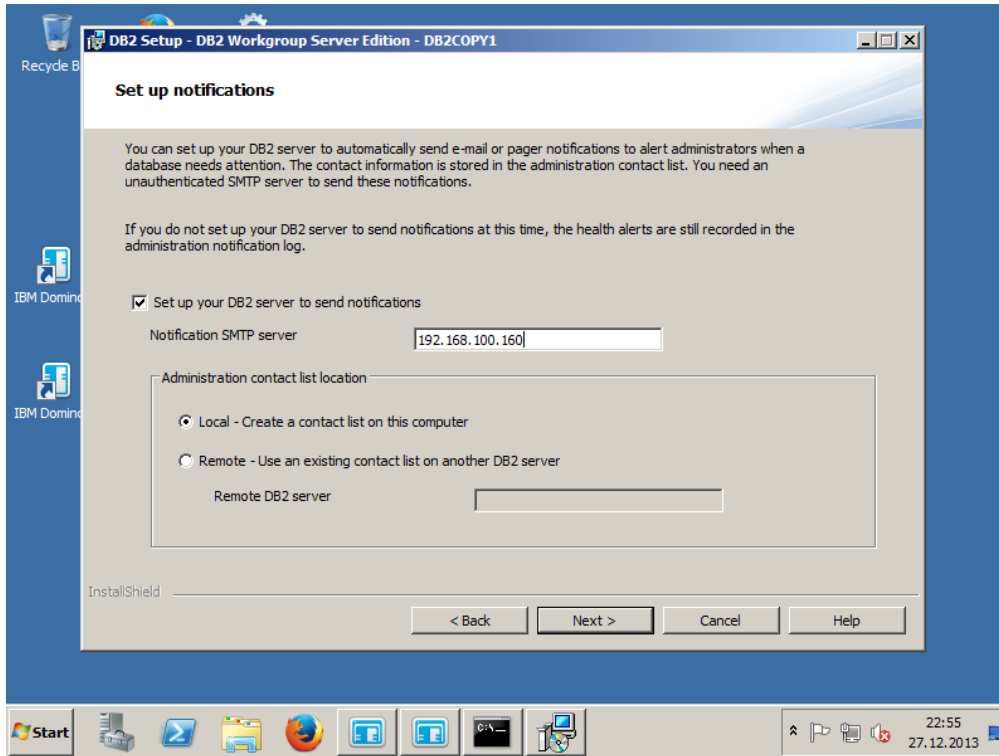
# DB2 Instance Configuration



- **Keep the default settings for the database instance**
- **By default the service port for the first DB2 instance is 50000**
  - Keep the default port if you can
- **Check and confirm the settings**
- **Press “Next” to continue**



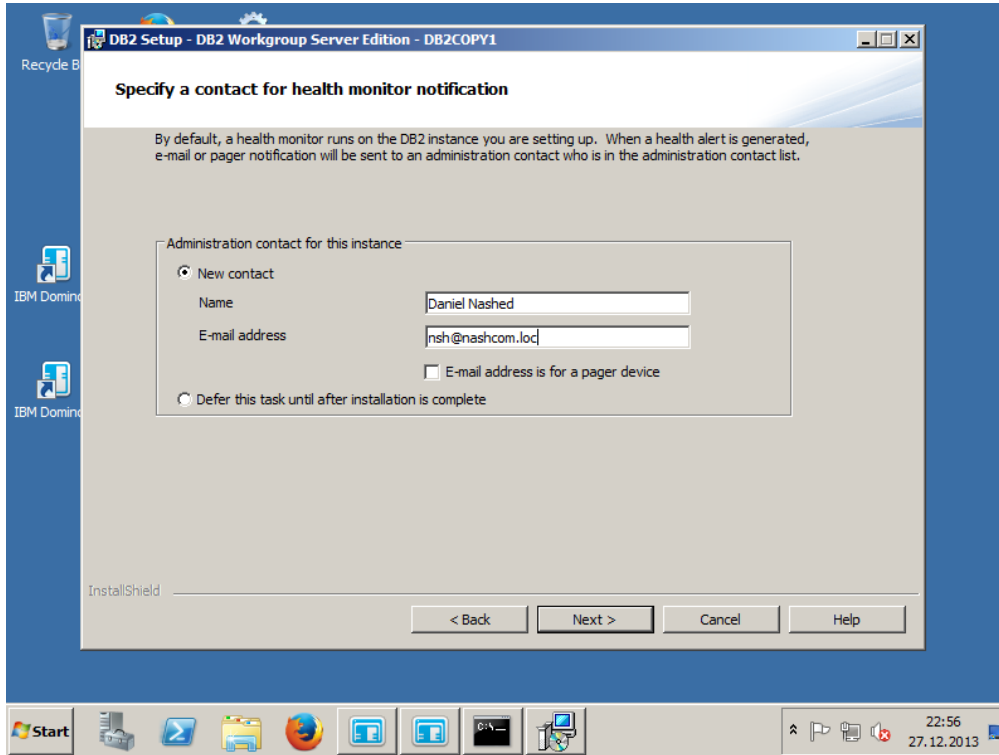
# Notification Server



- **You can configure a SMTP based notification server**
  - Can be a Domino SMTP Server
  - Specify IP address
  - Keep “ Local” admin account List
- **Press “Next” to continue**



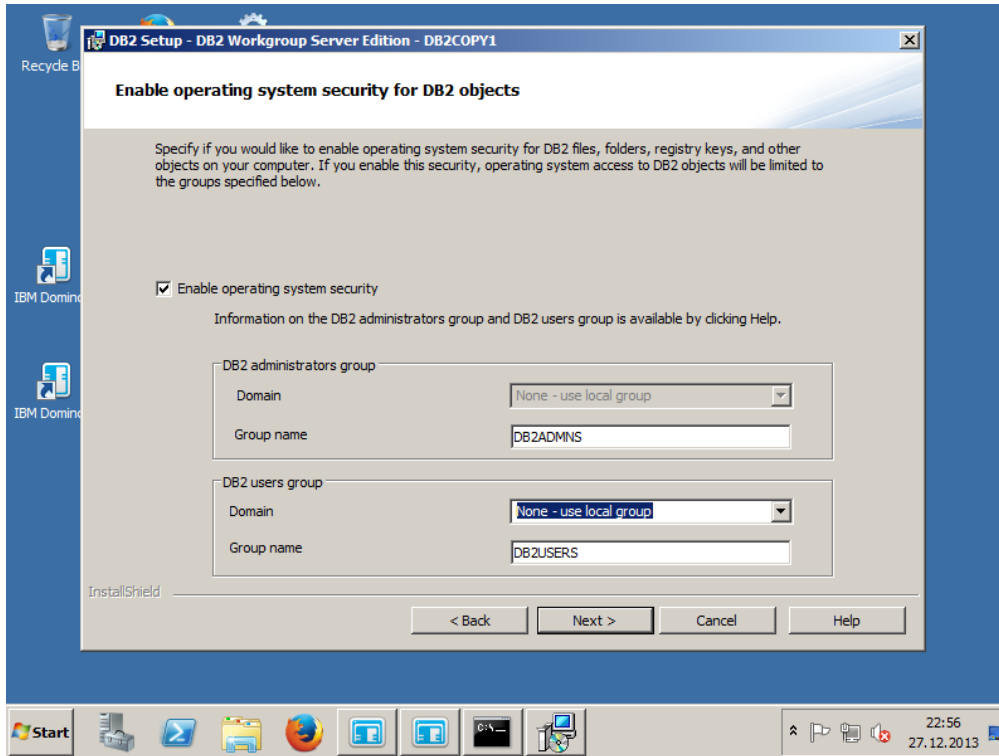
# Notification Address



- Specify Notification Address
- Press “Next” to continue



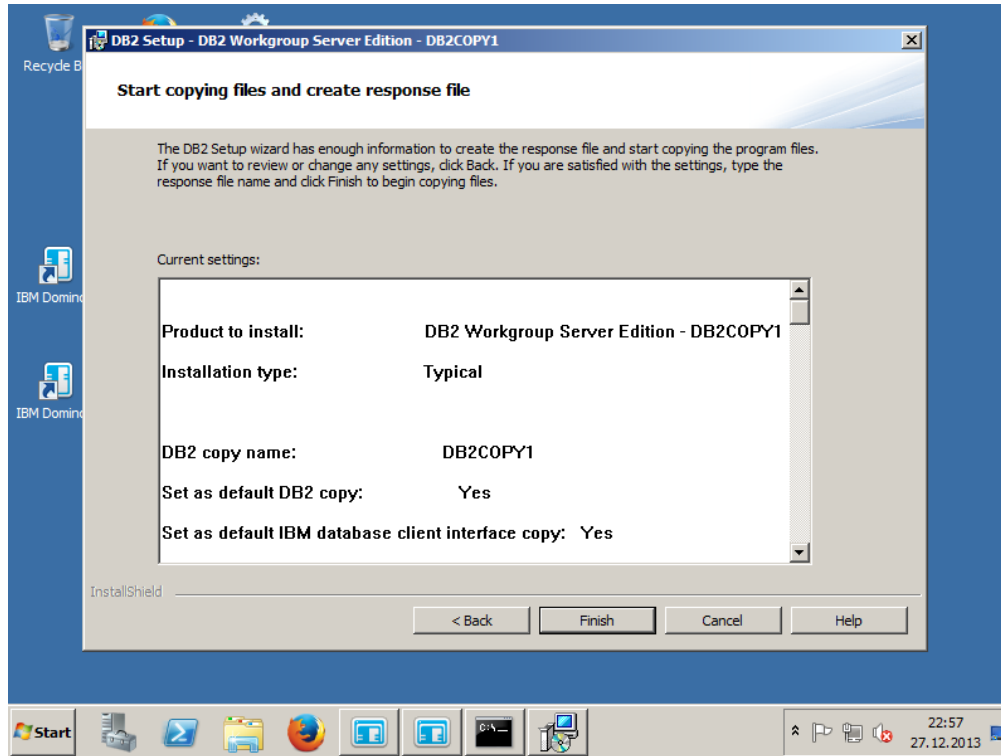
# DB2 Security Settings



- **Specify Admin and User group for Accounts**
- **If you are not inside a domain, a local group is used**
- **Keep the default names**
  - DB2ADMINS
  - DB2USERS
- **Groups will be automatically created**
- **Press “Next” to continue**



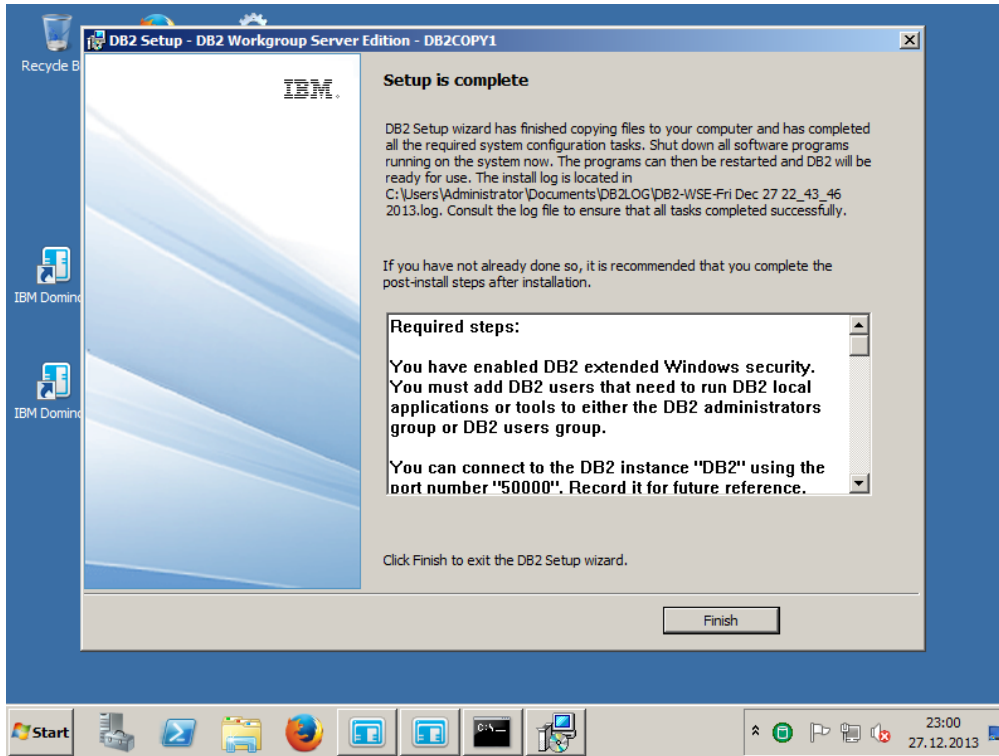
# Installation Summary



- Check installation summary
- Press “Finish”



# Setup Complete



- Check the installation result
- Click “Finish” to close the installation wizard



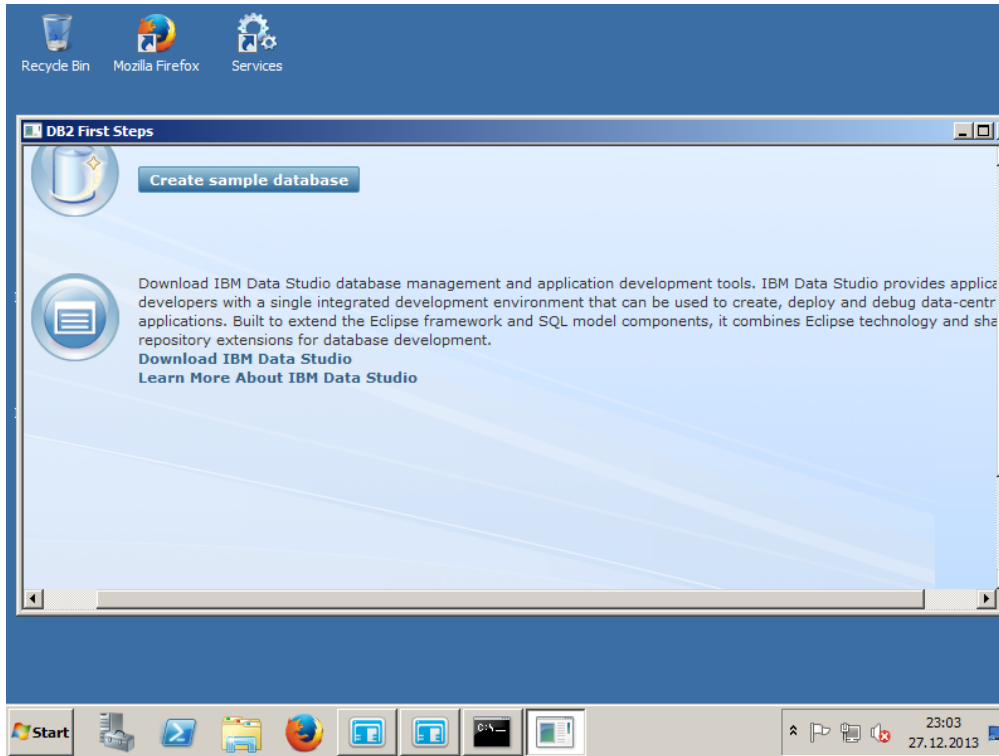
# Welcome Screen Part 1



- **Welcome Message gives hints how to start**



# Welcome Screen Part 2



- **Welcome Screen references new administration tool**  
**“IBM Data Studio”**
- **Don't install the IBM Data Studio from here**
- **Download the latest version 4.1**





# IBM Data Studio

IBM Software

## Connect 2014

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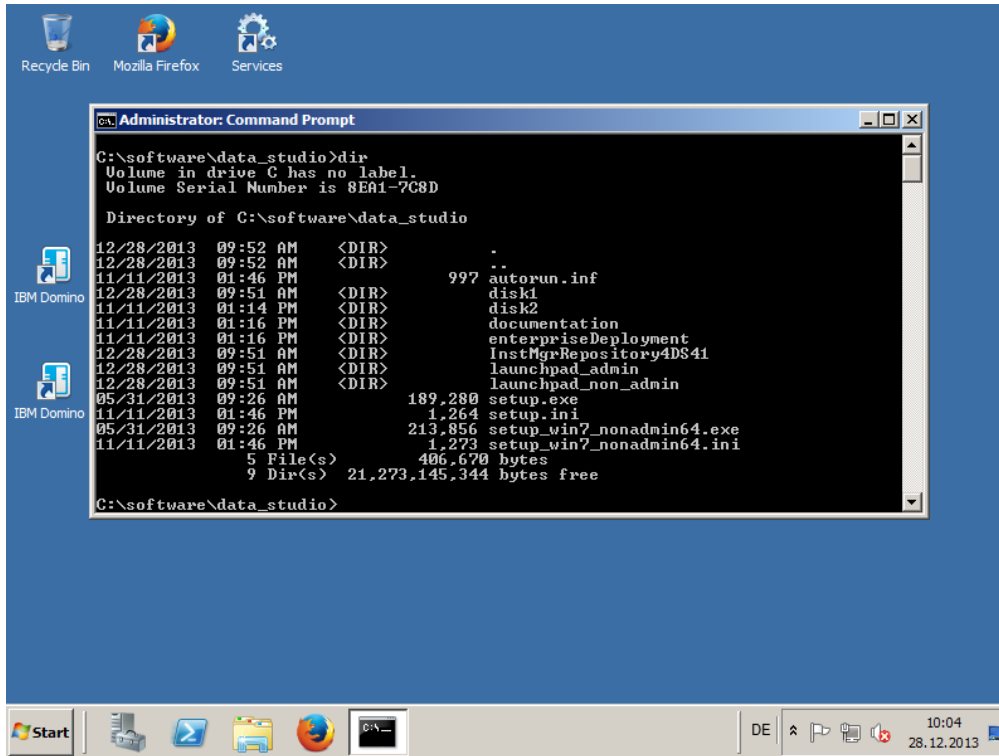


# IBM Data Studio

- **DB2 10.1 does not include “DB2 Control Center” any more**
- **Replacement is the “IBM Data Studio”**
  - Free IBM tool to Create and Manage Databases – Not just for DB2
- **Product Page and Download**
  - <http://www.ibm.com/software/products/en/data-studio>
  - <http://www.ibm.com/developerworks/downloads/im/data/>
- **We are using the full downloaded version**
  - Other option: IBM Install Manager which will download and install the current version for your



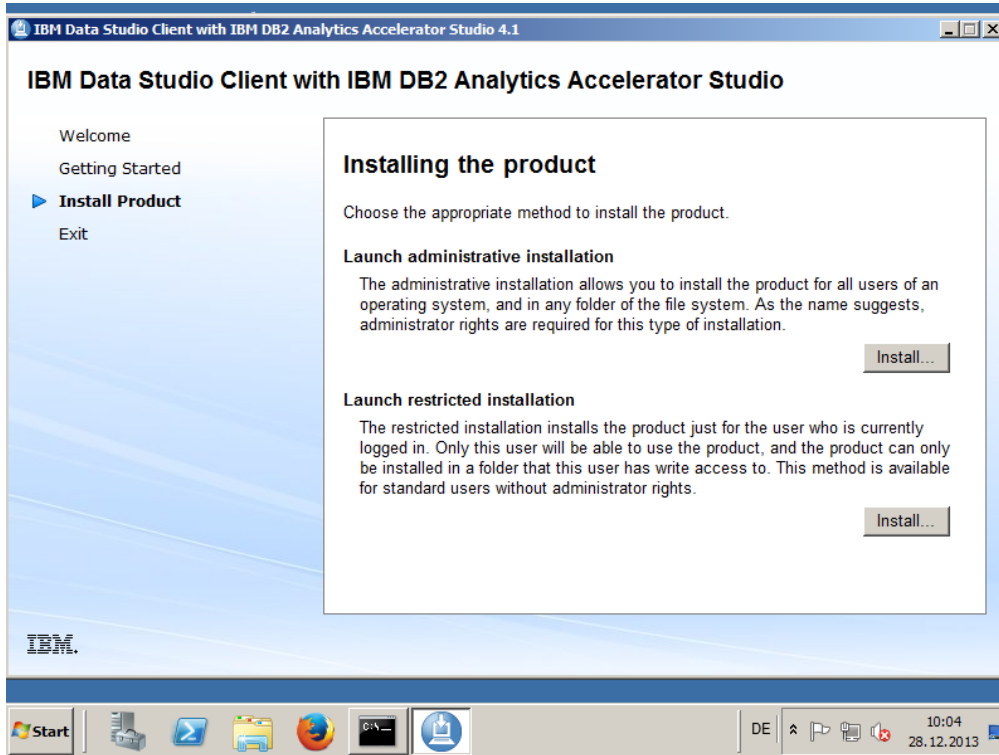
# Install IBM Data Studio



- Check unpacked Installation Files
- Run “setup.exe”
  - Run as admin



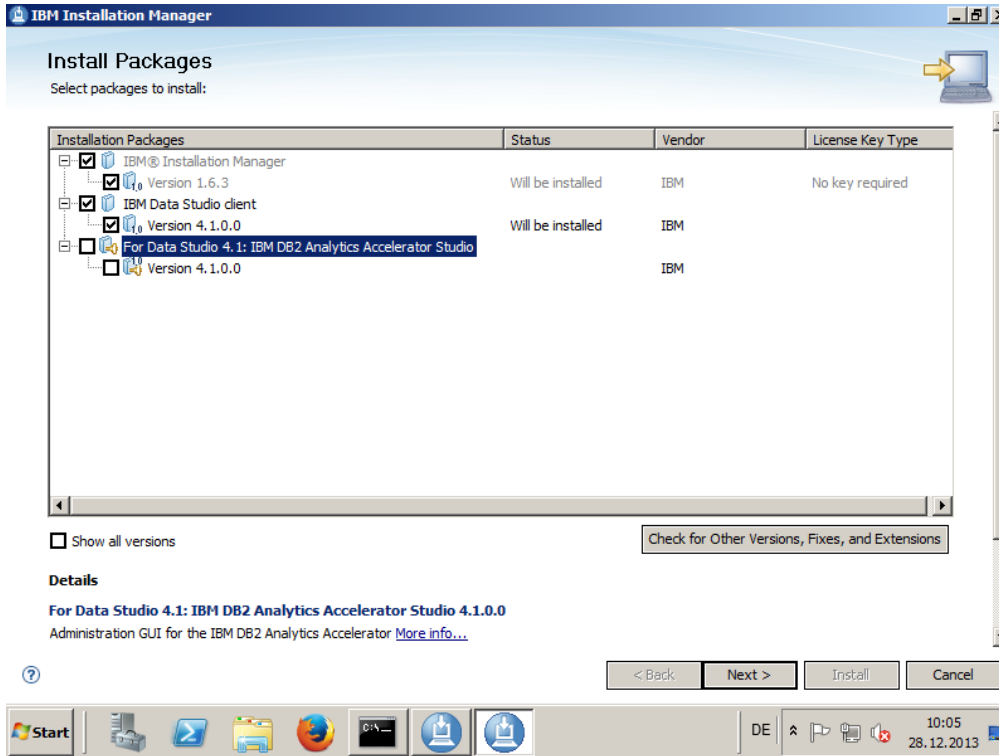
# Select Install Options



- Select “Install Product”
- Press “Install” for “administrative installation”



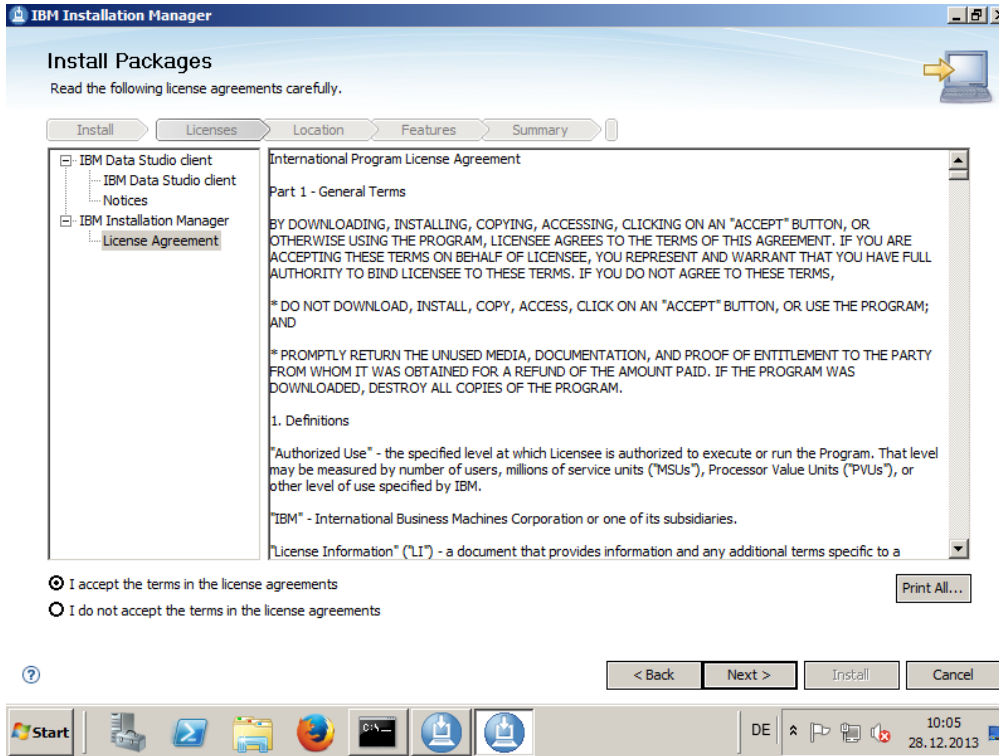
# Select Install Options



- **Only select**
  - “Install Data Studio Client”
  - IBM Installation Manager
- **Press “Next” to continue**



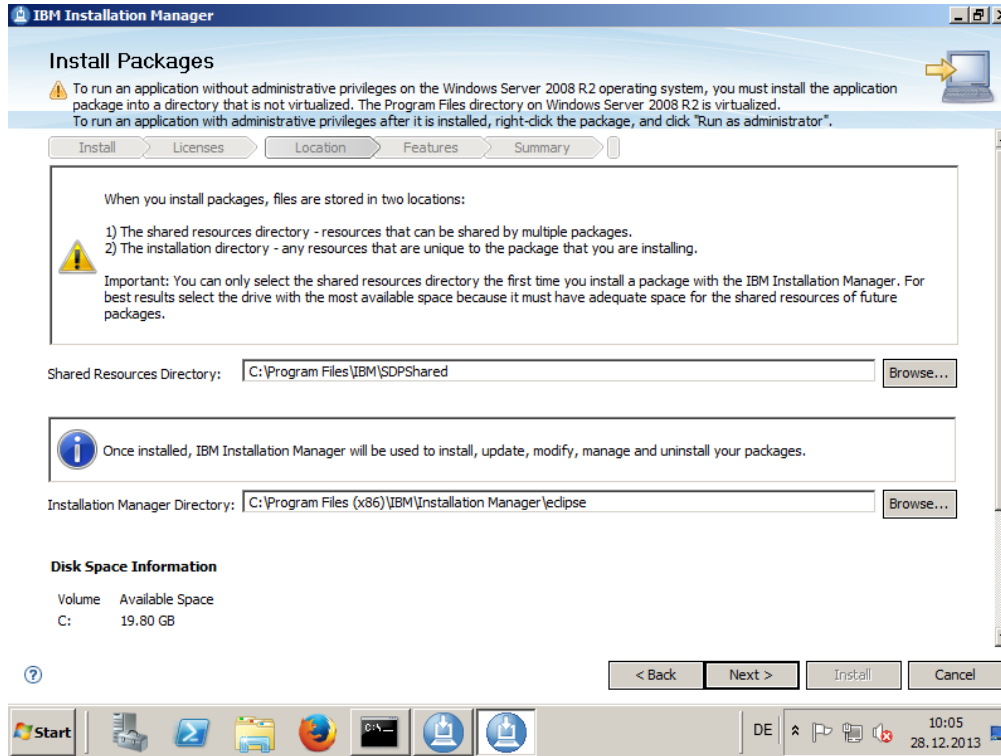
# License Terms



- Accept the License Terms
- Press “Next” to continue



# Target Directories



- Keep the default Target Directories
- Press “Next” to continue



# Disk Space and Architecture Selection

**IBM Installation Manager**

## Install Packages

To run an application without administrative privileges on the Windows Server 2008 R2 operating system, you must install the application package into a directory that is not virtualized. The Program Files directory on Windows Server 2008 R2 is virtualized. To run an application with administrative privileges after it is installed, right-click the package, and click "Run as administrator".

Install Licenses Location Features Summary

Use the existing package group  
 Create a new package group

Package Group Name	Installation Directory	Architecture
IBM Data Studio	C:\Program Files\ibm\DS4.1.0	64-bit

Package Group Name: IBM Data Studio  
Installation Directory: C:\Program Files\ibm\DS4.1.0  
Architecture Selection:  32-bit  64-bit

**Details**  
Shared Resources Directory: C:\Program Files\IBM\SDPShared

**Disk Space Information**

Volume	Available Space
C:	19.80 GB

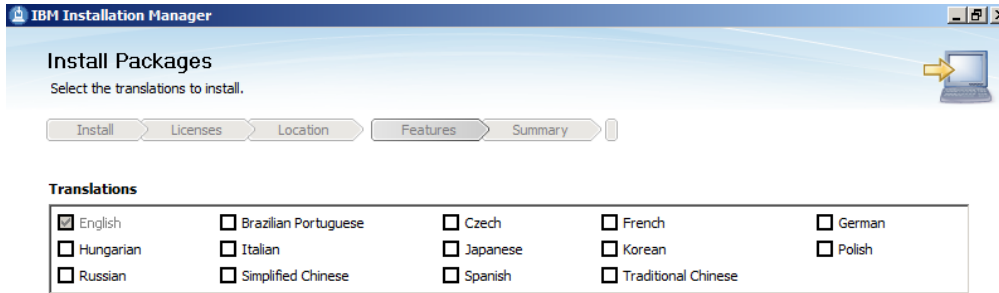
< Back Next > Install Cancel

- **Keep the default 64bit Architecture Selection**
- **Press “Next” to continue**





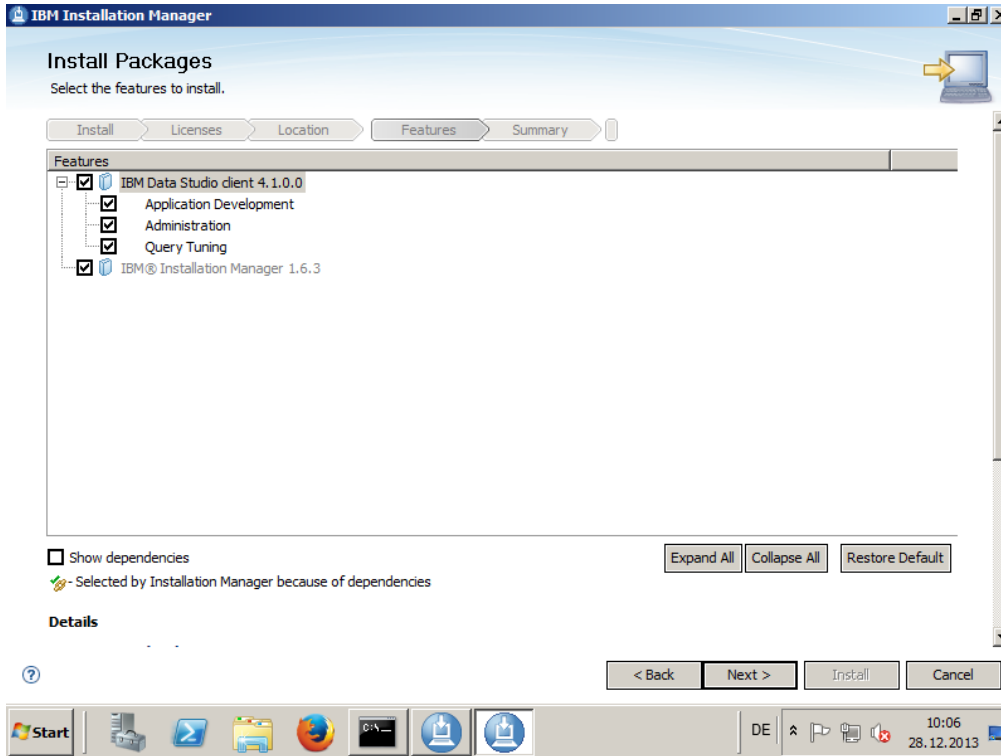
# Language Selection



- **Select the Languages to install**
- **My Recommendation**
  - Always stay with English
  - Translations often cause more confusion than being helpful
- **Press “Next” to continue**



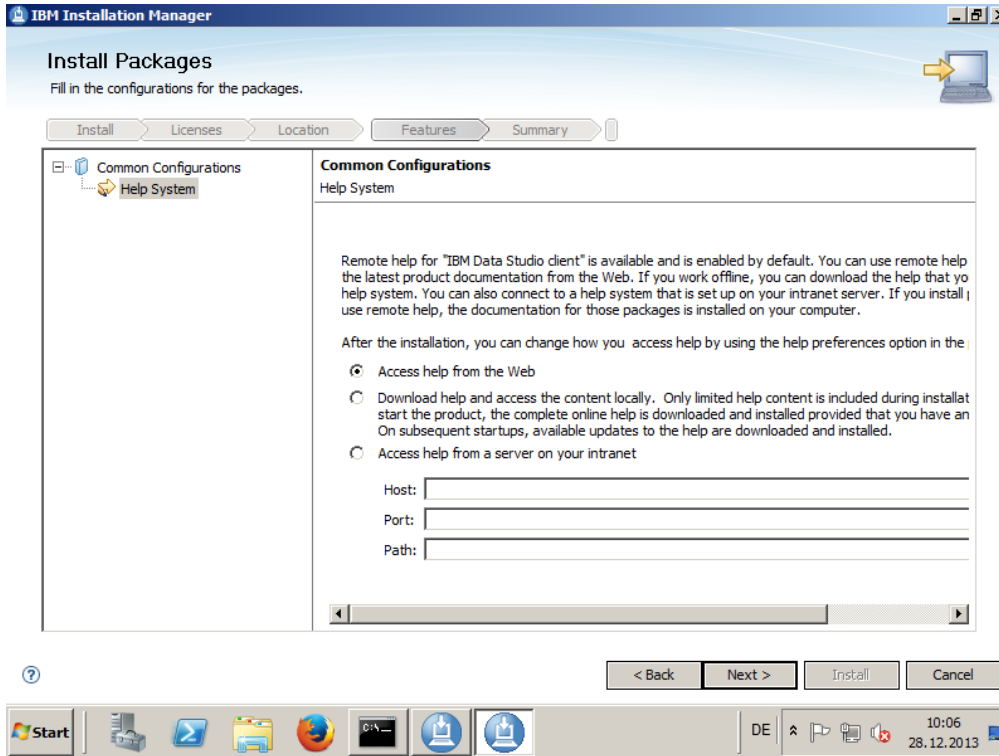
# Install Package Selection



- **Keep the default package selection**
  - All Packages will be installed
  - We are mainly interested in “Administration”
  - Press “Next” to continue



# Help System



- **Keep the default settings to access help from web**
- **Press “Next” to continue**



# Pre-Installation Summary

**IBM Installation Manager**

## Install Packages

Review the summary information.

Install Licenses Location **Features** Summary

**Target Location**

Package Group Name: IBM Data Studio  
Installation Directory: C:\Program Files\IBM\DS4.1.0  
Shared Resources Directory: C:\Program Files\IBM\SDPShared

**Packages**

- IBM Data Studio client 4.1.0.0
  - Application Development
  - Administration
  - Query Tuning
- IBM® Installation Manager 1.6.3

**Environment**

English

**Disk Space Information**

Total Available Space  
C: 19.80 GB

Total Download Size: 934.31 MB  
Total Installation Size: 1.22 GB

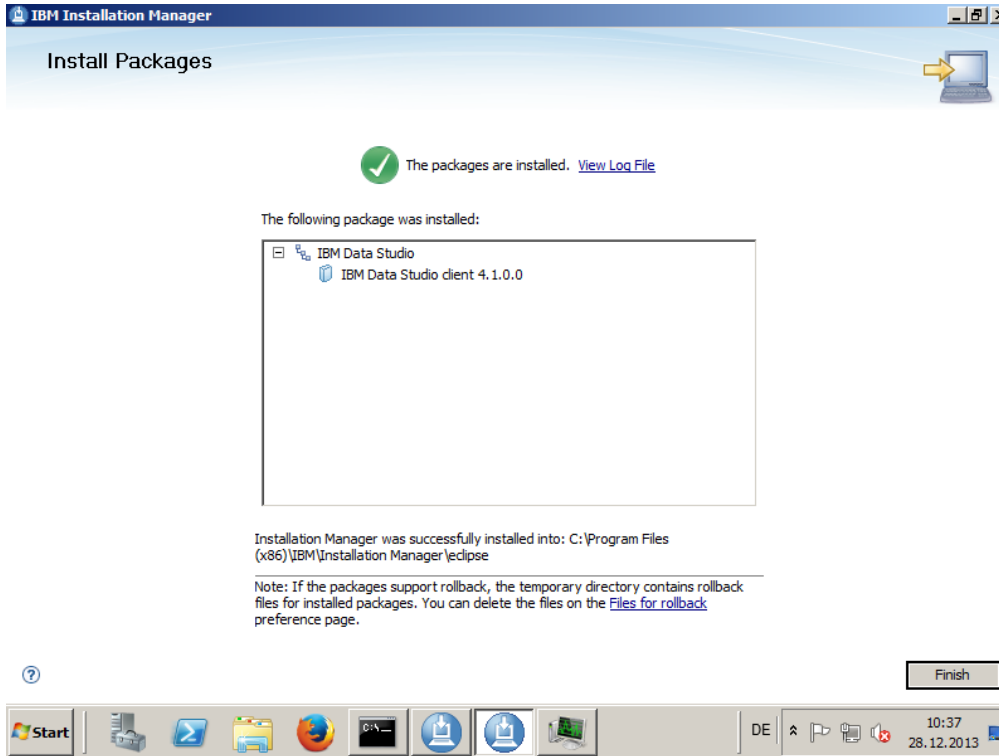
Repository Information

< Back Next > Install Cancel

- Check the Pre-Installation Summary
- Check Disk Requirements
- Press “Next” to continue



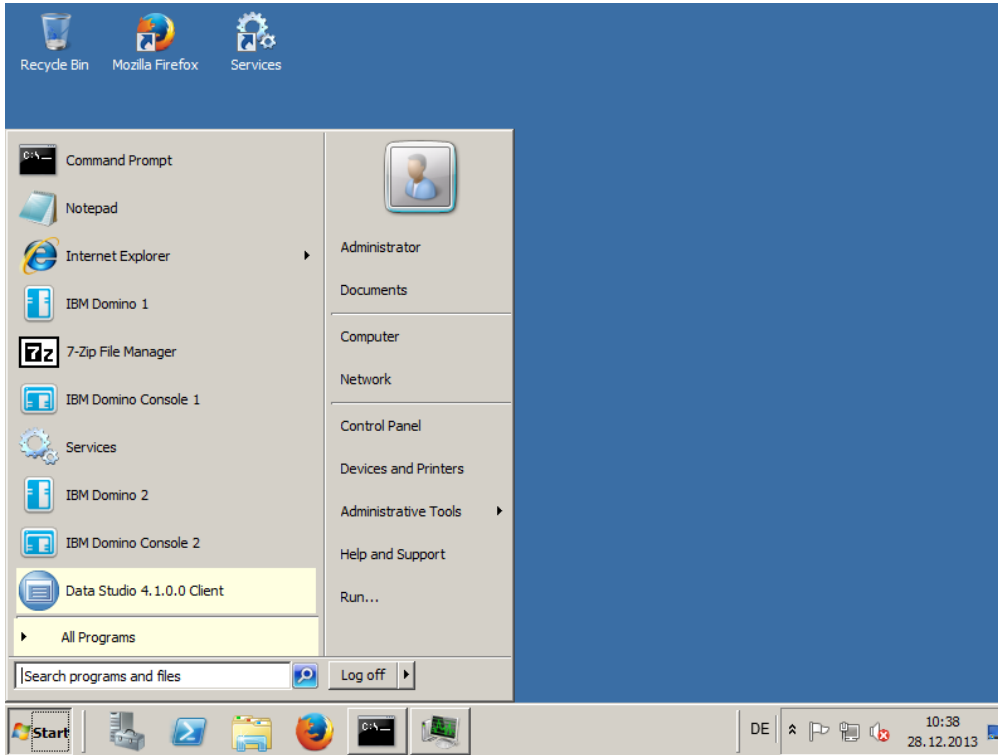
# Installation Completed



- Check Installation Summary
- Check Install Log
- Press “Finish”



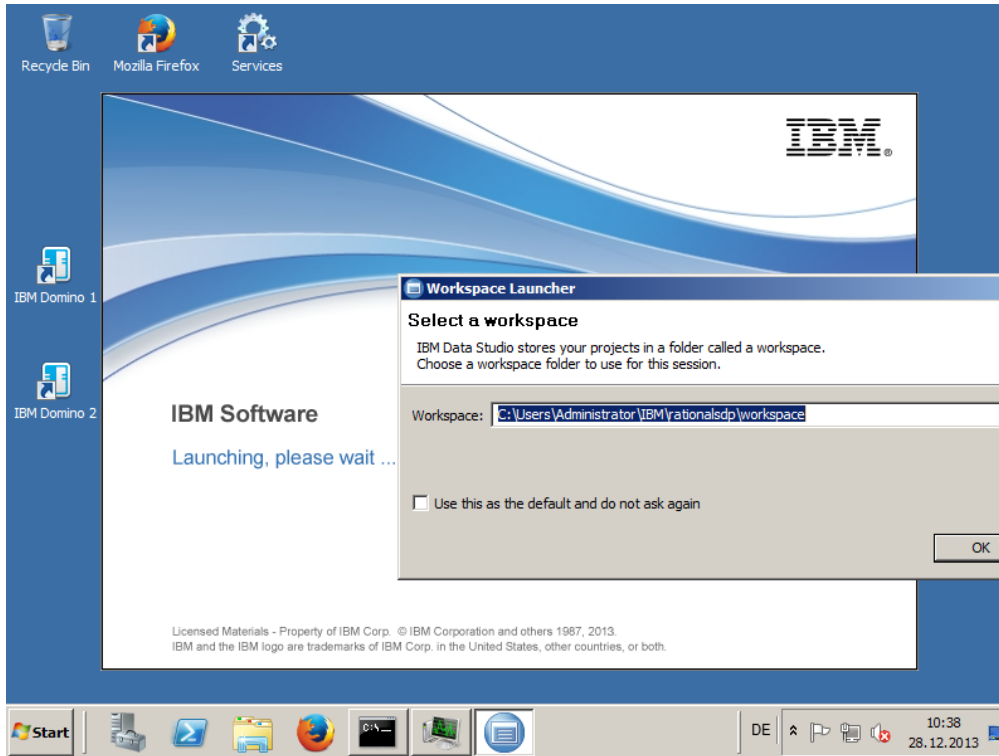
# Launch “IBM Data Studio Client”



- **Select “Data Studio 4.1 Client” from Start Menu**



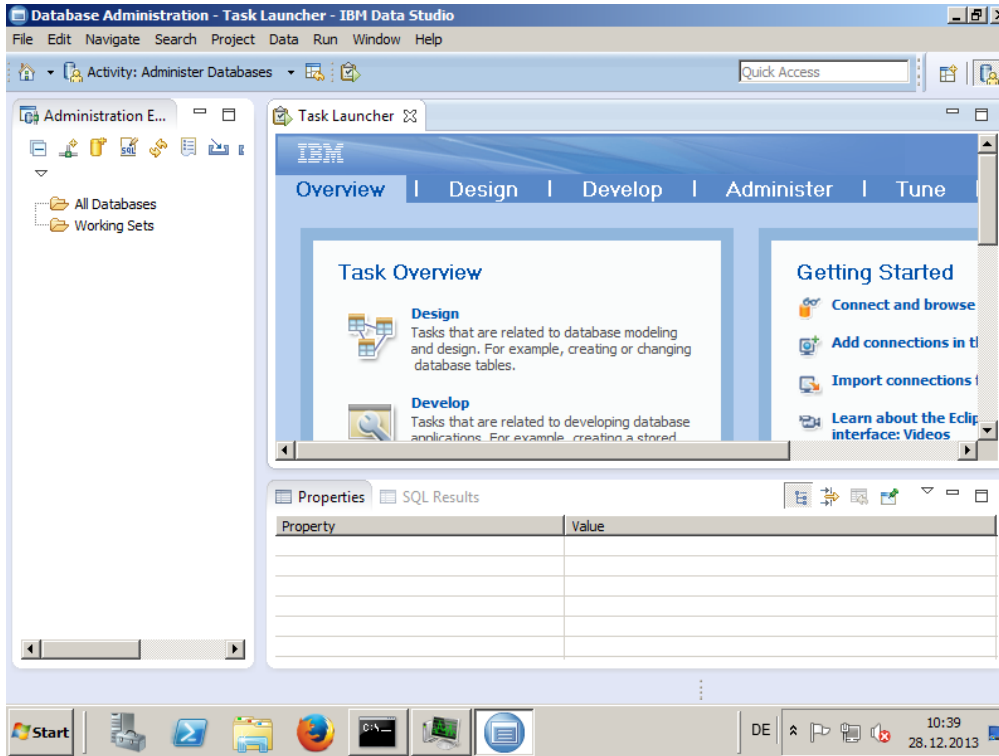
# Workspace Selection



- **IBM Data Studio Client is Eclipse based**
  - Needs a workspace directory
- **Confirm default directory**
- **You may also set it as default**
  - Select “Use this as the default and do not ask again”
- **Press “OK”**



# IBM Data Studio – Database Administration Perspective



- Check out the DB Administration Screen





# DB2 Configuration

IBM Software

## Connect 2014

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# Two Methods Creating Database and Schema

## ■ Automatic:

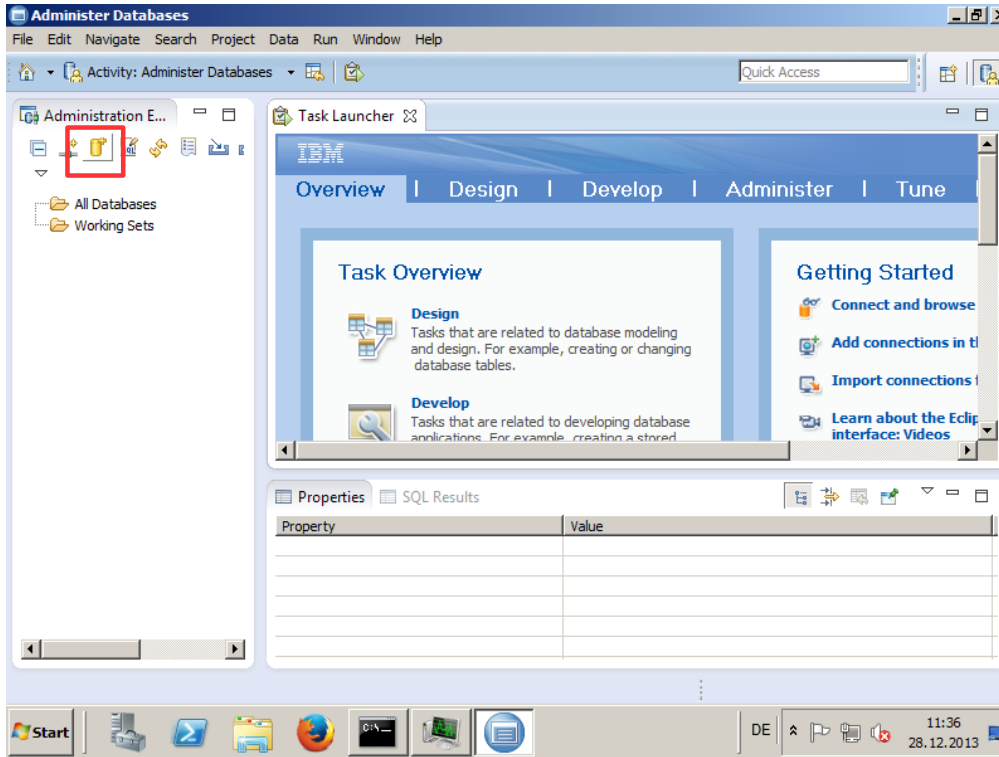
- DB2 Server Administrator (**DBA**) creates empty database on DB2 Server
- Database must use UTF 8 encoding for international character support
- On startup, Notes Traveler creates/updates schema/tables/indexes, etc., as needed
- Usually the best way but needs full permissions (admin) on the relational database
- Traveler Server has full control on database instance, automatic update of schema/tables/indexes

## ■ Manual / Data Definition Language (DDL):

- Provides an advanced option for DBA
- DBA reviews, customizes DDLs shipped with Traveler, from folder <data>/traveler/cfg/db
- Notes.ini NTS\_AUTO\_DB\_SCHEMA=false, tells Traveler not to alter schema
- DBA executes DDLs against DB2 Server to generate schema/tables/indexes
- New versions/fixpacks: DBA runs incremental DDL's to update schema
- Full control for DBA, restricted rights for separate Traveler user (by default: LNTUSER)
- Often used on larger DB2 installations with multiple instances



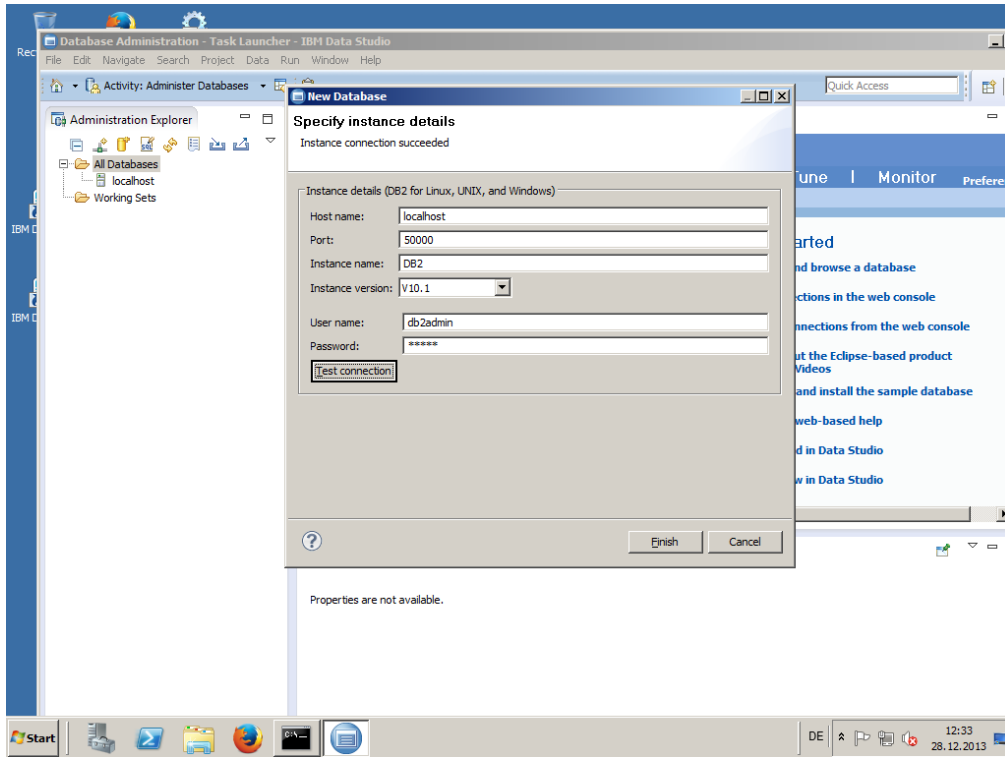
# Create New Database and connect to DB2 Server



- Click on “New Database Wizard”



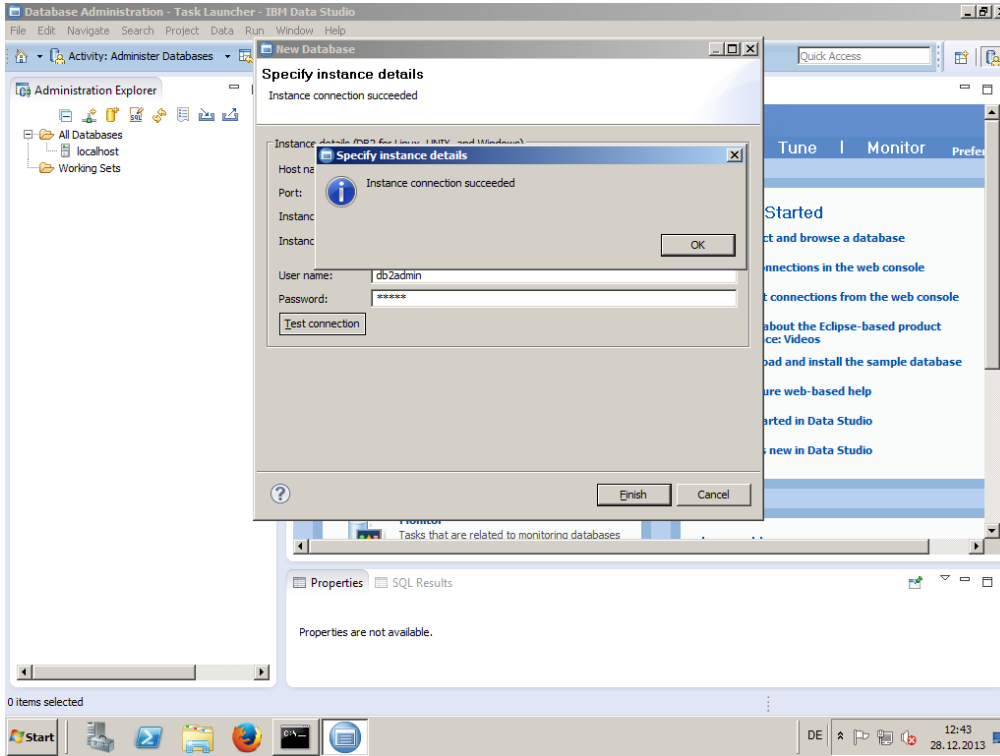
# DB2 Instance Details



- **Specify Hostname**
  - Localhost in my case because IBM Data Studio is on same machine
- **Specify our DB2 Instance Port**
  - Port: 50000
- **Specify our Instance Name**
  - “DB2”
- **Specify our Instance Version**
  - “V10.1”
- **Specify our Admin Account**
  - “db2admin” + password
- **Press “Test connection”**



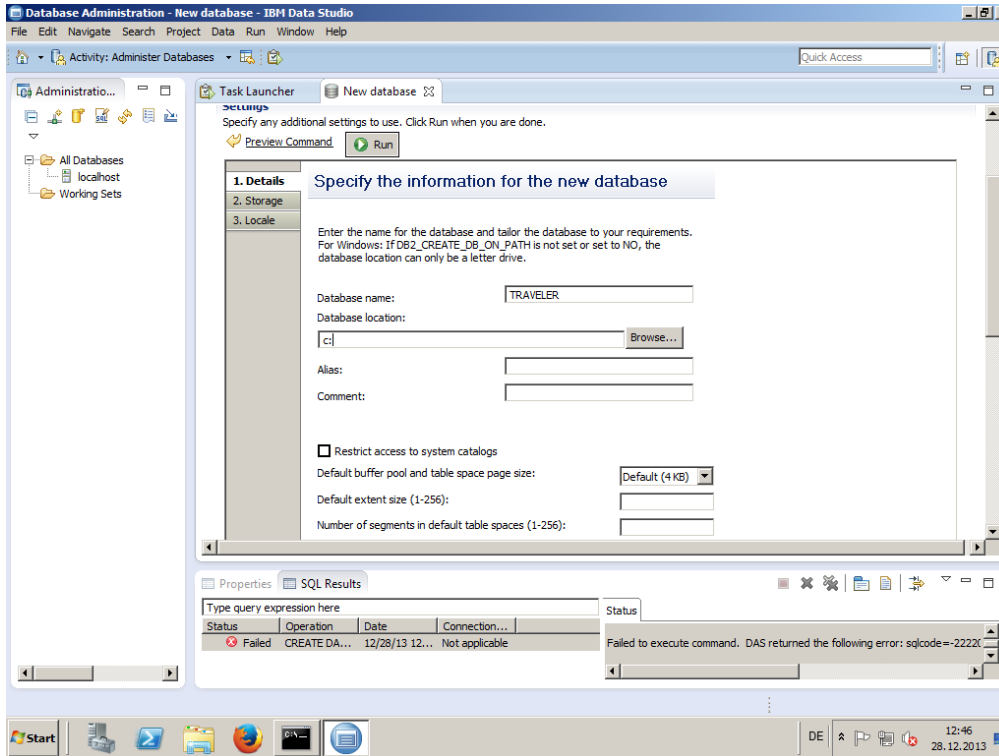
# Connection Succeeded



- Check if connection worked
- Press “OK”
- Press “Finish” to continue



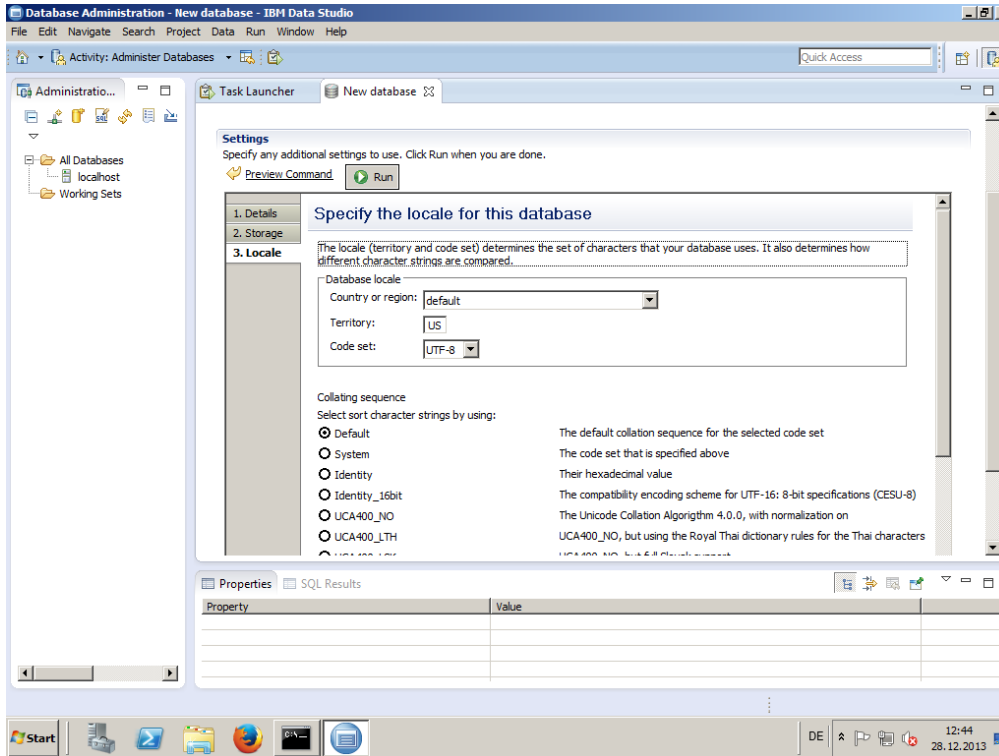
# New Database Information



- **Specify Database Name**
  - “TRAVELER”
- **Specify Database Location**
  - No location means default
  - In production you would specify a separate disk
- **Keep the default storage settings**
  - In production your DBA might optimize the settings



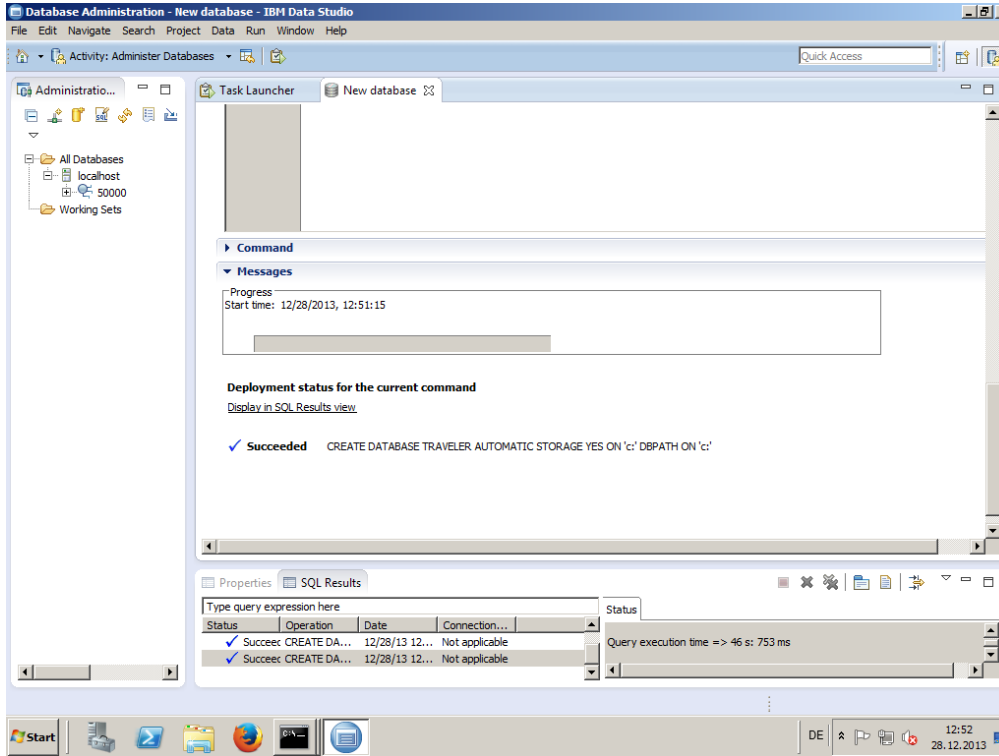
# DB2 Locale



- **Defaults meet our requirements**
  - Code-Set: UTF-8
  - Territory: US
  - Country or region: default
- **Press " Run " to create database**



# DB2 Creation Successful



- After a while the database has been created
- Check status





# Check Database

The screenshot shows the IBM Data Studio Database Administration interface. The left pane shows the 'Administration Explorer' with 'All Databases' expanded to 'localhost' and 'DB2'. Under 'DB2', 'TRAVELER (DB2 for Linux, UNIX, and Windows)' is selected. The main window displays a table with the following data:

Connection Name	Host Name	Instance	Alias	Vendor	Version
TRAVELER	WIN-LAB-TR-01	DB2	TRAVELER	DB2 for Linux, ...	V10.1

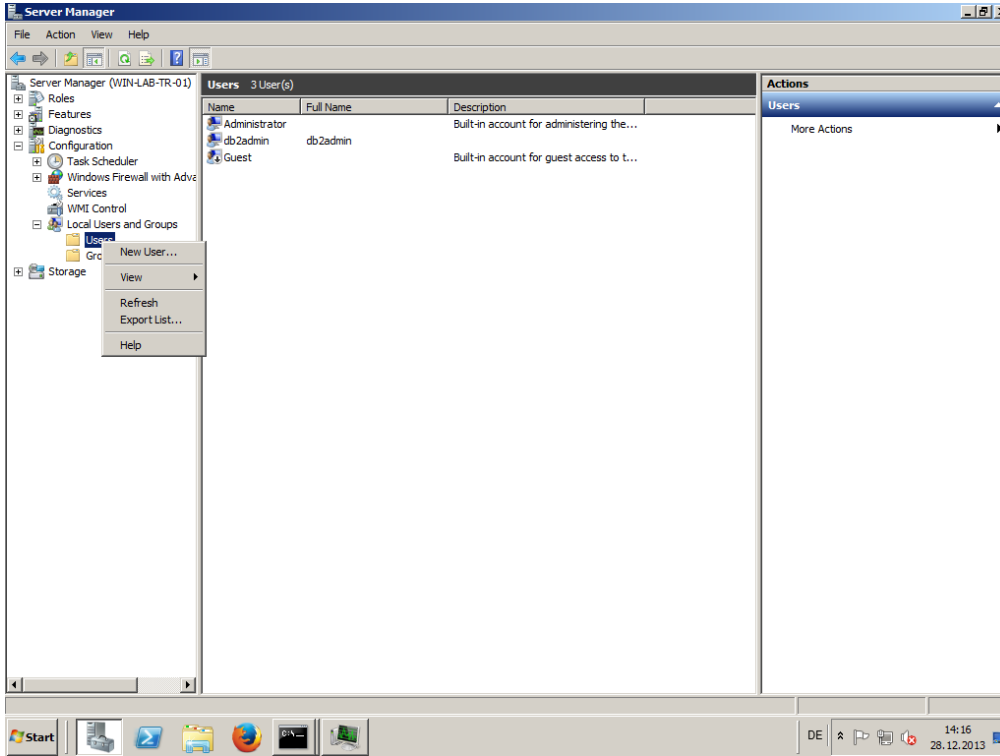
The bottom pane shows the 'SQL Results' tab with a table of execution status:

Status	Operation	Date	Connection...	Status
✓	Succeed CREATE DA...	12/28/13 12...	Not applicable	
✓	Succeed CREATE DA...	12/28/13 12...	Not applicable	

- Click on Database Name in left navigation to expand database information
- Now we have an empty database called “TRAVELER”



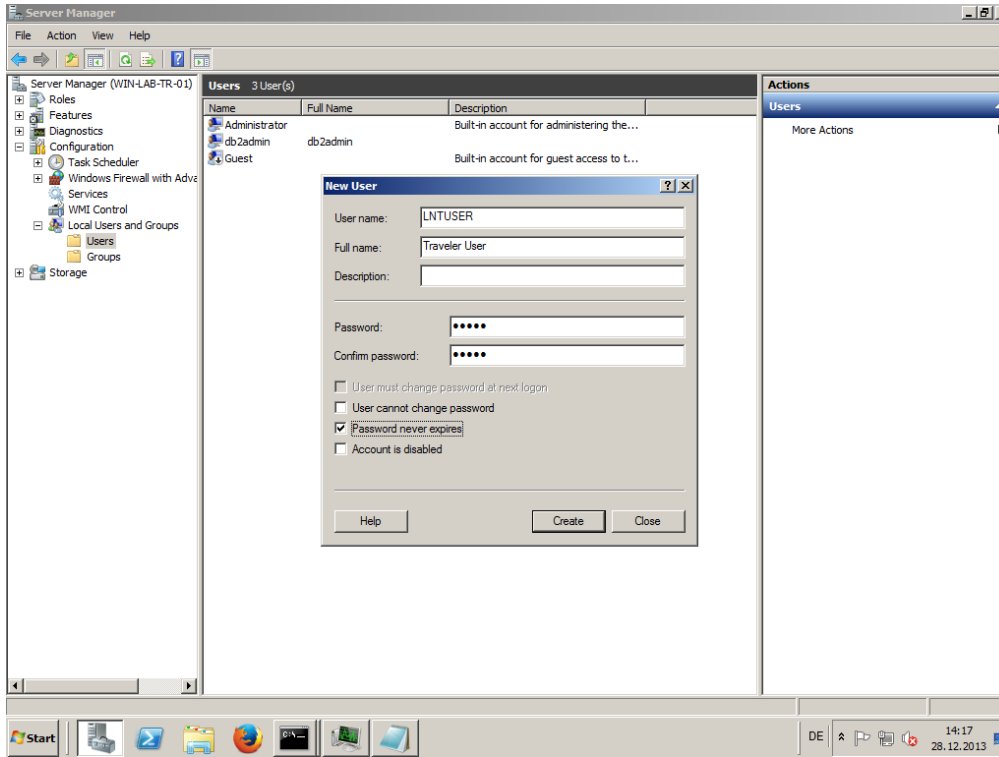
# Create User for DB2



- **Switch to Server Manager**
- **Select “Local Users and Group”**
  - For Servers in an Active Directory Domain you should create Domain Users
  - Usually servers located in DMZ are not part of a Domain
- **Click “ New User...”**



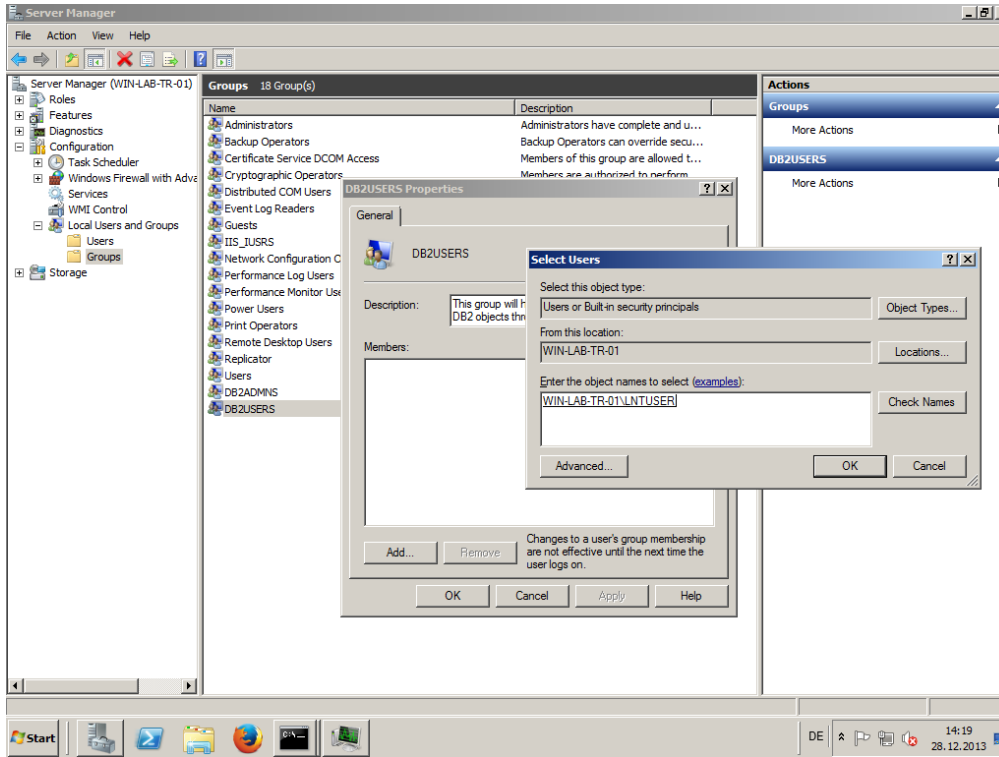
# Create “LNTUSER”



- **Specify User name**
  - “LNTUSER”
- **Specify a Full name**
- **Specify a Password that meets the security rules**
- **Click “Create”**



# Add User to Group



- **Add LNTUSER to DB2 Groups**
  - Switch to “Groups”
  - Select “DB2USERS” group
  - Click “Add...”
  - Type in “LNTUSER”
  - Click “Check-Names”
  - Verify name and click “OK”
- **In our demo case the LNTUSER is added also to the DB2ADMIN group**
  - Totally fine when running on a separate DB2 server
  - In larger environments the user would be only admin on the DB we create



# Two Methods Creating Database and Schema

## ■ Automatic:

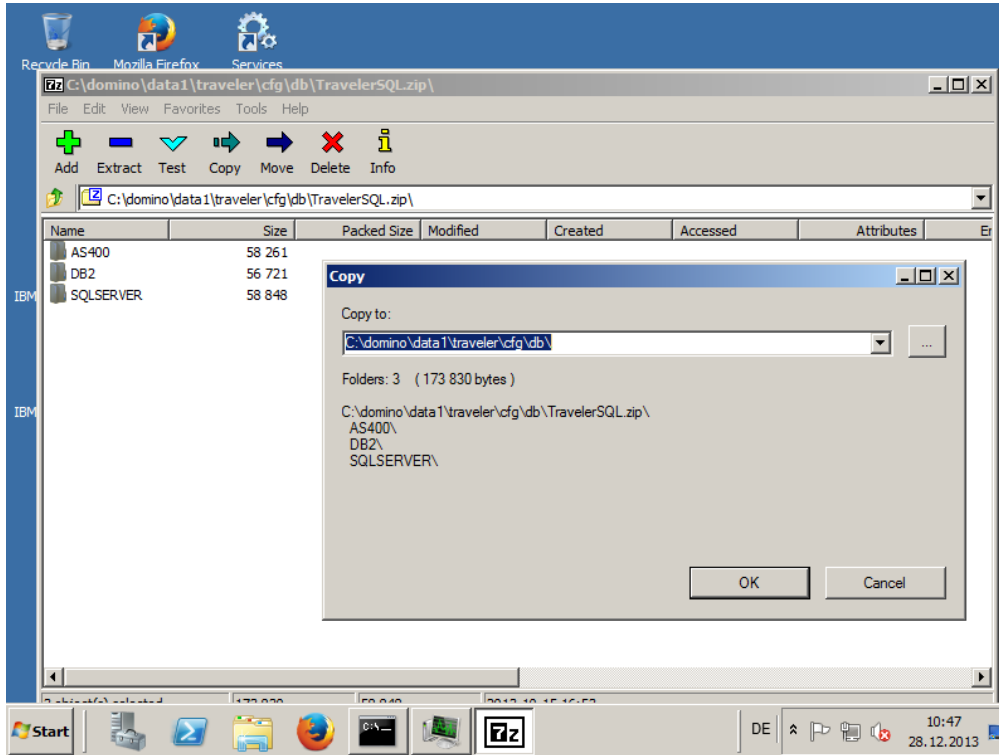
- DB2 Server Administrator (DBA) creates empty database on DB2 Server
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- Traveler Server has full control on database instance, automatic update of schema/tables/indexes

## ■ Manual / Data Definition Language (DDL):

- Provides an advanced option for DBA
- DBA reviews, customizes DDLs shipped with Traveler, from folder <data>/traveler/cfg/db
- Notes.ini **NTS\_AUTO\_DB\_SCHEMA=false**, tells Traveler not to alter schema
- DBA executes DDLs against DB2 Server to generate schema/tables/indexes
- New versions/fixpacks: DBA runs incremental DDL's to update schema
- Full control for DBA, restricted rights for separate Traveler user (by default: LNTUSER)
- Often used on larger DB2 installations with multiple instances



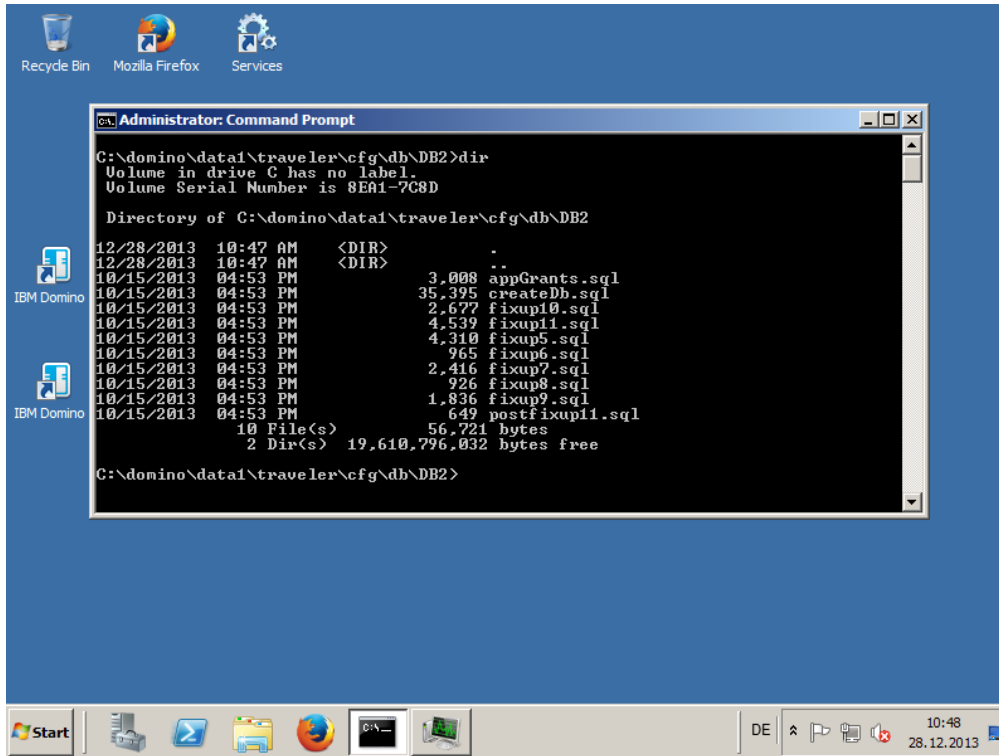
# Unzip Database Scripts



- Switch to `<data directory>/traveler/cfg/db`
- Extract TravelerSQL.zip



# Content of DB2 Directory



The screenshot shows a Windows desktop with a blue background. In the center, a Command Prompt window titled "Administrator: Command Prompt" is open. The window shows the following text:

```
C:\domino\data\traveler\cfg\db\DB2>dir
Volume in drive C has no label.
Volume Serial Number is 8E01-7C8D

Directory of C:\domino\data\traveler\cfg\db\DB2

12/28/2013  10:47 AM    <DIR>          .
12/28/2013  10:47 AM    <DIR>          ..
10/15/2013  04:53 PM             3,008 appGrants.sql
10/15/2013  04:53 PM          35,395 createDb.sql
10/15/2013  04:53 PM           2,677 fixup10.sql
10/15/2013  04:53 PM           4,539 fixup11.sql
10/15/2013  04:53 PM           4,340 fixup5.sql
10/15/2013  04:53 PM            965 fixup6.sql
10/15/2013  04:53 PM           2,416 fixup7.sql
10/15/2013  04:53 PM            926 fixup8.sql
10/15/2013  04:53 PM           1,836 fixup9.sql
10/15/2013  04:53 PM            649 postfixup11.sql
10 File(s)              56,721 bytes
  2 Dir(s) 19,610,796,032 bytes free

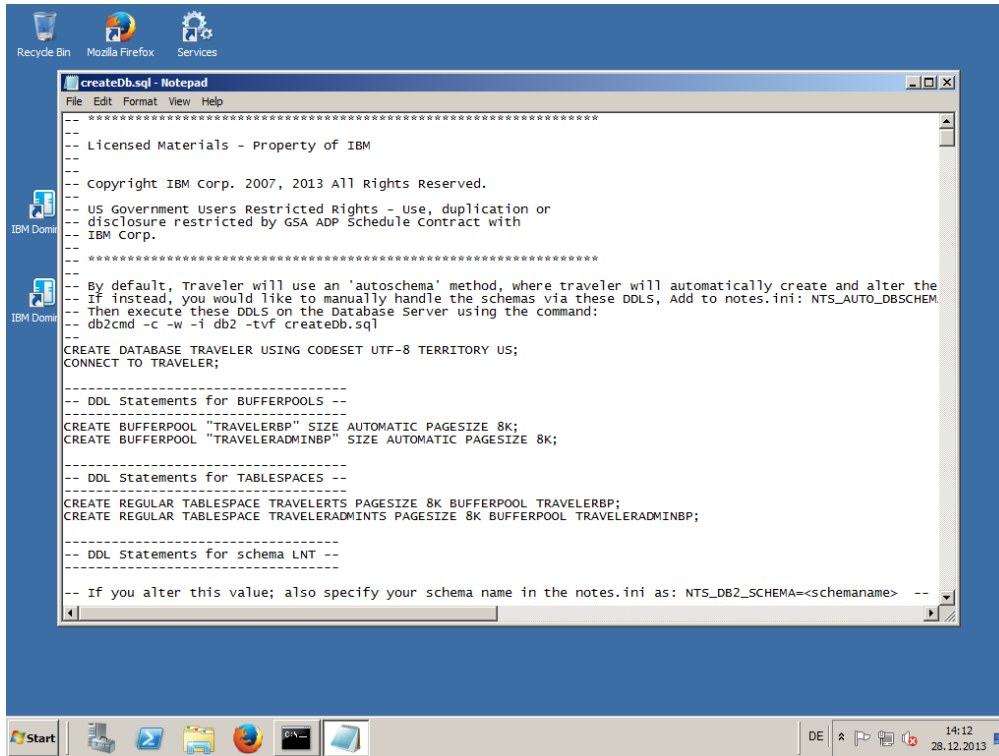
C:\domino\data\traveler\cfg\db\DB2>
```

The desktop background features icons for Recycle Bin, Mozilla Firefox, and Services. On the left side, there are two IBM Domino icons. The taskbar at the bottom shows the Start button, several application icons, and the system tray with the date 28.12.2013 and time 10:48.

- **Create Database Script**
  - “createDb.sql”
  - Will create database, schema, tables, indexes
- **Set Permissions Script**
  - “appGrants.sql”
  - Will set permissions for “LNTUSER”



# “createDb.sql” Script



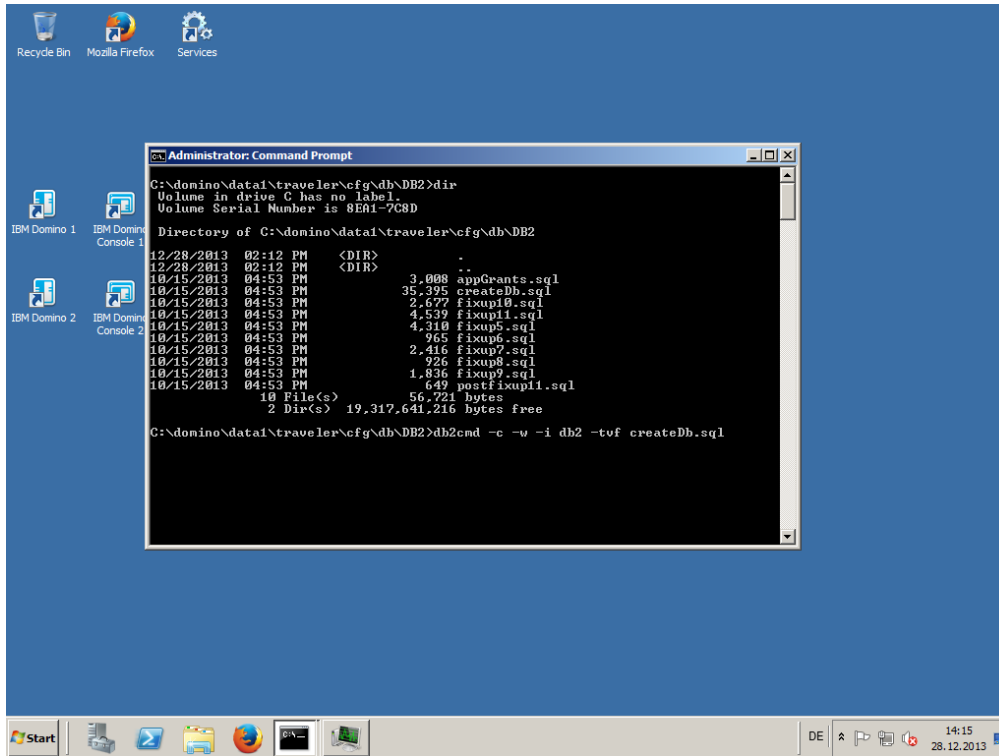
```
-----  
-- Licensed Materials - Property of IBM  
--  
-- Copyright IBM Corp. 2007, 2013 All Rights Reserved.  
--  
-- US Government Users Restricted Rights - Use, duplication or  
-- disclosure restricted by GSA ADP Schedule Contract with  
-- IBM Corp.  
--  
-- *****  
-- By default, Traveler will use an 'autoschema' method, where traveler will automatically create and alter the  
-- If instead, you would like to manually handle the schemas via these DDLS, Add to notes.ini: NTS_AUTO_DBSCHEM  
-- Then execute these DDLS on the Database Server using the command:  
-- db2cmd -c -w -i db2 -tvf createDb.sql  
--  
CREATE DATABASE TRAVELER USING CODESET UTF-8 TERRITORY US;  
CONNECT TO TRAVELER;  
-----  
-- DDL Statements for BUFFERPOOLS --  
-----  
CREATE BUFFERPOOL "TRAVELERBP" SIZE AUTOMATIC PAGESIZE 8K;  
CREATE BUFFERPOOL "TRAVELERADMINBP" SIZE AUTOMATIC PAGESIZE 8K;  
-----  
-- DDL Statements for TABLESPACES --  
-----  
CREATE REGULAR TABLESPACE TRAVELERTS PAGESIZE 8K BUFFERPOOL TRAVELERBP;  
CREATE REGULAR TABLESPACE TRAVELERADMINTS PAGESIZE 8K BUFFERPOOL TRAVELERADMINBP;  
-----  
-- DDL Statements for schema LNT --  
-----  
-- If you alter this value; also specify your schema name in the notes.ini as: NTS_DB2_SCHEMA=<schemaname> --
```

- Check content of script
- Contains detailed information how the database is created
  - This is the information your database administrator (DBA) will ask you!





# Create Database via Script



```
C:\domino\data\traveler\cfg\db\DB2>dir
Volume in drive C has no label
Volume Serial Number is 8E01-7C8D

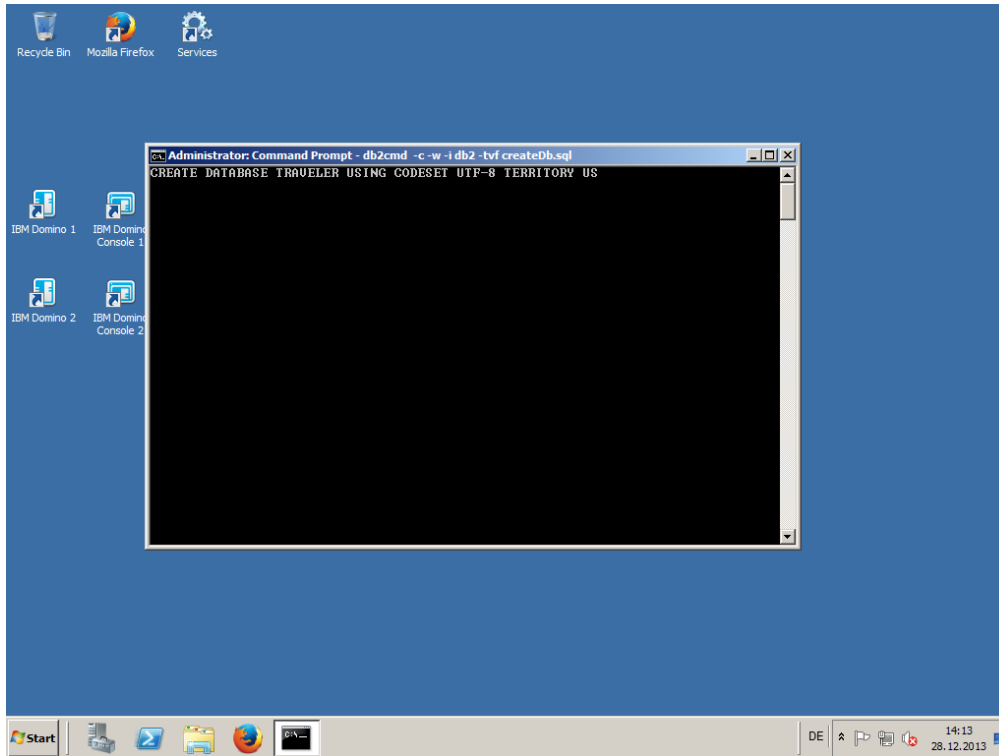
Directory of C:\domino\data\traveler\cfg\db\DB2
12/28/2013  02:12 PM    <DIR>          .
12/28/2013  02:12 PM    <DIR>          ..
10/15/2013  04:53 PM             3,008 appGrants.sql
10/15/2013  04:53 PM            35,395 createDb.sql
10/15/2013  04:53 PM             2,677 Fixup10.sql
10/15/2013  04:53 PM             4,539 Fixup11.sql
10/15/2013  04:53 PM             4,310 Fixup5.sql
10/15/2013  04:53 PM              965 Fixup6.sql
10/15/2013  04:53 PM             2,416 Fixup7.sql
10/15/2013  04:53 PM              926 Fixup8.sql
10/15/2013  04:53 PM             1,836 Fixup9.sql
10/15/2013  04:53 PM              649 postFixup11.sql
10/15/2013          10 File(s)          56,721 bytes
                2 Dir(s)  19,317,641,216 bytes free

C:\domino\data\traveler\cfg\db\DB2>db2cmd -c -w -i db2 -tvf createDb.sql
```

- All DB2 Commans are executed via DB2 Command Line on the DB2 server
- Run
  - Db2cmd -c -w -i db2 -tvf createDb.sql



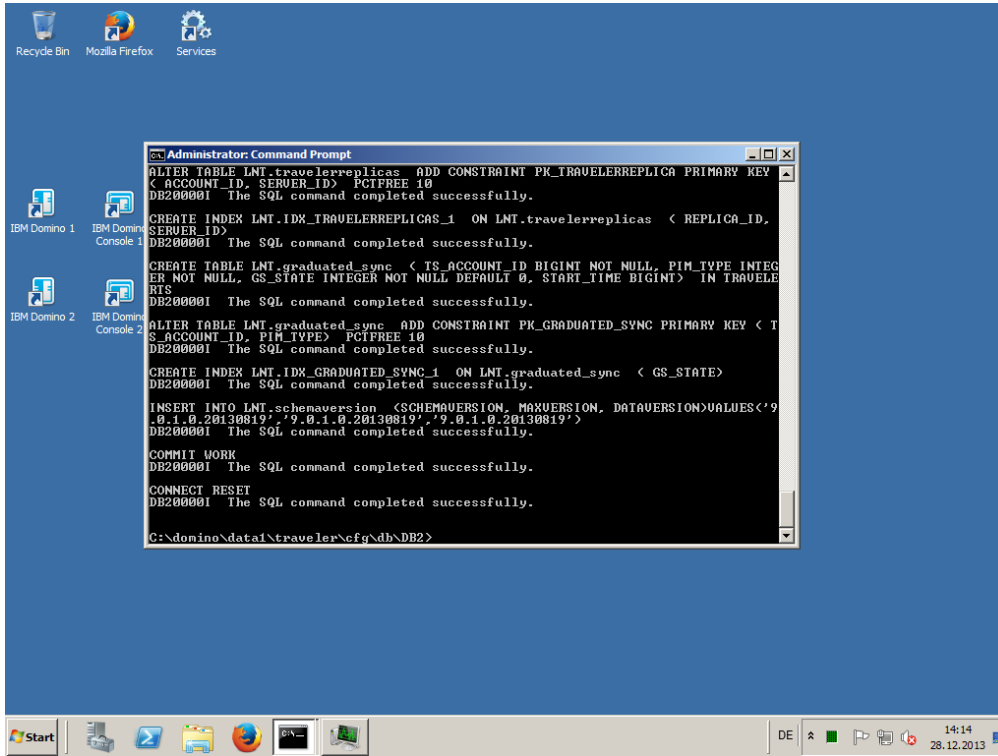
# Create Database via Script



- Takes a while to create the database



# Create Schema, Tables and Indexes

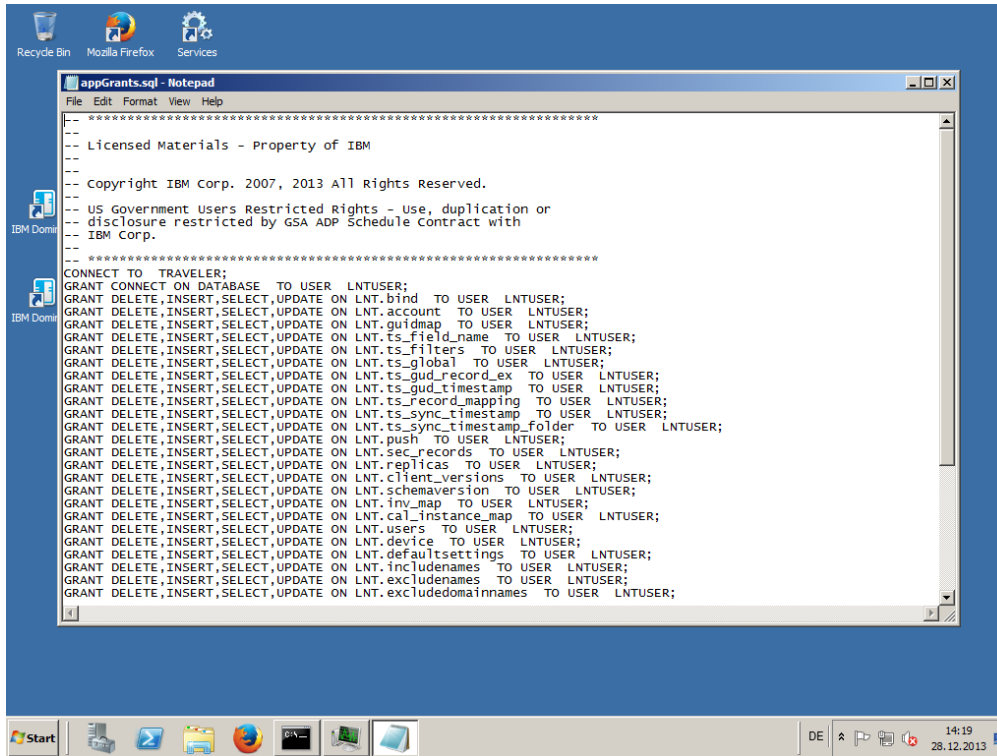


```
Administrator: Command Prompt
ALTER TABLE LNT.travelerreplicas ADD CONSTRAINT PK_TRAVELERREPLICA PRIMARY KEY
< ACCOUNT_ID, SERVER_ID> PCTFREE 10
DB200001 The SQL command completed successfully.
CREATE INDEX LNT.IDX_TRAVELERREPLICAS_1 ON LNT.travelerreplicas < REPLIC_ID,
SERVER_ID>
DB200001 The SQL command completed successfully.
CREATE TABLE LNT.graduated_sync < TS_ACCOUNT_ID BIGINT NOT NULL, PIM_TYPE INTEG
ER NOT NULL, GS_STATE INTEGER NOT NULL DEFAULT 0, START_TIME BIGINT> IN TRAVELE
RTS
DB200001 The SQL command completed successfully.
ALTER TABLE LNT.graduated_sync ADD CONSTRAINT PK_GRADUATED_SYNC PRIMARY KEY < T
S_ACCOUNT_ID, PIM_TYPE> PCTFREE 10
DB200001 The SQL command completed successfully.
CREATE INDEX LNT.IDX_GRADUATED_SYNC_1 ON LNT.graduated_sync < GS_STATE>
DB200001 The SQL command completed successfully.
INSERT INTO LNT.schemaversion <SCHEMAVERSION, MAXVERSION, DATAVERSION>VALUES<'9
.0.1.0.20130819', '9.0.1.0.20130819', '9.0.1.0.20130819'>
DB200001 The SQL command completed successfully.
COMMIT WORK
DB200001 The SQL command completed successfully.
CONNECT RESET
DB200001 The SQL command completed successfully.
C:\domino\data\traveler\cfg\db\DB2>
```

- Script also creates Schema, Tables and Indexes
- Check output on screen



# “appGrants.sql” Script

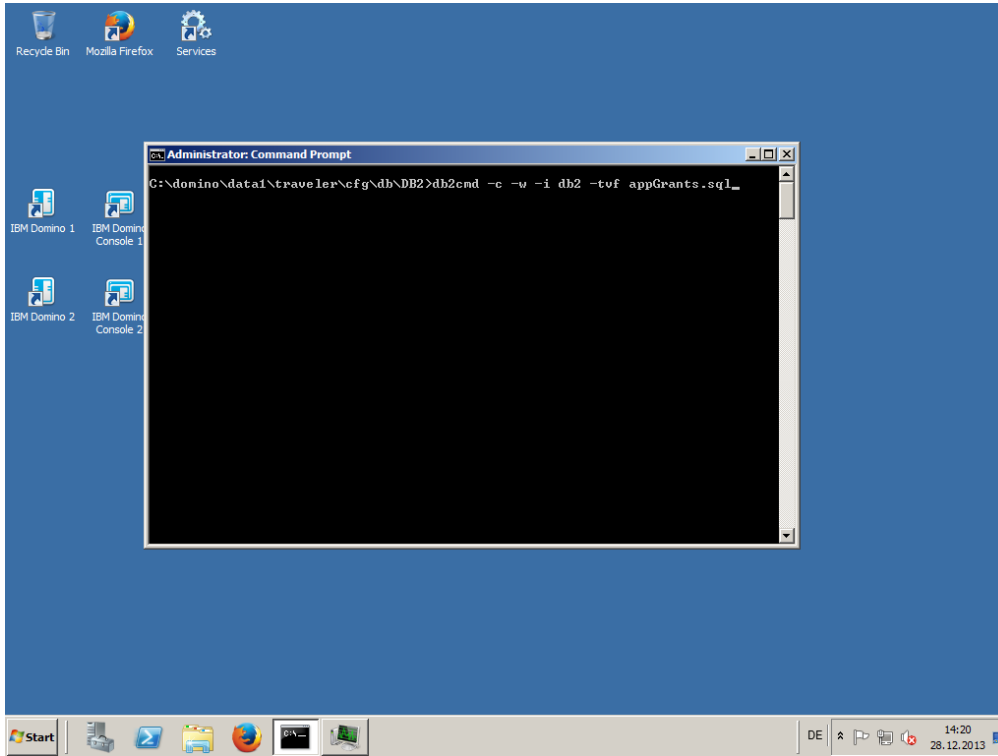


```
--
-- *****
-- Licensed Materials - Property of IBM
--
-- Copyright IBM Corp. 2007, 2013 All Rights Reserved.
--
-- US Government Users Restricted Rights - Use, duplication or
-- disclosure restricted by GSA ADP Schedule Contract with
-- IBM Corp.
-- *****
CONNECT TO TRAVELER;
GRANT CONNECT ON DATABASE TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.bind TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.account TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.guidmap TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.ts_field_name TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.ts_filters TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.ts_global TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.ts_gud_record_ex TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.ts_gud_timestamp TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.ts_record_mapping TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.ts_sync_timestamp TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.ts_sync_timestamp_folder TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.push TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.sec_records TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.replicas TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.client_versions TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.schemaversion TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.inv_map TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.cal_instance_map TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.users TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.device TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.defaultsettings TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.includenames TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.excludenames TO USER LNTUSER;
GRANT DELETE,INSERT,SELECT,UPDATE ON LNT.excludedomainnames TO USER LNTUSER;
```

- Used to give access permissions to “LNTUSER”
- Check details of the script



# Grant Permissions to LNTUSER

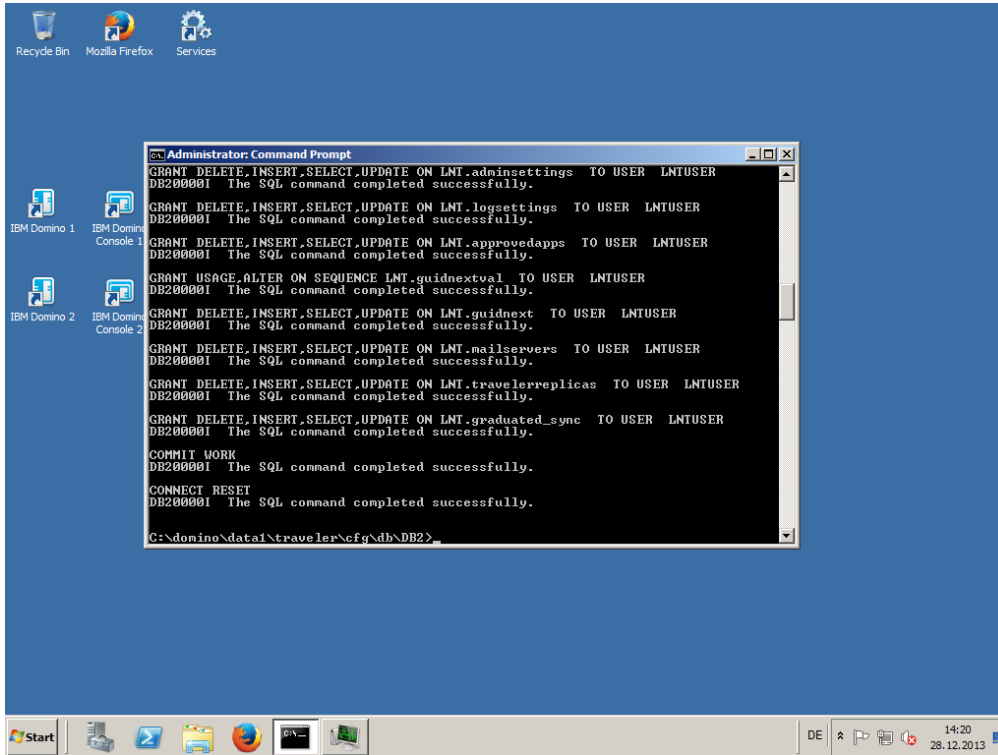


- **Run appGrants.sql**
  - Same command we used to create the database
  - via `db2cmd -c -w -i db2 -tvf`



# Check Result of Script granting permissions

- Check output on screen



```
Administrator: Command Prompt
GRANT DELETE,INSERT,SELECT,UPDATE ON LMT.adminsettings TO USER LNTUSER
DB200001 The SQL command completed successfully.
GRANT DELETE,INSERT,SELECT,UPDATE ON LMT.logsettings TO USER LNTUSER
DB200001 The SQL command completed successfully.
GRANT DELETE,INSERT,SELECT,UPDATE ON LMT.approvedapps TO USER LNTUSER
DB200001 The SQL command completed successfully.
GRANT USAGE,ALTER ON SEQUENCE LMT.guidnextval TO USER LNTUSER
DB200001 The SQL command completed successfully.
GRANT DELETE,INSERT,SELECT,UPDATE ON LMT.guidnext TO USER LNTUSER
DB200001 The SQL command completed successfully.
GRANT DELETE,INSERT,SELECT,UPDATE ON LMT.mailservers TO USER LNTUSER
DB200001 The SQL command completed successfully.
GRANT DELETE,INSERT,SELECT,UPDATE ON LMT.travelerreplicas TO USER LNTUSER
DB200001 The SQL command completed successfully.
GRANT DELETE,INSERT,SELECT,UPDATE ON LMT.graduated_sync TO USER LNTUSER
DB200001 The SQL command completed successfully.
COMMIT WORK
DB200001 The SQL command completed successfully.
CONNECT RESET
DB200001 The SQL command completed successfully.
C:\domino\data\traveler\cfg\db\DB2>
```



# Traveler HA Configuration

IBM Software

## Connect 2014

January 26-30 Orlando, Florida

ENERGIZING LIFE'S WORK



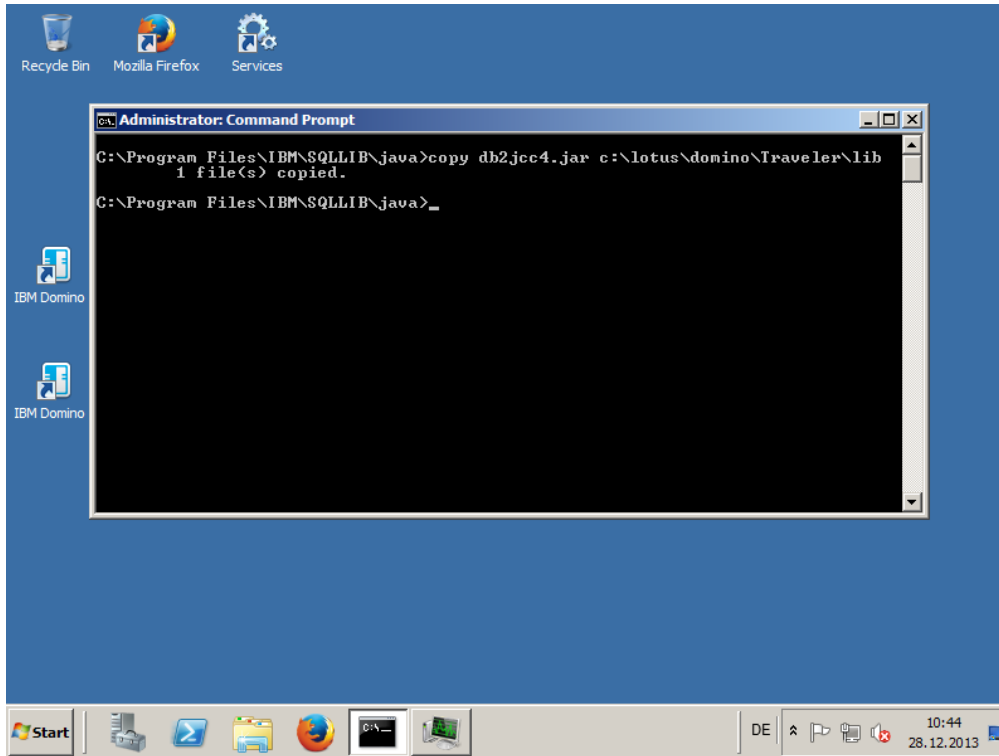
# Configure Traveler HA

- **Traveler uses JDBC for database connections**
  - Traveler stand-alone uses JDBC to connect to Derby/Cloudscape
  - Notes.ini **NTS\_DBCONNECTIONURL=jdbc:derby:ntsdb;create=true**
- **Traveler does not ship with drivers for other databases**
  - Download and install driver
  - **DB2**
    - Copy <db2\_install\_dir>/sqllib/java/**db2jcc4.jar** to <domino>/traveler/lib
  - **MS SQL Server**
    - Microsoft JDBC Driver 4.0 for SQL Server
      - <http://www.microsoft.com/en-us/download/details.aspx?id=11774>
      - Windows: sqljdbc\_4.0.2206.100\_enu.exe
      - Linux: sqljdbc\_4.0.2206.100\_enu.tar.gz
    - Extract files
    - Only copy to **sqljdbc4.jar** <domino>/traveler/lib





# Copy Required DB2 JDBC Lib



- For DB2 copy db2jcc4.jar from installation directory `..\SQLLIB` to `<Domino Program Dir>\Traveler\lib`



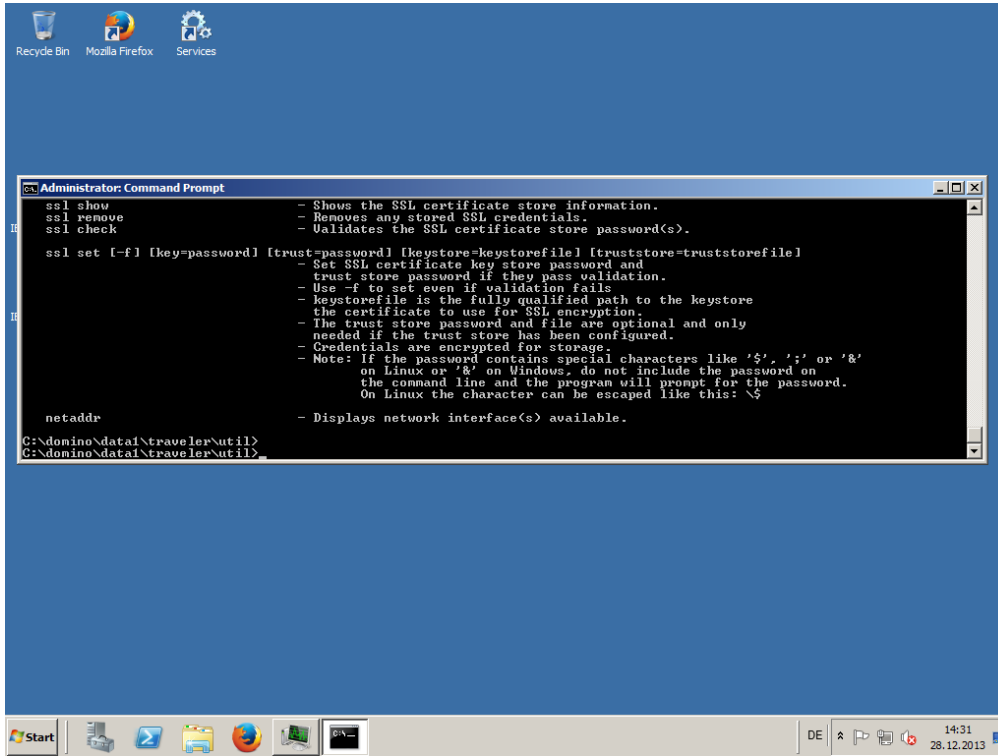
# TravelerUtil CMD

```
Administrator: Command Prompt
Usage: travelerUtil <options>
where <options> include:
  log clear          - Deletes the logs.
  log collect       - Zips the logs to a dated file.
  pmr <number> <files>
                    - Uploads files to IBM Support.
                    - <number> Required PMR number.
                      Format: 5 numeric,3 alphanumeric,3 numeric
                      where the separators can be commas or periods.
                    - <files> Optional space separated list of files to upload.
                      If omitted, a log collect will be performed
                      to create a new file that will then be uploaded.
                      Files can be base file names in the logs directory
                      or fully qualified file names in any directory.
  pmr show          - Show the FTP credentials used to upload PMR information.
  pmr remove       - Removes any stored FTP credentials.
  pmr set [user=username] [pw=password]
                  - Set the FTP credentials used to upload PMR information.
                  - Credentials are encrypted for storage.
                  - Note: If the password contains special characters like '$', ';' or '&'
                    on Linux or '&' on Windows, do not include the password on
                    the command line and the program will prompt for the password.
                    On Linux the character can be escaped like this: \$
  db show          - Shows the database configuration
  db remove [-f]  - Removes any stored database configuration.
                  - Sets the server to use Derby as the database.
                  - Use -f to skip the confirmation prompt.
  db check        - Verifies that the database configuration works for a DB connection.
                  - This option is not valid for Derby.
  db set [-f] [url=dburl] [path=libPath] [user=username] [pw=password]
                  - Set credentials and URL if pass validation.
                  - Use -f to set even if validation fails.
                  - Credentials are encrypted for storage.
                  - The URL is optional if already set.
                  - It should specify the full JDBC URL to access the database.
                  - Examples:
                    jdbc:db2://server.ibm.com:50000/TRAVELER
                    jdbc:sqlserver://server.ibm.com:1433;databasename=traveler
                    jdbc:cas408r://server.ibm.com/LMT
                  - Note: schemaname in URL for DB2 on IBM i must be same as
                    NTS_DB2_SCHEMA=<schemaname> in notes.ini.
                  - If not specified, using default schemaname LMT.
                  - The Library path is optional if already set or using
                    the default traveler/lib/ location.
                  - It should specify the full path to database library jar file.
                  - Example: path=C:/my path/db2jcc4.jar
                  - If the path includes spaces use double quotes.
                  - Example: "path=C:/my path/db2jcc4.jar"
                  - This option is not valid for Derby.
                  - Note: If the password contains special characters like '$', ';' or '&'
                    on Linux or '&' on Windows, do not include the password on
                    the command line and the program will prompt for the password.
                    On Linux the character can be escaped like this: \$
```

- TravelerUtil is located in <data directory>/Traveler/util
- Used to
  - Check and specify database connection
  - Collect information for PMRs



# TravelerUtil CMD



```
Administrator: Command Prompt
ssl show - Shows the SSL certificate store information.
ssl remove - Removes any stored SSL credentials.
ssl check - Validates the SSL certificate store password(s).

ssl set [-f] [key=password] [trust=password] [keystore=keystorefile] [truststore=truststorefile]
- Set SSL certificate key store password and
  trust store password if they pass validation.
- Use -f to set even if validation fails
- keystorefile is the fully qualified path to the keystore
  the certificate to use for SSL encryption.
- The trust store password and file are optional and only
  needed if the trust store has been configured.
- Credentials are encrypted for storage.
- Note: If the password contains special characters like '$', ';' or '&'
  on Linux or "&" on Windows, do not include the password on
  the command line and the program will prompt for the password.
  On Linux the character can be escaped like this: \$

netaddr - Displays network interface(s) available.

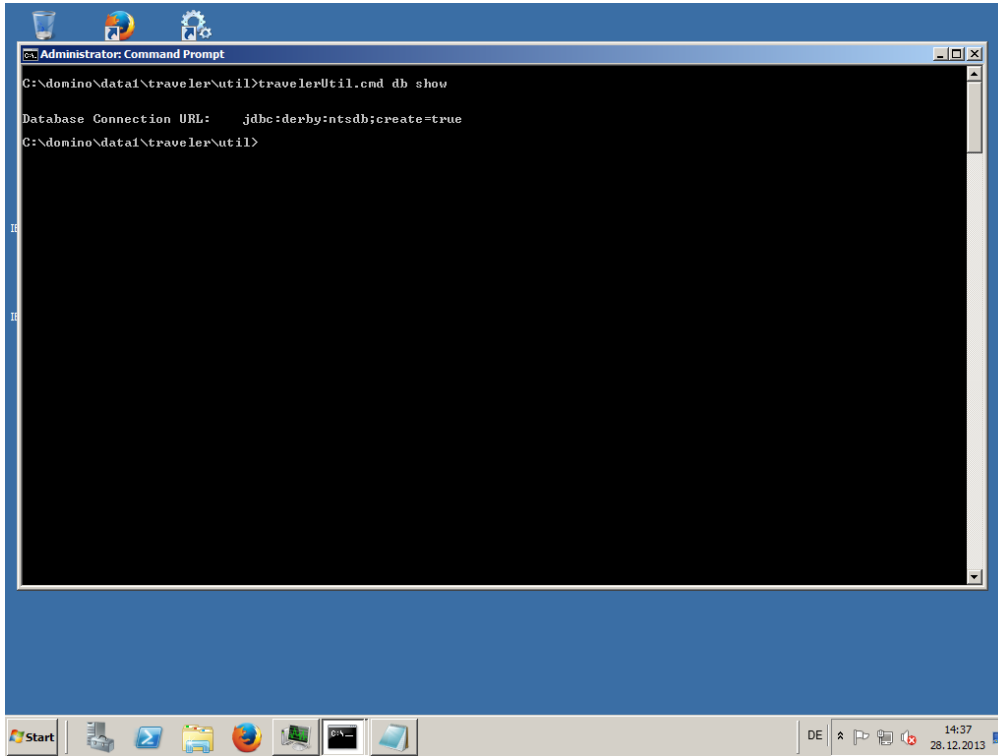
C:\domino\data\traveler\util>
C:\domino\data\traveler\util>
```

## ■ Used to

- Configure SSL connections between Servlet and Traveler Task
  - Not recommended unless you are really paranoid about security
- Show the network address used by the Traveler Server



# Show Current Traveler Connection

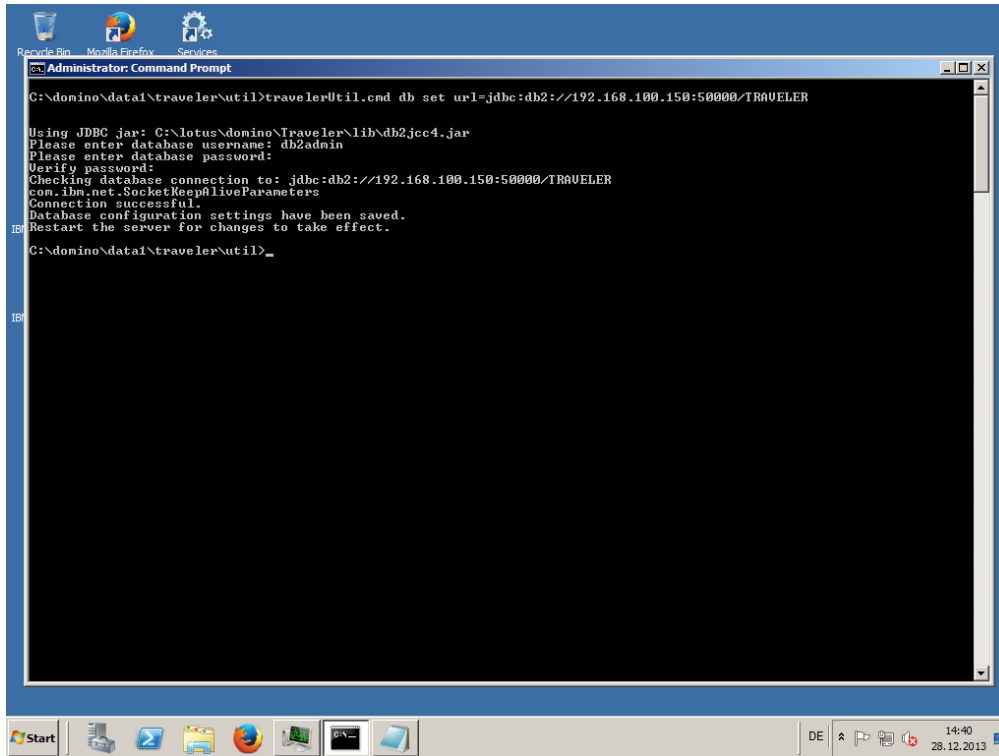


```
Administrator: Command Prompt
C:\domino\data\traveler\util>travelerUtil.cmd db show
Database Connection URL:   jdbc:derby:ntsdbs;create=true
C:\domino\data\traveler\util>
```

- **Invoke**
  - “travelerUtil.cmd db show”  
to check current DB connection
- **You will see that the standalone server is using derby with “ntsdbs” as the database folder**



# Specify DB2 Connection



```
C:\domino\data1\traveler\util>travelerUtil.cmd db set url=jdbc:db2://192.168.100.150:50000/TRAVELER

Using JDBC jar: C:\lotus\domino\Traveler\lib\db2jcc4.jar
Please enter database username: db2admin
Please enter database password:
Verify password:
Checking database connection to: jdbc:db2://192.168.100.150:50000/TRAVELER
com.ibm.net.SocketKeepAliveParameters
Connection successful.
Database configuration settings have been saved.
Restart the server for changes to take effect.

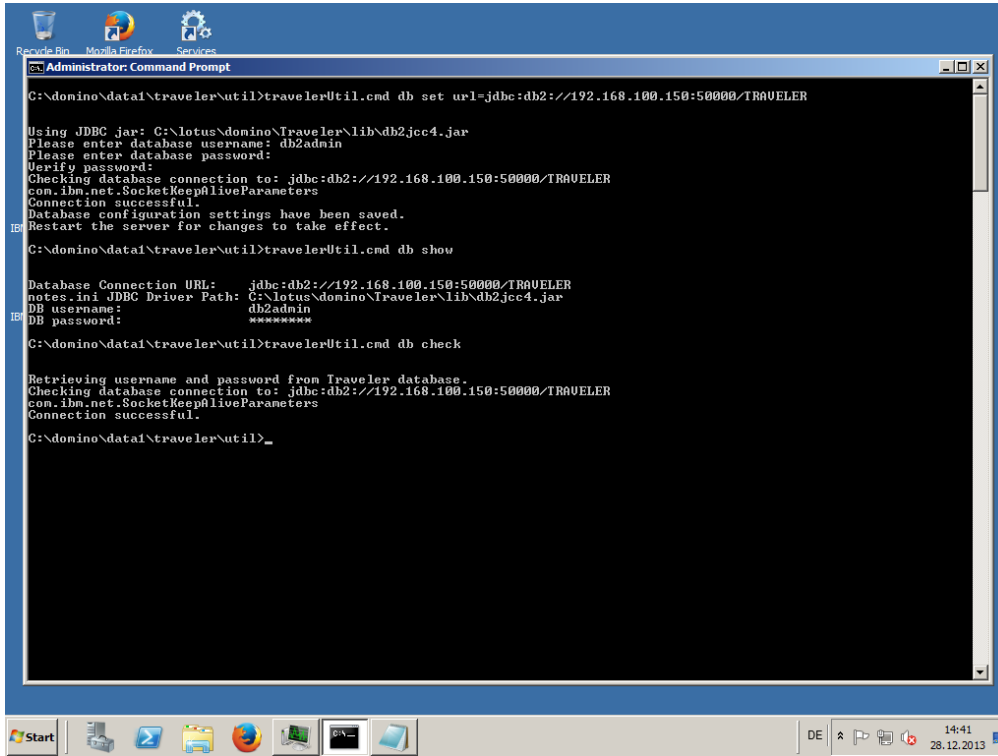
C:\domino\data1\traveler\util>
```

## ■ Specify DB2 Connection

- travelerUtil.cmd db set url=jdbc:db2://192.168.100.150:50000/TRAVELER
  - db2 = Database Type DB2
  - IP Address/Hostname
  - Database port = 50000
  - Database: TRAVELER
- Type in user-name and password
- Connection to database is verified
- **Note: User+Password is stored encrypted in LotusTraveler.nsf**



# Show and Check Database Connection



```
C:\domino\data1\traveler\util>travelerUtil.cmd db set url=jdbc:db2://192.168.100.150:50000/TRAVELER

Using JDBC jar: C:\lotus\domino\Traveler\lib\db2jcc4.jar
Please enter database username: db2admin
Please enter database password:
Verify password:
Checking database connection to: jdbc:db2://192.168.100.150:50000/TRAVELER
com.ibm.net.SocketKeepAliveParameters
Connection successful.
Database configuration settings have been saved.
Restart the server for changes to take effect.

C:\domino\data1\traveler\util>travelerUtil.cmd db show

Database Connection URL:      jdbc:db2://192.168.100.150:50000/TRAVELER
notes.ini JDBC Driver Path:  C:\lotus\domino\Traveler\lib\db2jcc4.jar
DB username:                  db2admin
DB password:                  *****

C:\domino\data1\traveler\util>travelerUtil.cmd db check

Retrieving username and password from Traveler database.
Checking database connection to: jdbc:db2://192.168.100.150:50000/TRAVELER
com.ibm.net.SocketKeepAliveParameters
Connection successful.

C:\domino\data1\traveler\util>_
```

- You can always use the commands to show and check connections
- See example output for
  - db show
  - db check
- Note: notes.ini contains connection information
  - **NTS\_DBCONNECTIONURL=**  
jdbc:db2://192.168.100.150:50000/TRAVELER
  - **NTS\_DBPATH=C:\lotus\domino\Traveler\lib\db2jcc4.jar**



# Reference Slide - Specify SQL Server Connection

- **Connecting to SQL Server is very similar**
  - Different jar file to connect to SQL Server but similar settings
- **Specify Connection**
  - `travelerUtil.cmd db set url=sqlserver://192.168.100.160\traveler-inst:1433;databaseName=traveler`
    - sqlserver = Database Type SQL Server
    - IP Address
    - Instance = traveler-inst
    - Database port = 1433
    - Database: TRAVELER
- **Notes.ini Example (Linux)**
  - `NTS_DBCONNECTIONURL=jdbc:sqlserver://192.168.100.160\traveler-inst:1433;databaseName=traveler`  
`NTS_DBPATH=NTS_DBPATH=/opt/ibm/domino/notes/latest/linux/Traveler/lib/sqljdbc4.jar`



# Migrate Traveler Server to HA

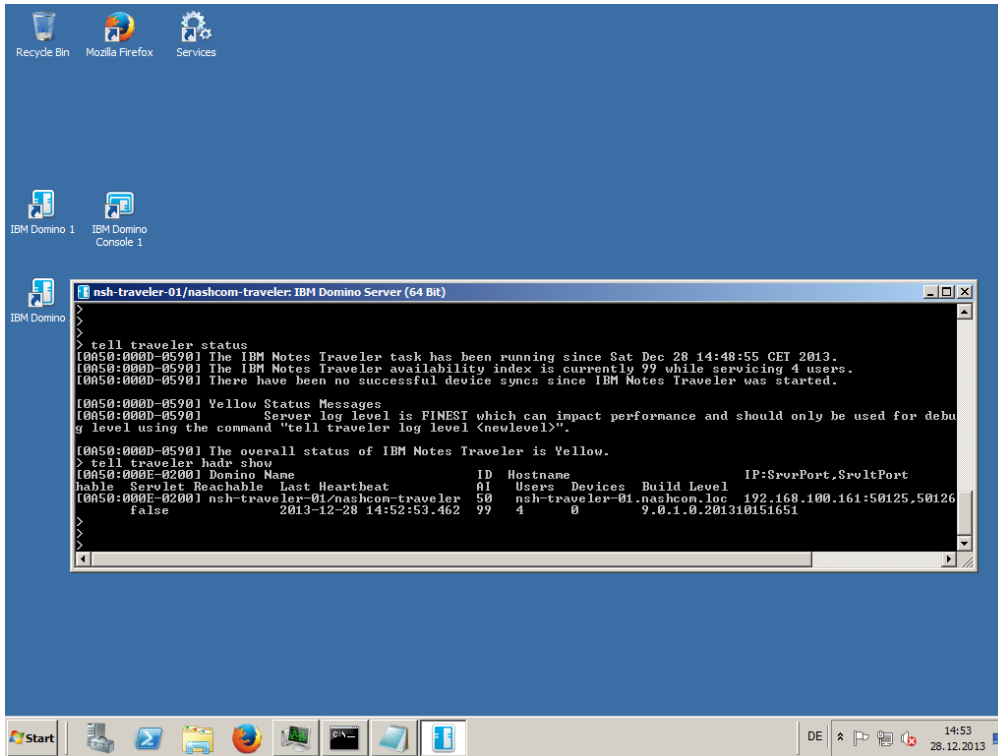
```
nsh-traveler-01/nashcom-traveler: IBM Domino Server (64 Bit)
> com.ibm.net.SocketServiceImplParameters
[0650:0002-00CC] 12/28/2013 02:45:11 PM Unable to update Cluster Database Directory: Remote system no longer re
[0650:0002-00CC] 12/28/2013 02:45:20 PM Cluster Replicator started.
[0650:0002-00CC] 12/28/2013 02:45:20 PM Cluster Replicator is set to Ignore Database Quotas
[0650:0002-00CC] 12/28/2013 02:45:31 PM This server is currently a member of a cluster
[0650:0002-00CC] 12/28/2013 02:46:01 PM Error delivering to NSH-TRAVELER-01/NASHCOM-TRAVELER mail\dnashed; File
[0650:0002-00CC] 12/28/2013 02:46:02 PM Unable to replicate with server nsh-traveler-02/nashcom-traveler: Remot
[0650:0002-00CC] 12/28/2013 02:46:06 PM Server not reachable on Cluster Port
[0650:0002-00CC] 12/28/2013 02:46:10 PM Unable to replicate with server nsh-traveler-03/nashcom-traveler: The r
[0650:0002-00CC] 12/28/2013 02:46:15 PM Unable to replicate with server nsh-traveler-04/nashcom-traveler: The r
[0650:0002-00CC] 12/28/2013 02:48:03 PM Error delivering to NSH-TRAVELER-01/NASHCOM-TRAVELER mail\dnashed; File
[0650:0002-00CC] 12/28/2013 02:48:53 PM Notes Traveler: Starting JUM with Maximum Memory = 1024M based on max
[0650:0002-00CC] 12/28/2013 02:48:55 PM Notes Traveler: Server starting...
[0650:0002-00CC] 12/28/2013 02:49:02.67 PM CSRF Init: iNotes_HA_Security_ReturnUrlCheck> c_CSRFReturnUrlCheck: 1
[0650:0002-00CC] iNotes Init: Credential Store Configuration not enabled, less secure mode.
> com.ibm.net.SocketServiceImplParameters
[0650:0002-00CC] 12/28/2013 02:49:11 PM Notes Traveler: Traveler will now transfer the existing 5 users into th
[0650:0002-00CC] 12/28/2013 02:49:11 PM Notes Traveler: 0/5 Users' Sync Data have been transferred
[0650:0002-00CC] 12/28/2013 02:49:11 PM Notes Traveler: 5 users remaining.
[0650:0002-00CC] 12/28/2013 02:50:11 PM Notes Traveler: 5 users remaining.
[0650:0002-00CC] 12/28/2013 02:50:37 PM Admin Process: Searching Administration Requests database
[0650:0002-00CC] 12/28/2013 02:51:04 PM Error delivering to NSH-TRAVELER-01/NASHCOM-TRAVELER mail\dnashed; File
[0650:0002-00CC] 12/28/2013 02:51:11 PM Notes Traveler: Transfer has completed successfully. Traveler will now
[0650:0002-00CC] 12/28/2013 02:51:12 PM Notes Traveler: Adding Client Installation Files (9.0.1.0.201403000850)
[0650:0002-00CC] 12/28/2013 02:51:12 PM Notes Traveler: Adding Client Installation Files (9.0.1.0.20131015121)
[0650:0002-00CC] 12/28/2013 02:51:13 PM Notes Traveler: Adding Client Installation Files (9.0.1.0.201310291406)
[0650:0002-00CC] 12/28/2013 02:51:13 PM Notes Traveler: Adding Client Installation Files (9.0.1.0.201312101510)
[0650:0002-00CC] 12/28/2013 02:51:13 PM Notes Traveler: Adding Client Installation Files (9.0.1.0.201303201457)
[0650:0002-00CC] 12/28/2013 02:51:13 PM Notes Traveler: Adding Client Installation Files (9.0.1.0.201310021800)
[0650:001B-05A4] 12/28/2013 02:51:15 PM Notes Traveler: WARNING *system Status change from Green to Yellow: Ser
ESI which can impact performance and should only be used for debugging. Reduce the log level using the command "
el <newlevel>".
>
> Load HTTP >C:\Users\ADMINI~1\AppData\Local\Temp\notes30E8E1\ren01852.com
[0650:0002-00CC] 12/28/2013 02:51:18 PM Notes Traveler: Loading HTTP server.
[067C:0002-060C] 12/28/2013 02:51:18 PM Informational, rebuilding view - user specified REBUILD (creating c:\dom
view note Title: '<InternetSites>')
[067C:0002-060C] 12/28/2013 02:51:19 PM HTTP Server: Using Internet Site Configuration View
[067C:0002-060C] 12/28/2013 02:51:22 PM JUM: Java Virtual Machine initialized.
[067C:0002-060C] 12/28/2013 02:51:22 PM HTTP Server: Java Virtual Machine loaded
[067C:0002-060C] 12/28/2013 02:51:22.13 PM CSRF Init: iNotes_HA_Security_ReturnUrlCheck> c_CSRFReturnUrlCheck: 1
[067C:0002-060C] iNotes Init: Credential Store Configuration not enabled, less secure mode.
[0668:0002-0790] 12/28/2013 02:51:22 PM Unable to replicate with server nsh-traveler-02/nashcom-traveler: Remot
esponding
[0650:0002-00CC] 12/28/2013 02:51:22 PM Notes Traveler: Server started.
```

- Start you Domino Server
- Changing the database connection to DB2 configures the HA mode
- Traveler will now automatically transfer all data to DB2
  - User State Data
  - Security Records
  - Default Configuration
  - Client Installation Files
- And start automatically in HA mode (HADR)





# Check Traveler HA Status



```
nsh-traveler-01/nashcom-traveler: IBM Domino Server (64 Bit)
>
> tell traveler status
[0050:0000-0590] The IBM Notes Traveler task has been running since Sat Dec 28 14:48:55 CET 2013.
[0050:0000-0590] The IBM Notes Traveler availability index is currently 99 while servicing 4 users.
[0050:0000-0590] There have been no successful device syncs since IBM Notes Traveler was started.

[0050:0000-0590] Yellow Status Messages
[0050:0000-0590] Server log level is FINEST which can impact performance and should only be used for debug
level using the command "tell traveler log level <newlevel>".

[0050:0000-0590] The overall status of IBM Notes Traveler is Yellow.
> tell traveler hadr show
[0050:000E-0200] Domino Name ID Hostname IP:SrcPort,SrcPort
table Servlet Reachable Last Heartbeat #1 Users Devices Build Level
[0050:000E-0200] nsh-traveler-01/nashcom-traveler 50 nsh-traveler-01.nashcom-loc 192.168.100.161:50125,50126
false 2013-12-28 14:52:53.462 99 4 0 9.0.1.0.201310151651
>
>
```

- Tell traveler status
- Tell traveler hadr show



# LotusTraveler.nsf – Before HA Mode

Notes	Deny Access	Wipe Device	Clear Wipe / Allow Access	Change Approval	Update SMS Address	
<ul style="list-style-type: none"> <li>Device Security</li> <li>Device Settings</li> <li>Devices</li> <li>Users</li> </ul>	Device Name	User	Approval	Security Policy	Access	Wipe Options
	<b>Cyber Spam/ViSol-Net</b>					
	N8-00	Cyber Spam/ViSol-Net	Not Required	No policy	Allow	None
	<b>Daniel Nashed/NashCom/DE</b>					
	Apple-iPad3C4	Daniel Nashed/NashCom/	Not Required	No policy	Allow	None
	Apple-iPhone5C2	Daniel Nashed/NashCom/	Not Required	No policy	Allow	None
	<b>mobile/NashCom-Net</b>					
	Apple-iPad3C			No policy	Allow	None
	RIM-Z10-STL1			No policy	Allow	None
	WIN8			No policy	Allow	None
	<b>Ursula Nash</b>					
	Apple-iPad1C			No policy	Allow	None

- **19 Documents**
  - Device Documents
  - User Documents
  - Default Config



# LotusTraveler.nsf – In HA Mode

The screenshot shows the IBM Notes Traveler - Device Security interface. The main window displays a table with columns: Device Name, User, Approval, and Security Po. A popup window titled 'Database' provides the following information:

Size	Disk space: 11 MB	% used
	Documents: 8	Compact

Activity	Created: 27.12.2013 21:47:53	User Detail...
	Modified: 28.12.2013 14:54:35	

Replica ID: C1257C4E:00723F7C  
ODS version: 43

## ■ 8 Documents

- No Device Documents
- No User Documents
- No Default Config
  
- Database only contains “hidden” entries for Client Software

## ■ Contains XPages Web Admin Interface

## ■ Contains encrypted document with DB2/SQL Server credentials

- Do not delete the database!
- Encrypted with Server.ID



# Open LotusTraveler.nsf via Notes Client

## IBM Notes Traveler Administration

The selected view is obsolete for Notes Traveler.

Notes Traveler administration has changed to an XPages application that can be accessed from your browser via the link [//<traveler\\_server\\_name>/LotusTraveler.nsf](http://<traveler_server_name>/LotusTraveler.nsf)

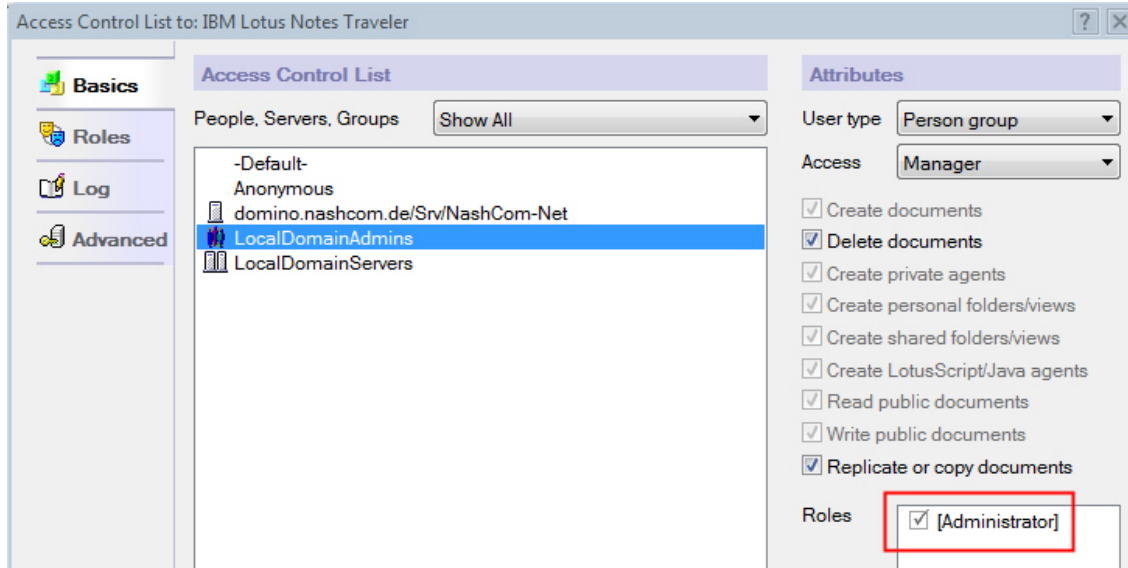
For more information about Notes Traveler and its Administration see [Administering Notes Traveler](#).

- **Old admin interface in Notes via LotusTraveler.nsf is no longer used when HADR Mode is enabled**
- **New Admin Interface is the XPages application**
  - Connects to the DB2/SQL Server back-end



# Enable Administrator Role for Web Administration

- **Ensure “Administrator” role is set**
  - In Traveler HA Mode on all Traveler servers!



# Web based Admin – Default Settings

The screenshot shows a Firefox browser window displaying the IBM Notes Traveler web administration interface. The address bar shows the URL `192.168.100.161/lotustraveler.nsf/x/DeviceSettings.xsp`. The page title is "IBM Notes Traveler" and the user is logged in as "Daniel Nashed".

The interface is titled "Default Device Settings" and has a sidebar on the left with navigation options: Administration, About, Device Security, Device Settings (selected), Devices, Users, Servers, Client Software, and Approved Applications. The main content area has tabs for Basics, Preferences, and Assignment. Under the "Assignment" tab, there are sub-tabs for Sync, Filter Settings (selected), Device Settings, Security Settings, and Device Access.

The "Filter Settings" section is divided into "Mail Filters" and "Other Filters".

**Mail Filters:**

- Email Body Truncation: 5K.  Lock value on device.
- Maximum Email Attachment Size Allowed - Administrator: 4000 KB.
- Email Attachments: Email Attachment Size: 100 KB.  Lock value on device.
- Email Date Filter: 5 Days.  Lock value on device.
- Filter Limit: 365 Days.
- High Importance Only.  Lock value on device.

**Other Filters:**

- Calendar Date Filter:
  - Past Events: 1 Week.  Lock value on device.
  - Filter Limit: Unlimited Days.
  - Future Events: 3 Months.  Lock value on device.
  - Filter Limit: Unlimited Days.
- Journal Date Filter: 1 Week.  Lock value on device.
- Filter Limit: Unlimited Days.
- ToDo Status:  Incomplete Status Only.  Lock value on device.



# Web based Admin – Devices

The screenshot shows a web browser window displaying the IBM Notes Traveler Administration console. The browser address bar shows the URL `192.168.100.161/lotustraveler.nsf/x/Devices.xsp`. The page title is "IBM Notes Traveler" and the user is logged in as "Daniel Nashed". The navigation menu includes "Administration", "About", and "User". The "Administration" menu is expanded to show "Device Security", "Device Settings", "Devices", "Users", "Servers", "Client Software", and "Approved Applications". The "Devices" section is active, showing a list of devices with columns for "User", "Device Name", "Last Sync Time", "OS Type", and "Build Level". A "Reset" button is visible at the top left of the device list. The table contains 7 rows of device information. At the bottom of the page, there are links for "Home", "About IBM", "Privacy", "Contact IBM", and "IBM Terms of Use", along with a copyright notice: "© Copyright IBM Corporation 2007, 2013. All Rights Reserved." The Windows taskbar at the bottom shows the Start button and several application icons, with the system tray displaying the date and time as "15:01 28.12.2013".

User	Device Name	Last Sync Time	OS Type	Build Level
<input type="checkbox"/> Cyber Spam/Visol-Net	N8-00	12/5/13, 1:57 PM	Nokia S^3/111.040.1511.02.01 2012-07-28 RM-596 (c) Nokia	8.5.3.3.201302131010
<input type="checkbox"/> Daniel Nashed/NashCom/DE	Apple-iPhone5C2	12/27/13, 7:56 PM	Apple- iPhone5C2/1102.55400001 (OS 7)	
<input type="checkbox"/> Daniel Nashed/NashCom/DE	Apple-iPad3C4	12/27/13, 7:09 PM	Apple- iPad3C4/1102.55400001 (OS 7)	
<input type="checkbox"/> mobile/NashCom-Net	WIN8	12/24/13, 12:41 AM	WinPC/8.0	
<input type="checkbox"/> mobile/NashCom-Net	Apple-iPad3C4	12/27/13, 2:10 PM	Apple- iPad3C4/1102.55400001 (OS 7)	
<input type="checkbox"/> mobile/NashCom-Net	RIM-Z10- STL100-2	12/24/13, 1:38 PM	RIM-Z10- STL100-2/10.2.0.1803	
<input type="checkbox"/> Ursula Nashed/Nashed- Family	Apple-iPad1C1	12/27/13, 8:24 PM	Apple-iPad1C1/902.206 (OS 5)	



# Web based Admin – Servers

The screenshot shows a web browser window displaying the IBM Notes Traveler Administration interface. The browser address bar shows the URL `192.168.100.161/lotustraveler.nsf/xServers.xsp`. The page title is "IBM Notes Traveler" and the user is logged in as "Daniel Nashed". The navigation menu includes "Administration" and "About". The main content area is titled "Servers" and features an "Auto Refresh" dropdown set to "off" and an "Apply" button. Below this is a table with the following data:

Domino Name	Server Status	Availability Index	Number of Users	Heart Beat	Build Level	Host	Port	IP Address
nsh-traveler-01/nashcom-traveler	Available	100	4	12/28/13, 3:01 PM	9.0.1.0.201310151651	nsh-traveler-01.nashcom.loc	50125	192.168.100.161

At the bottom of the page, there are links for "Home", "About IBM", "Privacy", "Contact IBM", and "IBM Terms of Use". The footer text reads: "© Copyright IBM Corporation 2007, 2013. All Rights Reserved." The Windows taskbar at the bottom shows the Start button, several application icons, and the system tray with the date and time "15:02 28.12.2013".





# Web based Admin – Client Software

The screenshot shows a web browser window displaying the IBM Notes Traveler Client Software administration page. The browser's address bar shows the URL `192.168.100.161/lotustraveler.nsf/xClientSoftware.xsp`. The page title is "Client Software".

The interface includes a navigation menu on the left with the following items: Device Security, Device Settings, Devices, Users, Servers, Client Software (highlighted), and Approved Applications. The main content area has three buttons: "Change assignments", "Make default", and "Delete client level".

Below the buttons, there is a table with the following data:

Client	Build Level	Default	Assignments
<input type="checkbox"/> Android Sync	9.0.1.0.20131015 1521	No	
<input type="checkbox"/> Android Sync	9.0.1.0.20131029 1406	No	
<input type="checkbox"/> Android Sync	9.0.1.0.20131210 1510	Yes	
<input type="checkbox"/> Android Sync	9.0.0.1.20130820 1457	No	Daniel Nashed/NashCom/DE
<input type="checkbox"/> Android Sync	9.0.0.1.20131002 1800	No	

At the bottom of the page, there is a footer with the text: "© Copyright IBM Corporation 2007, 2013. All Rights Reserved."



# Web based Admin – Approved Applications

The screenshot shows a web browser window displaying the IBM Notes Traveler Administration console. The browser's address bar shows the URL `192.168.100.161/lotustraveler.nsf/XApprovedApps.xsp`. The page title is "Approved Applications".

**Navigation Menu (Left):**

- Administration
- About
- Device Security
- Device Settings
- Devices
- Users
- Servers
- Client Software
- Approved Applications**

**Main Content Area:**

### Approved Applications

If the approved application policy is enabled, then only applications listed here are allowed to open attachments synced to the device using Notes Traveler. The approved application policy can be enabled for Android and Apple iOS devices using the Security Settings Preference on the Default Settings document.

For Apple iOS devices, secure built-in viewers are always enabled using Notes Traveler Companion or the Notes Traveler To Do application. If attachment viewing is all that is required then there is no need to define any additional approved applications for Apple iOS devices.

**Actions:** Add, Edit, Remove, Import

Last loaded just now. [Refresh](#)

1 - 0 of 0 Page [Previous](#) | [Next](#)

Application Name	Application ID	OS Type	Required Version
Show: 10   20   50   100 items <a href="#">Previous</a>   <a href="#">Next</a>			

**Footer:**

Home | [About IBM](#) | [Privacy](#) | [Contact IBM](#) | [IBM Terms of Use](#)

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**Windows Taskbar (Bottom):** Start button, taskbar icons (Network, Recycle Bin, Explorer, Firefox, etc.), system tray (DE, A, 15:02, 28.12.2013).



# Traveler HA

## Add new Servers to the Pool

### Linux Example

IBM Software

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# Copy DB2 JDBC Driver

```
192.168.100.165 - PuTTY
nsh-linux-traveler:/ # cd /opt/ibm/domino/notes/latest/linux/Traveler/lib/
nsh-linux-traveler:/opt/ibm/domino/notes/latest/linux/Traveler/lib # cp /local/software/db2jcc4.jar .
nsh-linux-traveler:/opt/ibm/domino/notes/latest/linux/Traveler/lib # chmod 755 db2jcc4.jar
nsh-linux-traveler:/opt/ibm/domino/notes/latest/linux/Traveler/lib # ll
total 14524
-rwxr-xr-x 1 root root 197316 Nov 22 20:01 commons-net-2.0.jar
-rwxr-xr-x 1 root root 3714904 Nov 27 10:27 db2jcc4.jar
-rwxr-xr-x 1 root root 2678818 Nov 22 20:01 derby.jar
-rwxr-xr-x 1 root root 623242 Nov 22 20:01 ical4j-1.0-beta4.jar
drwxr-sr-x 2 root root 4096 Aug 20 03:01 jdbc40
-rwxr-xr-x 1 root root 59269 Nov 22 20:01 org.apache.commons.codec-1.4.0.jar
-rwxr-xr-x 1 root root 169763 Nov 22 20:01 org.apache.commons.lang-2.2.0.jar
-rwxr-xr-x 1 root root 54477 Nov 22 20:01 org.apache.commons.logging-1.1.0.jar
-rwxr-xr-x 1 root root 537383 Aug 20 03:01 sqljdbc4.jar
-rwxr-xr-x 1 root root 6764063 Nov 22 20:01 traveler.jar
nsh-linux-traveler:/opt/ibm/domino/notes/latest/linux/Traveler/lib #
```

- **Same procedure on Linux**
  - Copy the db2jcc4.jar to /opt/ibm/domino/notes/latest/linux/Traveler/lib
    - Note Traveler directory is uppercase and Linux is case-sensitive
  - Set execute permission
    - chmod 755 db2jcc4.jar



# Configure DB2 Connection

```
192.168.100.165 - PuTTY
nsh-linux-traveler:/ # cd /local/notesdata1/traveler/util/
nsh-linux-traveler:/local/notesdata1/traveler/util # ll
total 4
-rwxr-xr-x 1 notes1 notes 585 Nov 26 23:27 travelerUtil
nsh-linux-traveler:/local/notesdata1/traveler/util # ./travelerUtil db set url=jdbc:db2://192.168.100.150:50000/TRAVELER

Using JDBC jar: /opt/ibm/domino/notes/latest/linux/Traveler/lib/sqljdbc4.jar
Please enter database username: db2admin
Please enter database password:
Verify password:
Checking database connection to: jdbc:db2://192.168.100.150:50000/TRAVELER
com.ibm.net.SocketKeepAliveParameters
Connection successful.
Database configuration settings have been saved.
Restart the server for changes to take effect.
nsh-linux-traveler:/local/notesdata1/traveler/util # ./travelerUtil db show

Database Connection URL:      jdbc:db2://192.168.100.150:50000/TRAVELER
notes.ini JDBC Driver Path:  /opt/ibm/domino/notes/90010/linux/Traveler/lib/sqljdbc4.jar
DB username:                  db2admin
DB password:                  *****
nsh-linux-traveler:/local/notesdata1/traveler/util # ./travelerUtil db check

Retrieving username and password from Traveler database.
Checking database connection to: jdbc:db2://192.168.100.150:50000/TRAVELER
com.ibm.net.SocketKeepAliveParameters
Connection successful.
nsh-linux-traveler:/local/notesdata1/traveler/util # █
```

- Use the same travelerUtil db set url= command we know from the initial server in the pool

**./travelerUtil db set  
url=jdbc:db2://192.168.100.161:  
50000/TRAVELER**

- Important
  - You have to invoke the command via “root” user
  - ./ is needed for root to execute scripts in the current directory if not in the path



# Start Domino Server

- In this case the free Nash!Com start script is used
  - Comes with an interactive console option “monitor”

```
192.168.100.165 - PuTTY
nsh-linux-traveler:/local/notesdata1/traveler/util # /etc/init.d/rc_domino1 start live
Switching to notes1
Using Domino config File /etc/sysconfig/rc_domino_config_notes1
Removed LoadMon-Data '/local/notesdata1/loadmon.ncf'
Starting Domino for xLinux (notes1)
done PID is 10062

done

--- Live Console for notes1 ---

To close console, always type 'close' or 'stop'.

[10140:00002-3473942304] 27.11.2013 10:33:18 Warning: All Domino Domain Monitoring probes are disabled resulting in the loss of valuable diagnostic information. Please configure DDM probes in events4.nsf. Assess DDM reports in ddm.nsf.
[10116:00002-2674874432] 27.11.2013 10:33:18 Server started on physical node nsh-linux-traveler
[10116:00007-2496018176] 27.11.2013 10:33:18 Error reading server information for name server: Server document in Domino Directory does not contain a network name (or one for this port)
[10116:00007-2496018176] 27.11.2013 10:33:19 The Console File is /local/notesdata1/IBM_TECHNICAL_SUPPORT/console.log
[10116:00007-2496018176] 27.11.2013 10:33:19 Console Logging is ENABLED
[10351:00002-2469226272] 27.11.2013 10:33:19 Fault Analyzer started
[10351:00002-2469226272] 27.11.2013 10:33:19 No fault databases found on this server
[10351:00002-2469226272] 27.11.2013 10:33:19 Fault Analyzer shutdown
> [10116:00007-2496018176] 27.11.2013 10:33:19 Database Server started
[10430:00002-1658898208] 27.11.2013 10:33:19 Index update process started:
[10433:00002-547505952] 27.11.2013 10:33:19 Database Replicator started
[10433:00002-547505952] 27.11.2013 10:33:19 Replicator is set to Ignore Database Quotas
[10438:00002-2673375008] 27.11.2013 10:33:19 Admin Process: nsh-traveler-01/nashcom-traveler is the Administration Server of the Domino Directory.
[10438:00002-2673375008] 27.11.2013 10:33:19 Administration Process started
[10443:00002-2611693344] 27.11.2013 10:33:19 DAOSMGR: DAOS is not enabled, nothing to do.
[10435:00002-1338160928] 27.11.2013 10:33:19 Agent Manager started
[10626:00002-4178122528] 27.11.2013 10:33:20 AMgr: Executive '1' started. Process id '10626'
[10434:00002-3932235552] 27.11.2013 10:33:20 Router: Mail Router started for domain NASHCOM-TRAVELER
```



# Start Traveler Task

```
192.168.100.165 - PuTTY
> lo traveler
lo traveler
> [11696:00002-2570307360] 27.11.2013 10:33:50 Notes Traveler: Starting JHM with Maximum Memory = 1024M based on maximum of
1/4 of physical memory (1024M) or the Maximum Memory Size specified in the server document (512M)
[11696:00002-2570307360] 27.11.2013 10:33:51 Notes Traveler: Server starting...
[11696:00002-2570307360] 27.11.2013 10:34:01,07 CSRF Init: iNotes_WA_Security_ReturnUrlCheck> c_CSRFReturnUrlCheck: 1

[11696:00007-1235580672] 27.11.2013 10:34:01 Notes Traveler: WARNING *system Address specified in notes.ini, NTS_HOST_IP_AD
DR=192.168.100.166 is valid but is reported as not reachable.
[11696:00009-1235580672] 27.11.2013 10:34:01 Notes Traveler: WARNING *system Notes Traveler will be allowed to start using
this IP address, but you should verify network connectivity to the Notes Traveler server.
[11696:00002-2570307360] iNotes Init: Credential Store Configuration not enabled, less secure mode.
com.ibm.net.SocketKeepAliveParameters
[11696:00002-2570307360] 27.11.2013 10:34:04 Notes Traveler: Transfer has completed successfully. Traveler will now start i
n HADR mode.
[11696:00002-2570307360] 27.11.2013 10:34:05 Notes Traveler: Traveler Pool already has a client with version:8.5.3.0.201108
300850
[11696:00002-2570307360] 27.11.2013 10:34:05 Notes Traveler: Adding Client Installation Files (9.0.0.0.201303041537) to Dat
abase.
[11696:00002-2570307360] 27.11.2013 10:34:05 Notes Traveler: Adding Client Installation Files (9.0.0.1.201307181304) to Dat
abase.
[11696:00002-2570307360] 27.11.2013 10:34:06 Notes Traveler: Traveler Pool already has a client with version:9.0.1.0.201310
151521
[11696:00002-2570307360] 27.11.2013 10:34:06 Notes Traveler: Traveler Pool already has a client with version:9.0.1.0.201310
291406
[11696:00025-1235580672] 27.11.2013 10:34:07 Notes Traveler: WARNING *system Status change from Green to Yellow: Server log
level is FINEST which can impact performance and should only be used for debugging. Reduce the log level using the command "
tell traveler log level <newlevel>".
[11696:00025-1235580672] 27.11.2013 10:34:07 Notes Traveler: WARNING *system Status change from Green to Yellow: Disk space
for /local/notesdata1 has 6 gigabytes free that is less than the threshold of 10.
[11696:00002-2570307360] 27.11.2013 10:34:09 Notes Traveler: Restarting HTTP server for configuration changes.

> RESTART TASK HTTP >/local/notesdata1/ren63278.com
```

- Starting the Traveler Task brings the Server into HADR mode in the same Traveler pool
- In this case no users have been configured on the new Traveler server
  - But existing users would be migrated into the Traveler pool!
- Note: Default settings from LotusTraveler.nsf are only copied from the first Traveler server in the pool!



# Check Top 10 Users

```
192.168.100.165 - PuTTY
> tell traveler version
tell traveler version
> [11696:00039-1123067648] IBM Notes Traveler 9.0.1.0 Build 201311221344
[11696:00039-1123067648] running on IBM Domino server Release 9.0.1|October 14, 2013 on a Linux/64 (2 Processors) platform
[11696:00039-1123067648] using database schema 9.0.1.0.20130819
tell traveler users
tell traveler users
> [11696:00036-1123866368] Number of registered users: 0
tell traveler dbusage
tell traveler dbusage
> [11696:00036-1123866368] IBM Notes Traveler Database Statistics

[11696:00036-1123866368] Accounts: 6
[11696:00036-1123866368] Devices: 7
[11696:00036-1123866368] Total device documents: 4475
[11696:00036-1123866368] Device documents synced: 3946
[11696:00036-1123866368] Device documents filtered: 529
[11696:00036-1123866368] Domino documents: 2180

[11696:00036-1123866368] Highest Total Usage
[11696:00036-1123866368] -----
[11696:00036-1123866368] Daniel Nashed/NashCom/DE 1523 69,86
[11696:00036-1123866368] mobile/NashCom-Net 604 27,71
[11696:00036-1123866368] Ursula Nashed/Nashed-Family 47 2,16
[11696:00036-1123866368] Cyber Spam/UISol-Net 6 0,28

[11696:00036-1123866368] Mail documents: 591
[11696:00036-1123866368] Highest Mail usage
[11696:00036-1123866368] -----
[11696:00036-1123866368] Daniel Nashed/NashCom/DE 545 92,22 7 days
[11696:00036-1123866368] Ursula Nashed/Nashed-Family 24 4,06 30 days
[11696:00036-1123866368] mobile/NashCom-Net 22 3,72 30 days

[11696:00036-1123866368] Calendar documents: 50
```

- “Tell traveler dbusage” will show top 10 users with highest “usage”
- **Note: This is data from the Traveler pool**
  - Even we are now on a brand new server in the pool
  - All servers in the pool share the same data
  - And serve the same users





# Load-Balancer Reverse Proxy

IBM Software

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# “Load Balancer”

- **Now that we have two servers we need component in front of it to distribute the requests**
- **Different types of solutions**
- **Load-Balancer/IP Sprayer**
  - IP based solution distributing/dispatching IP sessions on lower network layer
  - Example: Websphere® Edge-Server, Many Appliances
- **Secure Reverse Proxy with Load-Balancing Module**
  - Traffic is “forwarded” to multiple back-end servers with separate IP addresses
  - Example: IBM Mobile Connect, Open-Source solutions like Apache with additional modules, Pound, Many Appliances



# “Session Stickyness”

- **Also called session persistence**
- **Once the Load-Balancer decided which back-end server to use, all further requests are send to the same back-end server**
  - Back-end server selection is usually based on load
    - Either number of connections, Round-Robin, etc
    - Session is based on Source IP, Authorization Header, Session Cookie etc.
  - Failover to another back-end server occurs only if the existing back-end server does not reply
- **Session Stickyness is not generally required by Traveler**
  - All Servers can handle any request
    - User has a back-end session on one Traveler servertasks
    - HTTP Task/OSGI Servlet only “proxy” the request
  - But depending on your configuration it could still make a lot of sense
  - Back-end SSL Sessions should be always sticky because session-start/negotiation is CPU intensive
  - Also cached users and user sessions work better with session stickyness



# Secure Reverse Proxy

- **More flexible solution**
  - Filter requests → only allow for example /traveler requests
  - Redirect HTTP to HTTPS requests
  - Only allow certain user agents
- **Terminates IP Connection in DMZ**
  - New IP connection from Reverse Proxy to back-end servers
  - You can off-load SSL Traffic
    - Usually network between Reverse Proxy and Traveler Servers is trusted / controlled by firewall
- **Depending on your solution you can already authenticate the user**
  - Via LDAP against Domino directory
  - Depending on the solution the basic authentication header (user/password) is passed to Traveler
  - Some solutions like IBM Mobile Connect can create LTPA Session Cookies passed to Traveler



# Important Connection Requirements

- **HTTP 401 vs. HTTP 200 form authentication challenges**
  - You have to ensure that mobile devices are never getting a login form  
Basic authentication header is required
- **Your Proxy needs to be able to handle a high number of concurrent requests**
  - ActiveSync uses long held HTTP requests for push notifications  
1.2 times the number of active users
- **HTTP “OPTIONS” request type is required for ActiveSync**
  - a.) Needs to be enabled on Internet Site
  - b.) And also needs to be allowed by Reverse Proxy!
- **HTTP 449 (ActiveSync) must not be translated to a different HTTP response code**
- **Proxy should not only check if the server is reachable**
  - Best would be a check if a correct response is returned when invoking `/traveler`



# Proxy Settings

- **Ensure External URL on the Lotus Traveler tab in the Server Document is pointing to the URL defined in the Reverse Proxy**
- **You might have multiple URLs from servers you are consolidating to the HA Traveler Pool**
  - But this will work fine if the new and old URLs are handled by the Reverse Proxy and forwarded to the servers in the pool



# Proxy/Load-Balancer Recommendations

- **First check if you already have a solution in house for other purposes**
  - It's always better to benefit from existing skills and not reinvent the wheel
- **IBM Mobile Connect (IMC) is a great solution**
  - You can already authenticate user on the Proxy
  - Uses LTPA token to authenticate the user against the Traveler Server HTTP stack
  - Current versions have been designed for Traveler and also other products like iNotes
  - **Client** License for IMC is already included in your Client License
    - You only need to license the **server** part
- **Some MDM solutions (e.g. MobileIron) have their own proxy**
  - If this is a EAS Proxy it often does only support ActiveSync
  - Android, Companion App and Todo App on iOS use SyncML
    - Good news: Current version of Android client and iOS apps integrate well with MobileIron
      - But you have to license their “AppConnect” (Application VPN)



# Install a “simple” Proxy

IBM Software

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# POUND - REVERSE-PROXY AND LOAD-BALANCER

- **Reverse proxy, Load Balancer and HTTPS front-end for Web server(s)**
- **Distributed under the GPL included for example in OpenSUSE**
- **Very small and easy to configure**
  - “Pound is a very small program, easily audited for security problems. It can run as setuid/setgid and/or in a chroot jail. Pound does not access the hard-disk at all (except for reading the certificate)”
- **Can be configured in a couple of minutes**
- **Reference**
  - Wikipedia: [http://en.wikipedia.org/wiki/Pound\\_\(networking\)](http://en.wikipedia.org/wiki/Pound_(networking))
  - Homepage: <http://www.apsis.ch/pound/>



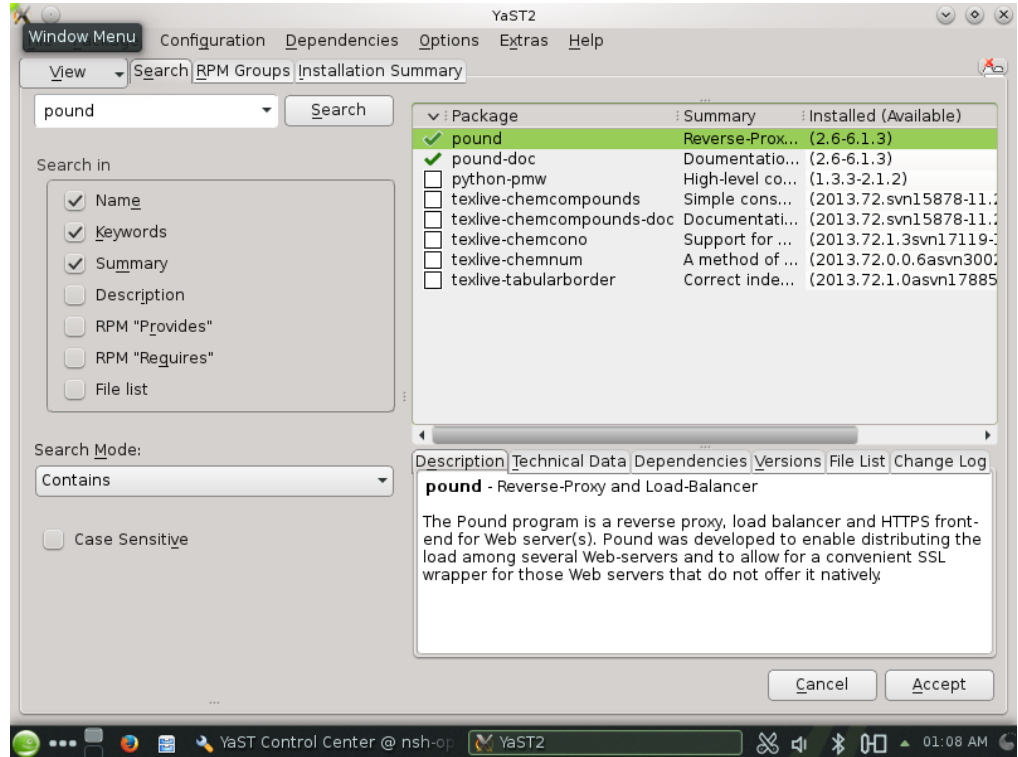
# POUND - REVERSE-PROXY AND LOAD-BALANCER

- **Pound does already what we expect from a normal “Secure” Reverse Proxy**
  - **Reverse-Proxy:** Passes requests from client browsers to one or more back-end servers
  - **Load Balancer:** Distributes requests from the client browsers among several back-end servers, while keeping session information.
  - **SSL wrapper:** Decrypts HTTPS requests and pass them as plain HTTP to the back-end servers
  - **Fail Over-Server:** Should a back-end server fail, stop passing requests to it until it recovers.
  - **Request Redirector:** Requests may be distributed among servers according to the requested URL
- **Restrictions:**
  - Cannot connect to HTTPS back-ends – so it is only “secure” for internet facing traffic
  - Cannot authenticate users → so no way to check authenticatio retries at gateway level



# Install Pound

- **Install “Pound” and Documentation via YaST®**
  - Search for “Pound”
  - Select the two packages  
Press “Accept” to install
  - This will install Pound and already create a Linux user and group “pound”
  - Also generated basic config file `/etc/pound.cfg`



# SSL Certificate for HTTPS

- **For a larger Secure Reverse Proxy with multiple hosts a wild-card certificate can make sense**
  - More expensive than a single server certificate but you only have to manage one certificate
  - Without Wild-Card certificate you would need a separate IP address for each hostname
  - A wild-card certificate can handle many hosts with just one IP address and dispatch based on the hostname (HTTP 1.1)
- **For testing you can create your own certificates**
  - OpenSSL is installed on Linux by default
  - We will create a certificate for testing in very simple steps



# Generate Certificate using OpenSSL

- **mkdir /etc/ssl/wildcard.nashcom.loc**
- **cd /etc/ssl/wildcard.nashcom.loc**
  - Create new directory and switch to it
- **openssl genrsa 2048 > host.key**
  - Generate key
- **openssl req -new -x509 -nodes -sha1 -days 3650 -key host.key > host.cert**
  - Generate certificate.. will ask for organization details and Common Name (CN)
  - For wild-card Certificate use something like \*.nashcom.loc for CN
- **openssl x509 -noout -fingerprint -text < host.cert > host.info**
  - Get fingerprint from cert
- **cat host.cert host.key > host.pem**  
**chmod 400 host.key host.pem**
  - Put cert and key into pem file and change the permissions to read-only for owner (root)



# Example: Create Certificate via OpenSSL

```
nsh-opensuse:/ # mkdir /etc/ssl/wildcard.nashcom.loc
nsh-opensuse:/ # cd /etc/ssl/wildcard.nashcom.loc

nsh-opensuse:/etc/ssl/wildcardx.nashcom.loc # openssl genrsa 2048 > host.key
Generating RSA private key, 2048 bit long modulus
.....
.....+++
.....+++
e is 65537 (0x10001)
nsh-opensuse:/etc/ssl/wildcardx.nashcom.loc # openssl req -new -x509 -nodes -sha1 -days 3650 -key host.key > host.cert
You are about to be asked to enter information that will be incorporated into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]:DE
State or Province Name (full name) [Some-State]:NRW
Locality Name (eg, city) []:Hilden
Organization Name (eg, company) [Internet Widgits Pty Ltd]:NashCom
Organizational Unit Name (eg, section) []:IT
Common Name (e.g. server FQDN or YOUR name) []:*.nashcom.loc
Email Address []:nsh@nashcom.loc

nsh-opensuse:/etc/ssl/wildcardx.nashcom.loc # openssl x509 -noout -fingerprint -text < host.cert > host.info

nsh-opensuse:/etc/ssl/wildcardx.nashcom.loc # cat host.cert host.key > host.pem
nsh-opensuse:/etc/ssl/wildcardx.nashcom.loc # chmod 400 host.key host.pem
```



# Configure Pound for two Back-Ends

- **Basic configuration**
  - Listens on HTTPS (443) IP 192.168.100.151
  - Allows "Options" requests (xHTTP 2)
  - Uses our SSL certificate we just have created
  - Only allow Traveler Requests
  - Same priority for both HTTP Backends
    - 192.168.100.161, 192.168.100.166
  - Session Stickyness based on Authorization header
  - TTL for the idle session 1 hour
- **Configure and start via**
  - vi /etc/pound.cfg
  - /etc/init.d/pound start
- **Done!**

```
ListenHTTPS
  Address 192.168.100.151
  Port 443
  CheckURL ".*"
  xHTTP 2
  Cert "/etc/ssl/wildcard.nashcom.loc/host.pem"
  Service "traveler"
    URL "^(/traveler|servlet/traveler).*"
    BackEnd
      Address 192.168.100.161
      Port 80
      Priority 5
    End
  BackEnd
    Address 192.168.100.166
    Port 80
    Priority 5
  End
  Session
    Type BASIC
    TTL 3600
  End
End
End
```



# Migration Scenarios

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# Multiple Ways to migrate to Traveler HA

- **Migration to Traveler HA is very flexible**
  - Multiple options depending on your source and target configuration
- **Migrate existing Servers from Standalone to HA**
- **Bring additional servers into HA pool – take over the additional users**
  - Be aware default settings are only copied from the first server
- **Introduce new Traveler server into pool**
- **Start with an empty brand new Traveler HA server with test users**
  - Later Migrate additional server(s) and users into the pool
- **Consolidate multiple Traveler servers into a single Traveler HA pool**



# Best Practices Migrating to Traveler HA

- **Keep your external server URL**
  - Else you need to re-configure all devices
  - You might have multiple external URLs from existing servers
  - Have one default URL
- **You should keep the external IP address**
  - e.g. take the external IP address of your Traveler server and assign it to your Reverse Proxy
  - If you cannot keep the external IP address (e.g. different network segments etc) be aware that changing DNS entries might take a while to distribute to other DNS servers and mobile devices
    - Reduce TTL for the Domain
    - You might still need to restart the network of your mobile device
      - TIP: Switch to airplane mode and back



# Traveler HA - Administration

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# Traveler HA – Commands and Changes

- **Administration of a Traveler HA Pool is done via**
  - XPages based Web-Admin interface
  - Tell Traveler Commands
- **New HADR Commands**
  - Commands specify to HA functionality
- **Existing Commands work different in detail**
  - You can invoke commands from any server in the pool and send the command to multiple servers
    - > Usage: tell traveler [-s (<serverName> | \* | \*-)] <command>
      - Where: -s is an optional parameter to send the tell command remotely.
      - Use <serverName> to send the command to a specifically named server.
      - Use \* to send the command to all servers in the HADR pool.
      - Use \*- to send the command to all servers in the HADR pool except the local server.
  - User information, security information etc is managed centrally in the relational database
    - Can be queried from any server



# Traveler HADR Command

- **tell traveler HADR Show**
  - Show the high availability and disaster recovery status
- **tell traveler HADR Ping <server>**
  - send a "ping" to the specified server and indicate whether a response was received or a timeout occurred.
- **tell traveler HADR PingServlet <server>**
  - send a "ping" to the servlet port on the specified server and indicate whether a response was received or a timeout occurred.
- **tell traveler HADR Delete <server>**
  - remove the database entry for the specified server if that server is offline
- **tell traveler Available <on/off>**
  - Enables/Disables this Traveler server from the HADR Pool.



# Traveler HA – Bind Command

- **Bind Command is used to bind a Traveler User to a specify server**
  - Used for testing new versions or troubleshooting
  - Important: Users bound to specify server will not failover!**
- **Tell Traveler Bind Enable <userid>**
  - Binds a user to the server the command is issued on
- **Tell Traveler Bind Disable <userid>**
  - unbinds a user to the server the command is issued on
- **Tell Traveler Bind Show**
  - Shows users bound to the server the command is run on
- **Tell Traveler Bind Showall**
  - • Shows all user/server bindings in the cluster



# Traveler – Best Practices

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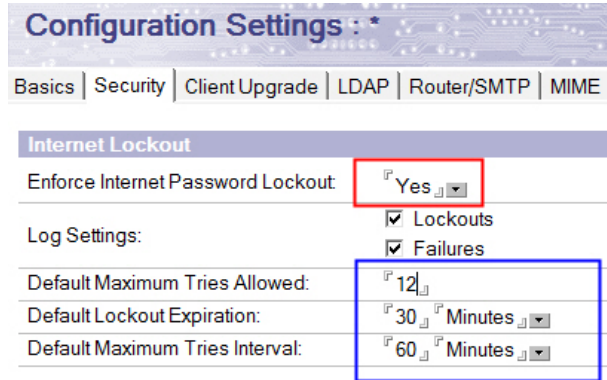
# Password Security

- **Strong requirement**

- Limit the number of login attempts!
- If your Secure Reverse Proxy handles authentication the server should be configured to limit login attempts with wrong passwords

If Domino HTTP checks the password enable **“Internet Password Logout”**

- Configured in Configuration Document/Security Tab
- Set a reasonable lock expiration
- Don't set the “Tries Allowed” too low
  - 12-15 is a good value
- Specially Apple Devices tend to retry the old password multiple times before prompting for a new password
  - Specially an issue for users with multiple devices



The screenshot shows the 'Configuration Settings' window for 'Internet Lockout'. The 'Enforce Internet Password Lockout' checkbox is checked and highlighted with a red box. The 'Log Settings' section has 'Lockouts' and 'Failures' checked. The 'Default Maximum Tries Allowed' is set to 12, 'Default Lockout Expiration' is 30 minutes, and 'Default Maximum Tries Interval' is 60 minutes. These three settings are highlighted with a blue box.

Configuration Settings : *	
Basics   Security   Client Upgrade   LDAP   Router/SMTP   MIME	
Internet Lockout	
Enforce Internet Password Lockout	<input checked="" type="checkbox"/> Yes
Log Settings:	<input checked="" type="checkbox"/> Lockouts <input checked="" type="checkbox"/> Failures
Default Maximum Tries Allowed:	12
Default Lockout Expiration:	30 Minutes
Default Maximum Tries Interval:	60 Minutes





# Traveler Server Sizing

- **Traveler HA Server “Node”**

- 4 CPU Cores, 8 GB RAM below 1000 devices
- 8 CPU Cores, 16 GB RAM above 1000 devices
  
- Maximum planned users after failover → 3000 devices
- Number of Traveler servers depends on number of servers that can be offline at the same time
  - I would always plan for 2 extra servers instead of 1 to distribute the load to more servers

**Guidelines for determining the number of Traveler servers needed for HA:**

Formula:  $(\# \text{ of devices} / (n-1)) < 3000 \text{ devices}$ ,  
where n is the # of Traveler servers needed for failover planning

- For 12000 devices with planning for up to one offline server:

$$\begin{aligned}(12000 / (n-1)) &= < 3000 \\ 12000 / 3000 &= < n-1 \\ 4 + 1 &= < n; \text{ therefore the \# of servers needed is } 5\end{aligned}$$

- For 12000 devices with planning for two offline servers:

$$\begin{aligned}(12000 / (n-2)) &= < 3000 \\ 12000 / 3000 &= < n-2 \\ 4 + 2 &= < n; \text{ therefore the \# of servers needed is } 6\end{aligned}$$



# DB2 Server Sizing

## ■ DB2 Server

- Maximum of 10000 devices in a Traveler server pool
- Separate disks for Database and Translog
  - Separate VMDKs, RAID10 disks

Table 4. Hardware requirements per database server

Number of devices in Traveler Service Pool	CPU Cores	Memory (GBs)	Disk drives for Traveler DB	Disk drives for Transaction Log
Up to 4,000	4	16	6	4
4,000 to 6,000	4	16	6	4
6,000 to 8,000	4	16	6	4
8,000 to 10,000	8	32	8	4
10,000 to 12,000	8	32	8	4

## ■ For more details check

- [http://www.lotus.com/ldd/dominowiki.nsf/dx/IBM\\_Notes\\_Traveler\\_9.0\\_in\\_High-Availability\\_Configuration\\_Performance](http://www.lotus.com/ldd/dominowiki.nsf/dx/IBM_Notes_Traveler_9.0_in_High-Availability_Configuration_Performance)



# Configuration Best Practices

- **Notes.ini NTS\_HOST\_IP\_ADDR = 192.168.100.150**
  - If your server has multiple IP addresses you should set the IP address
  - By default Traveler uses the first IP address found
    - Loopback IPs are skipped
- **Startup when multiple IPs are present**

```
30.12.2013 10:11:12 HTTP JVM: 528 [Traveler-InitConfig] INFO - Multiple host addresses were found:
30.12.2013 10:11:12 HTTP JVM: 535 [Traveler-InitConfig] INFO - 192.168.100.167
30.12.2013 10:11:12 HTTP JVM: 537 [Traveler-InitConfig] INFO - 192.168.100.166 (Selected)
30.12.2013 10:11:12 HTTP JVM: 538 [Traveler-InitConfig] INFO - 192.168.100.165
```



# Tuning Domino SSL

- **Best Practice is to avoid HTTPS / SSL and offload to Secure Reverse Proxy**
  - But if you have to use HTTPS tuning HTTPS makes sense
- **SPR# SFPN69ET56**
  - **SSL\_SESSION\_SIZE=3000**
    - Added the new Notes.ini variable (SSL\_SESSION\_SIZE) that can be used to set the default starting size of elements in the SSL session resumption cache. Increasing the size of this variable will result in a lower incidence of elements being reallocated on the fly in order to hold large X.509 client certificates, but will also consume more memory.
  - **SSL\_USE\_ADDSESSION2=1**
    - Beginning in 8.5.2 Fix Pack 3 and 8.5.3, there is a new notes.ini SSL\_USE\_ADDSESSION2. If set SSL\_USE\_ADDSESSION2=1 implements a new version of the SSL\_ADDSESSION routine that resolves some stability issues.
  - **SSL\_RESUMABLE\_SESSIONS=n**
    - Default for stored sessions is 50. you should increase the value (e.g. at least 200-300)



# Tune HTTP Threads

- **Default Number of Threads**
  - Domino 32bit = 100 Threads
  - Domino 64bit = 400 Threads
- **You should have 1.2 the number of connected devices**

Basics | Security | Ports... | Server Tasks... | Internet Protocols...

HTTP | Domino Web Engine | IIOP | LDAP

## Basics

Host name(s): nsh-traveler-01.nashcom.loc

Bind to host name: Enabled

DNS lookup: Disabled

DNS lookup cache: Enabled

DNS lookup cache size: 256

DNS lookup cache found timeout: 120 seconds

DNS lookup cache not found timeout: 240 seconds

Number active threads: 400



# Increase Session Limits and Cache Expiration

- **Increase maximum active sessions**
  - Should be the number of concurrent devices on your server
- **Increase maximum cached users**
  - Should be the number of concurrent users on your server
- **Increase cached user expiration interval**
  - Should be at least 1 hour
- **That's one more good reason to have session stickyness**

The screenshot shows the IBM Domino configuration console with the following settings:

- HTTP Sessions**: This section does not apply as "Load Internet configurations from Server\Internet Sites documents".
  - Maximum active sessions: 1000
- Generating References to this Server**
  - Does this server use IIS? (checkbox)
  - Protocol: (dropdown)
  - Host name: (text)
  - Port number: 80
- Memory Caches**
  - Maximum cached designs: 128
  - Maximum cached users: 1024
  - Cached user expiration interval: 3600 seconds



# Traveler Memory Size

- **Default Memory Size for Traveler**
  - 32bit = 512 MB
  - 64bit = 1 GB
- **You should check how much memory is needed over time**
  - “Tell traveler memory”

Basics	Security	Ports...	Server Tasks...	Internet Protocols...	MTAs...	Miscellaneous	Trans...
<b>Basics</b>							
<u>Maximum Memory Size:</u>				1024 MB			
IPC Socket Ports:				50125 50126			
External Server URL:				<a href="https://nsh-traveler-cluster.nashcom.loc/traveler">https://nsh-traveler-cluster.nashcom.loc/traveler</a>			
<b>IBM Notes Traveler Access</b>							



# Check current used Memory

- Tell traveler memory

```
tell traveler memory
CPU and Memory (MB) Usage History
Date                CPU Pct      Java Mem    C Mem       Avl Indx    # Users    # Errors    # DB Conn
...
2013-12-29 18:17:13 CET    0,08        83          438         100         4          1          1
2013-12-29 18:32:14 CET    0,05        71          438         100         4          1          0
2013-12-29 18:47:14 CET    0,07        86          438         100         4          1          0
2013-12-29 19:02:14 CET    0,07        72          439         100         4          1          1
Current Memory Usage
Java Memory Usage
  Max Total    1024 MB
  Current Total 104 MB
  Free         946 MB (92 percent of Max Total)
  Allocated    78 MB (8 percent of Max Total)
C Memory Usage
  Allocated    439 MB (10 percent of Total Physical)
Current Usage
  Java         78 MB
  C            439 MB
```





# Traveler Sync Limits

- **Traveler Performance highly depends on**
  - “Size” of Mail Databases and even more important number of documents!
  - Sync Filter “Days”
- **This also will result in different size of the Derby DB / relational DB**
  - Each synced document for each device results in an entry in the DB
- **Example:**
  - 850 users with 500 MB mail-quota → Derby-Db size 1 GB
  - 850 users without quota (average size 2GB), no filter limit → Derby-DB size: 5 GB
  - 2000 users without quota (average size 1,5 GB), filter limit 365 days → Derby-DB size: 4 GB
- **It's highly recommend to set a maximum reasonable filter limit**
  - 365 days, 180 days, 90 days?
  - **This will also reduce the time needed for migrating from local Derby to remote DB2/SQL Server DB !!!**



# Filter Limits

- For Android limits can be enforced by the application
- For ActiveSync based devices filter limits have to be enforced on server level
  - You can only set a maximum limit for all devices on server level
    - This includes Android devices
  - User can still set lower limits on device
  - Set in Traveler Default Settings Doc
- iOS device users often set their filter to “unlimited”
  - Because there are only a few choices in the Apple UI

Notes Traveler Device Settings : Default

Basics | Preferences | Assignment |

Sync | Filter Settings | Device Settings | Security Settings | Device Access |

Mail Filters:	How to apply this setting:	
Email Body Truncation:	<input checked="" type="checkbox"/> Enabled <input type="text" value="5K"/>	<input type="checkbox"/> Lock value on device
Maximum Email Attachment Size Allowed - Administrator	<input type="text" value="8000"/> KB	
Email Attachments:	<input checked="" type="checkbox"/> Enabled	<input type="checkbox"/> Lock value on device
Email Attachment Size:	<input type="text" value="100"/> KB	<input type="checkbox"/> Lock value on device
Email Date Filter:	<input checked="" type="checkbox"/> Enabled <input type="text" value="1 Month"/>	<input type="checkbox"/> Lock value on device
Filter Limit	<input type="text" value="90"/> Days	
Email Importance:	<input type="checkbox"/> High Importance Only	<input type="checkbox"/> Lock value on device

Other Filters How to apply this setting:



# Check current TOP 10 Usage – Tell traveler dbusage

```
tell traveler dbusage
IBM Notes Traveler Database Statistics
Accounts:          5
Devices:           7
Total device documents: 4394
Device documents synced: 3900
Device documents filtered: 494
Domino documents: 2140
Highest Total Usage
-----
Daniel Nashed/NashCom/DE      Documents  Percentage
mobile/NashCom-Net           1482      69,25
                             604        28,22
...
Mail documents: 552
Highest Mail usage
-----
Daniel Nashed/NashCom/DE      Documents  Percentage  EMail filter
mobile/NashCom-Net           505      91,49      7 days
                             22        3,99      30 days
...
Calendar documents: 49
Highest Calendar usage
-----
Daniel Nashed/NashCom/DE      Documents  Percentage  Event filter
mobile/NashCom-Net            47        95,92      30 days
                             1         2,04      90 days
...
Contacts documents: 1447
Highest Contacts usage
-----
Daniel Nashed/NashCom/DE      Documents  Percentage  Contact filter
mobile/NashCom-Net            882      60,95      unlimited
                             563      38,91      unlimited
...
```



# Attachment Limits

- **When sending attachments > 8 MB you have to increase the HTTP Limits**
  - Default is 10 MB but with Base64 Encoding the size is 8 MB
  - Increase both limits
    - Request Content in Server Doc / Internet Protocols / HTTP
    - Maximum Post data either in Server Doc or Internet Site Doc / Domino Web Engine

## HTTP Protocol Limits

Maximum URL length: 4 kilobytes

Maximum number of URL path segments: 64

Maximum number of request headers: 48

Maximum size of request headers: 16 kilobytes

Maximum size of request content: 10000 kilobytes (specify 0 to allow unlimited content)

## POST Data

Maximum POST data (in kilobytes): 10000

File compression on upload: Disabled



# Antivirus Checks

- **By default all mail is send via Mail Server**
  - If Mail Server has no antivirus you can force outbound mail to a gateway Server
  - Notes.ini **NTS\_OUTBOX\_MAIL\_SERVERS=** <Notes Server Name1>, <Notes Server Name2>
- **There is still a gap for sent messages which are stored in mailfile**
  - But you can control if attachments are saved
    - **NTS\_SENDMAIL\_SAVE\_OPTIONS=user** (Default)
      - Mails are saved if configured in calendar profile
    - **NTS\_SENDMAIL\_SAVE\_OPTIONS=never**
      - Sent mail is not saved
    - **NTS\_SENDMAIL\_SAVE\_OPTIONS=always**
      - Sent mail is always saved
    - **NTS\_SENDMAIL\_SAVE\_OPTIONS=noatt**
      - Sent mail is saved without attachment
    - **NTS\_SENDMAIL\_SAVE\_OPTIONS=always,noatt**
      - Options can be combined



# Adaptive Initial Sync (AIS)

- **New in Traveler 9.0.1**
- **How it works**
  - When new device makes first sync request to the IBM Notes Traveler server, AIS gives them a constrained filter window for mail and calendar documents
  - By default all mail since midnight and todays and future calendar events
  - Users in this state will continue to receive new mail and calendar invites
  - They will be promoted to their normally configured filter window if and when server load allows for it
- **Why**
  - Helpful in situations where the Traveler DB has been corrupted and must be dropped or a lot of users are being on-boarded simultaneously.  
It will help the server keep users up to date with new mail and calendar events while working to get them caught up on their data without overloading the server



# Adaptive Initial Sync - Configuration

- **NTS\_AIS\_ENABLED (default = true)**
  - Determines if the server should use adaptive initial sync logic.
- **NTS\_AIS\_INITIAL\_FILTER\_DAYS (default = 0)**
  - Number of days back in the initial filter window  
(0 = today (midnight), 1 = yesterday (midnight), and so on...)
- **NTS\_AIS\_AI\_THRESHOLD (default = 40)**
  - The availability index that the server must be above to allow promotions.
- **NTS\_AIS\_AI\_PROMOTION\_BIAS (default = 10)**
  - Sets how much to bias the AI for each promotion  
(to determine if it is possible to do more promotions).
- **NTS\_AIS\_CHECK\_INTERVAL (default = 60)**
  - Number of seconds between checks for users to promote.



# Adaptive Initial Sync

## ▪ Recommendations

- Keep it enabled. Very nice and important new feature
- Also helps in normal scenarios when users first sync to give them most important data first
- You might want to increase the filter days to sync since yesterday midnight
  - Notes.ini **NTS\_AIS\_INITIAL\_FILTER\_DAYS=1**

## ▪ Console Commands for AIS

- **tell traveler AIS show**
  - show adaptive initial sync status
- **Tell traveler Promote <user>**
  - promote a user to normal sync state
  - Very useful for VIP users

▪





# Troubleshooting

- **Tell Traveler user <username>**
  - Very useful to see the current status of an user
- **Access Status for Traveler Server and User**
  - Use and server need “Manager” rights including delete
- **Current Master Server**
  - Traveler server currently holding the back-end sync session for the user
- **Encryption status**
  - ID Vault error message is normal, when ID-Vault is not enabled for 3<sup>rd</sup> Party Applications
- **Last Sync/PrimeSync Time**
- **Device and Device Status Information**
  - Separate Entries for all devices



# Example: Tell Traveler User

```
tell traveler user nsh@nashcom.loc
> IBM Notes Traveler has validated that it can access the database mail/dnashed.nsf.
Monitoring of the database for changes is enabled.
Encrypting, decrypting and signing messages are not enabled because the Notes ID is not in the mail file or the ID vault.

Canonical Name: CN=Daniel Nashed/O=nashcom-traveler
Internet Address: nsh@nashcom.loc
Master Server: nsh-traveler-03/nashcom-traveler, version 17
Master Server Locked: December 31, 2013 5:14 PM, type=Soft
Home Mail Server: CN=nsh-traveler-03/O=nashcom-traveler
Home Mail File: mail/dnashed.nsf
Current Monitor Server: CN=nsh-traveler-03/O=nashcom-traveler Release 9.0.1
Current Monitor File: mail/dnashed.nsf
Mail File Replicas:
31.12.2013 17:04:58 Server nsh-traveler-03/nashcom-traveler reported the following problem causing authentication to fail: User's policy does not allow
password authentication with the ID vault. Password has not been reset.
[CN=nsh-traveler-03/O=nashcom-traveler, mail/dnashed.nsf] is reachable.
ACL for Daniel Nashed/nashcom-traveler: Access=Editor Capabilities=create,update,read,delete,copy Missing Capabilities=none
ACL for nsh-traveler-03/nashcom-traveler: Access=Manager Capabilities=create,update,read,delete,copy Missing Capabilities=none

Notes ID: Mail File does not contain the Notes ID.
Auto Sync User State: Monitoring enabled
Adaptive Sync Applications: No applications in adapted state.
Last Prime Sync: Tuesday, December 31, 2013 5:04:25 PM CET
Banned Documents: 0

Devices:
Device ID: 736030769B7C74714625D335C88F6FDB
Device Description: WIN8:WinPC/8.0
Security Policy Status: No policy
Security State: Clear
Approval State: Not required
Last Sync: Tuesday, December 31, 2013 5:04:27 PM CET
Auto Sync Device State: Active
Auto Sync Connection State: Connected at Tuesday, December 31, 2013 5:04:27 PM CET
Auto Sync Applications to Synchronize: folder, mail, calendar, contact, serviceability, security
Auto Sync Change Flags: clear
```



# Troubleshooting

- **Central Log Directory per Server**

- IBM\_TECHNICAL\_SUPPORT/traveler/logs

- **Enable Logging per User**

- tell traveler log adduser finest <username>
- tell traveler log removeuser <username>

- **Dump user information**

- tell traveler dump <username>

- **Collect Information for a PMR and upload**

- tell traveler -s \* pmr <pmr\_number> (collects information from all traveler servers in the pool ;-)

- **If you cannot do that use the following**

- tell traveler systemdump + tell traveler log collect
- Check IBM\_TECHNICAL\_SUPPORT\traveler\logs\



# Reference - Traveler Administration API

- **New in Traveler 9.0.0.1**
- **REST Base API**
  - IBM Notes Traveler Administration service provides a set of REST-based APIs for interacting with IBM Notes Traveler administration data. Built upon Domino Access Services, the IBM Notes Traveler Admin Service receives requests and sends responses using HTTP and HTTPS protocols. These APIs are supported in on premises stand-alone and high availability configurations, as well as supported in the IBM SmartCloud
  - The intent is for Mobile Device Management (MDM) providers to be able to leverage these APIs in order to manage mobile devices registered with IBM Notes Traveler. Additionally, these APIs can be used by any IBM Notes Traveler customer needing to build additional reporting or administration tooling
  - Can also be used to write own applications and integration with your existing procedures
- **PDF containing all information about the REST API**
  - [www.lotus.com/idd/dominowiki.nsf/dx/IBM\\_Notes\\_Traveler\\_Administration\\_API](http://www.lotus.com/idd/dominowiki.nsf/dx/IBM_Notes_Traveler_Administration_API)



# New Business Partner Application for Traveler Administration

- **Brand new application in the app store published today**
  - <https://itunes.apple.com/en/app/midpoints-traveler.rules/id797055206?mt=8>
- **Connects directly to your Traveler server**
- **Basic version with limited functionality is free**
  - One Traveler pool
  - 25 Users
  - View Only
  - All that can be one without separate software on Traveler server is included
    - Additional functionality via in app purchase

midpoints traveler.rules

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Category: [Productivity](#)

Released: Jan 28, 2014

Version: 1.0.0

Size: 2.4 MB

Languages: English, German

Seller: midpoints GmbH

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[Rated 4+](#)

**Compatibility:** Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch. This app is optimized for iPhone 5.

**Customer Ratings**

We have not received enough

## Description

With midpoint traveler.rules mobile you can use the administrative access to your IBM Notes Traveler environment in a native app.

You will receive an offline-enabled access to all mobile devices, users and servers that synchronize through your IBM Notes Traveler environment.

The following functions are available:

- Allow and Prohibit the PIM Synchronization
- Remote wipe a device
- Reset a device or a user
- Use of approval function
- And much more .

You also get a convenient and easy overview of all servers in an IBM Notes Traveler High Availability environment.

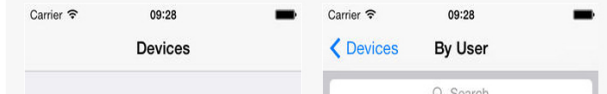
In addition multiple Traveler environments can be queried and managed simultaneously.

Please note :

It is a management tool for administrators and not for IBM Notes Traveler end user. For its use you must have the appropriate server-side permissions.

[midpoints traveler.rules Support](#)

## iPhone Screenshots



# Thank You!

Your feedback is important!



- Access Connect Online to complete your session surveys using any:
  - Web or mobile browser or Connect Online kiosk onsite
- **Questions?**
  - Now, after the session or via email
  - Find me at my 64bit session on Thursday or at the Linuxfest V afterward

Daniel Nashed

**nsh@nashcom.de**

<http://blog.nashcom.de>

<http://www.nashcom.de>



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