Lotus Domino R5 for Linux mini–HOWTO

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Mary Gardiner – Editing for style and consitency, conversion from text to DocBook v4.1.2 (XML)

Dan Scott – The document structure from DB2 Version 7.1 for Linux HOWTO

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My first mini–HOWTO, wrote install instructions Lotus Domino 5.08 & 5.09a for Mandrake Linux 8.1 and SuSE 7.3 Professional.

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1. Introduction

1.1. Why a Domino R5 installation mini−HOWTO?

I faced Domino for Linux in February 2002. It happened because of unstable Domino R5 functioning on an Windows NT Server with powerful hardware resources. I read the "Understanding Domino for Linux" white paper and I decided to move our Domino server to Linux. My first Linux distribution was Mandrake 8.1. I know this French distribution is one of the easiest and friendly for a newbie. Now it has worked pretty well for more than 10 months without any interference. Cool :) A few months ago the chairmen decided to implement one more Domino server at our high school; we had no money to purchase a powerful server and I made up my mind to deploy it on Linux again with existing hardware. Now we have a very stable second one on SuSE 7.3 (I have studied this distribution already) with poor hardware (CPU: Celeron 400, RAM: 192MB, HDD: 20GB IDE).

As time permits, I hope to provide hints and tips for improving performance of Domino on Linux, and for configuring the environment on various Linux distributions.

1.2. Who should read this mini−HOWTO?

If you plan to save your employer's money and get amazing stability (and save your time) you should think about Domino on Linux. This mini−HOWTO helps you to install and configure Domino on the Linux distributions supported by IBM Lotus Software (SuSE) and others (Mandrake). I describe specific prerequisites and quirks for each distribution. I do not want anyone to repeat my sleepless nights and all−day−long red eyes.

1.3. About the author

Mykola Buryak is the originator and current maintainer of this mini−HOWTO. Please send all suggestions for improvement, criticisms, or more−or−less related questions to me at <m.b.@gmx.co.uk> or <lupus@gmx.ch>. Please do not send me spam or hate mail.

Mykola Buryak has been employed by National Mining University, Ukraine, as Lotus System Administrator since September 2000. Before that time he was working as Computer/Network Technician there. He has 3 year experience with Web Development, 2 year in Lotus Domino/Notes Administration, 1 year in Linux and IBM DB2 UDB. In his spare time he teaches RUP and Python at the Geoinformatics Department, National Mining University. He holds an Hon. Masters Degree in Information Control Systems and Technologies and the following certifications for the present:

- Certified Lotus Specialist − Domino R5 System Administrator
- IBM Certified Specialist − DB2 UDB V6.1/V7.1 User

1.4. Acknowledgements

Mary Gardiner did an awesome job of editing the original version for style and consistency.

Additional thanks to Dan Scott and his DB2 Version 7.1 for Linux HOWTO which I got the document structure from.

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2. Prerequisites

What are prerequisites? Prerequisites are what you, your machine, and your distribution require before you will be able to successfully install or use Lotus Domino R5. The required prerequisites come straight from *Notes, Domino and Domino Designer RELEASE NOTES*, Chapter 2. The suggested prerequisites come from experience. For your convenience, I've divided them into hardware and software requirements.

2.1. Hardware

CPU

x86 compatible (for example, Intel, AMD, or Cyrix). I've successfully installed Domino Application Server 5.08 on an AMD Duron 800, Intel Celeron 400 and Enterprise Server 5.09a on an AMD Athlon 1000. Your experiences with other x86 processors would be appreciated.

RAM

I've found 128 MB of RAM is enough to run a single Domino Application Server and test out your applications. In my case, I was working with a AMD Duron 800 processor and 128 MB of RAM. However, more memory is recommended if you're putting your application into production or running multiple services. Swap file should be 3 times the physical RAM or greater.

HDD

For a typical non−partioned installation of the Lotus Domino R5 Application Server, you will need about 300 MB of free disk space.

2.2. Software

You must have selected the following packages during Linux install or setup:

- C Development;
- Development Libraries;
- C++ Development.
- Also you need the libjitc.so file from the IBM Developer Kit for Java 1.1.6.

3. Preparing your distribution for Domino R5

3.1. Mandrake Linux 8.1

Domino for Linux will need to be able to find a certain file with filename `libjitc.so`. This required file is absent from Mandrake Linux 8.1. You will be unable to work correctly with the Agent Manager and Statistic Agent if you ignore this section of mini–HOWTO.

1. To find out if the file is absent, you can use the **locate** command.

   First, issue the following command at the command prompt (login as "root"):

   ```
   bash# updatedb
   ```

   This command searches the hard drive and updates a database for the locate command in use. It can take a few minutes to run, but probably it will take only 20–30 seconds or so. Afterwards, issue the command:

   ```
   bash# locate libjitc.so
   ```

   If `libjitc.so` is on your hard drive somewhere, locate will find it and list where it is. If not, locate will list nothing. If libjitc.so is already there, it is probably already in your search path, until you get an error trying to work with Agent Manager and Statistic Agent indicating otherwise, just assume it is. If you do not have `libjitc.so`, you will need to get it separately; it is not included as a part of the Domino for Linux package.

   The file `libjitc.so` is included as a part of the IBM Developer Kit for Linux, which is IBM's port of Sun's JDK (Java Development Kit) 1.1.8 to Linux/x86. `libjitc.so` is the Java "Just–In–Time" compiler. The reason that this file is absent from SuSE 7.3 is that this Linux distribution comes with a different Java package named Kaffe Virtual Machine.
2. You can download the IBM Developer Kit for Linux from http://www–106.ibm.com/developerworks/java/jdk/118/linux/?dwzone=java.
3. Prepare a directory to download JDK into. Change to the `/root` directory:
   ```
   bash# cd /
   bash# cd /root
   ```

   and make a new directory named `jdk118`:

   ```
   bash# mkdir jdk118
   ```

4. Download the JDK into `/root/jdk118`. Install the IBM Developer Kit for Java by issuing the following command as root:
   ```
   bash# rpm -ih IBMJava118-SDK-1.1.8-5.0-i386.rpm
   ```

5. After successful installation of the IBM Developer Kit you need to copy `libjitc.so` to the `/lib` directory:
   ```
   bash# cp /usr/jdk118/lib/linux/native_threads/libjitc.so /lib
   ```

6. You can uninstall the IBM Developer Kit with Software or Package Manager to clean things up, but consider keeping the rpm file IBMJava118–SDK–1.1.8–5.0–i386.rpm. You may decide later that JDK 1.1.8 is something you want to install (for example, it's necessary for using the IBM DB2 UDB V7.x Linux Control Center).

3.2. SuSE 7.3 Professional

Domino for Linux will need to be able to find a certain file with filename `libjitc.so`. This required file is absent from SuSE 7.3 Professional. You will be unable to work correctly with the Agent Manager and Statistic Agent if you ignore this section of mini–HOWTO.

1. To find out if it is absent, you can use the **locate** command. First, issue the following command at the command prompt (log in as "root"):
   ```
   updatedb
   ```

   This command searches the hard drive and updates a database for the locate command in use. It can take a few minutes to run, but probably it will take only 20–30 seconds or so. Then issue the command:

   ```
   locate libjitc.so
   ```

   If `libjitc.so` is on your hard drive somewhere, **locate** will find it and list where it is. If not, **locate** will list nothing. If `libjitc.so` is already there, it is probably already in your search path, until you get an error trying to work with Agent Manager and Statistic Agent indicating otherwise, just assume it is. If you do not have `libjitc.so`, you will need to get it separately; it is not included as a part of the Domino for Linux package.

   The file `libjitc.so` is included as a part of the IBM Developer Kit for Linux, which is IBM's port of Sun's JDK (Java Development Kit) 1.3 to Linux/x86. libjitc.so is the Java "Just–In–Time" compiler. The reason that this file is absent from SuSE 7.3 is that this Linux distribution comes with a different Java package named Java 2 SDK, Standard Edition.
2. Install IBM Developer Kit version 1.3 with YaST2 control center. IBM Developer Kit is located on one of the seven SuSE 7.3 Professional installation CD–ROMs.
3. After successful installation of the IBM Developer Kit, you need to copy `libjitc.so` to `/lib`:
   ```
   cp /usr/lib/jdk1.3/jre/bin/libjitc.so /lib
   ```

4. Installing Domino R5

4.1. Mandrake Linux 8.1

1. Log in as "root". Open a terminal session. Add a user and group to your system called `notes`:

   ```
   bash# adduser notes
   ```

2. Give this new user a password by entering:

   ```
   bash# passwd notes
   ```

3. Mount the CD–ROM, and enter the following command to install the Lotus Domino R5 package:

   ```
   bash# /mnt/cdrom/dom509ux/linux/install
   ```

   The install program displays a series of screens about the IBM Lotus license agreement. Use the **TAB** key to accept a setting and advance to the next screen, the **ESC** key to back up to the previous screen, the space bar to toggle through possible choices other than the default, and **ENTER** to edit a text field.

4. Select a setup type. Choose Domino Mail Server, Domino Application Server, or Domino Enterprise Server and press **TAB**.

5. Select the program file location. The default is `/opt/lotus`. Make sure you have enough space. The installed files in the program directory are approximately 70 MB. If you select a program directory other than `/opt/lotus`, then a soft link will be created from your program directory to `/opt/lotus` so that commands may be executed from that path.

6. Indicate if you plan a number of Domino servers on the current physical machine. The default is `No`.

7. Select the data file location. The default is `/local/notesdata`. If you do not have a large root partition it will not work. If so, change the directory to `/usr/local/notesdata`. If you ignore this during installation process, later you will get an error like this one:

   ```
   Error validation settings:
   There is not enough disk space for the data directory at /local/notesdata
   125889K is required, and only 95370K would be available.
   Make sure you have enough space.
   ```

   The installed files in the data directory are approximately 160 MB.

8. Select the user and group for this server. Choose the default that you set up earlier (`notes` in the example).

9. The install program displays the settings you selected. Use the **TAB** key to accept these settings and begin the installation, or press the **ESC** key to back up to change any settings. The install program will then begin installing the files.

10. During installation process you may see the warning:

    ```
    The following system commands were not located: rsh.
    ```

    It does not influence the local server installation.

11. After successful installation, this message will be displayed among others:

    ```
    The installation completed successfully.
    ```

4.2. SuSE 7.3 Professional

1. Log in as "root." Open a terminal session. Add a user and group to your system called `notes`:

   ```
   bash# groupadd notes
   ```

```
        useradd notes -g notes
        bash#
```

2. Give this new user a password by entering:

```
        bash# passwd notes
```

3. Mount the CD−ROM, and enter the following command to install the Lotus Domino R5 package:

```
        bash# /mnt/cdrom/dom509ux/linux/install
```

The install program displays a series of screens about the IBM Lotus license agreement. Use the **TAB** key to accept a setting and advance to the next screen, the **ESC** key to back up to the previous screen, the space bar to toggle through possible choices other than the default, and **ENTER** to edit a text field.

4. Select a setup type. Choose Domino Mail Server, Domino Application Server, or Domino Enterprise Server and press **TAB**.

5. Select the program file location. The default is /opt/lotus. Make sure you have enough space. The installed files in the program directory are approximately 70 MB. If you select a program directory other than /opt/lotus, then a soft link will be created from your program directory to /opt/lotus so that commands may be executed from that path.

6. Indicate if you plan a number of Domino servers on the current physical machine. The default is No.

7. Select the data file location. The default is /local/notesdata. It works perfectly. Make sure your have enough space. The installed files in the data directory are approximately 160 MB.

8. Select the user and group for this server. Choose the default that you set up earlier (notes in the example).

9. The install program displays the settings you selected. Use the **TAB** key to accept these settings and begin the installation, or press the **ESC** key to back up to change any settings. The install program will then begin installing the files.

10. After successful installation, this message will be displayed among others:

```
        The installation completed successfully.
```

4.3. For all Linux distributions

4.3.1. Run the Domino Server Setup program

1. Log on to Linux as the user you established earlier (notes in the example).

2. Change to the directory /usr/local/notesdata (/local/notesdata for SuSE) by entering:

```
        bash# cd /
        bash# cd /usr/local/notesdata
        and then enter the following:
        bash# /opt/lotus/bin/http httpsetup
```

3. A series of messages indicate the start of the Domino server. For example:

```
        05/09/2002 8:39:09 PM Created new log file as
        /usr/local/notesdata/log.nsf
        05/09/2002 8:39:09 PM
        **************************************
        * Lotus Domino Server Setup          *
        * To setup this server, please connect*
        * your web browser to port 8081      *
        * Example: http://example.com:8081   *
        **************************************
        05/09/2002 8:39:09 AM JVM: Java Virtual Machine initialized.
```

```
        05/09/2002 8:39:10 AM HTTP Web Server started
```

4.3.2. Continuing setup and configuration

1. You begin the configuration process by connecting to your Linux server with a Web browser, either from an external machine, or the Linux machine.

   To perform setup from another machine, enter:

   http://example.com:8081

   To perform setup from the Linux machine, enter:

   http://localhost:8081

   or

   http://linux:8081
   for SuSE 7.3 Professional.

   where `example.com` is either the IP address or DNS name of your Linux server. At this point, the standard Domino configuration screens are displayed in your browser. Follow the instructions on these screens and click the Finish button on the final screen to complete the initial configuration. Online help is available on each of these screens.
2. The HTTP Setup program will have created `SERVER.ID` and `CERT.ID` files in `/usr/local/notesdata`. The `USER.ID` file is attached to a person document in `NAMES.NSF`.

4.3.3. Starting the Domino Server

Before starting your Domino server, make sure no other Web server is running because it will block the Domino HTTP task from operating correctly, and you will be unable to use a Web browser to administer your server after the initial setup.

1. Log on to Linux as the user you established earlier (`notes` in the example).
2. From the `/usr/local/notesdata` directory (`/local/notesdata` for SuSE), enter:

   ```
        /opt/lotus/bin/server
   ```

   The server starts and the usual server console messages appear.

4.3.4. Extracting your administrator ID file

Before you can perform any more administration on your Domino for Linux server, you will need to extract the administrator ID file and move it to the machine you plan to use for administration.

1. After the HTTP Web Server task has started, switch to your administration machine and use a Web browser to connect to your new server:

   http://example.com

where `example.com` is either the IP address or DNS name of your Linux server. The default Lotus Domino navigator screen displays.

2. Now open the address book by entering:

```
http://example.com/names.nsf
```

3. Click to the People view and open the Person document for the administrator you created earlier and download the `USER.ID` file to your administration machine. If you are using a Netscape browser, you may have to rename the id file to `USER.ID`.

5. Resources

Lotus Developer Domain: The Documentation Library
> This web site contains white papers, redbooks, FAQs etc., published by IBM about Lotus Domino/Notes.

Lotus Developer Domain: Downloads
> You can download a 90−day trial version of Domino/Notes and other Lotus products here.

Lotus Developer Domain: Domino for Linux Feedback Forum
> Very useful, but archived Lotus Domino for Linux Feedback Forum.

HOWTO Install Lotus Domino Server 5.0.9 on Caldera OpenLinux '99 Server Release 3.1.1
> This HOWTO explains how to install Domino Server on the Caldera OpenLinux Server3.1.1.

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