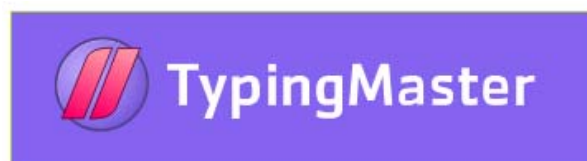


TypingMaster Intra 3.0

Server Installation



Technical White Paper (2009-September)

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INSTALLATION PROCESS

TypingMaster Intra is installed onto one of your web/intranet servers. This server should be accessible to all people that you wish to train, (i.e. not behind a firewall that does not allow access). In TypingMaster Intra license agreement we do require that this server is an internal server that is not a public one. Allowed under our licensing system is a LAN, password protected, IP restricted, VPN or similar network that allows people to access it from their location then. We have also login systems for libraries.

If you are looking for an easy “open” access through the Internet, we offer hosted TypingMaster Online which is built on the exact same technology as TypingMaster Intra. The only difference is that it is easily accessible over the Internet and hosted by TypingMaster Inc. Also a different pricing structure applies.

CHOOSING THE SERVER

TypingMaster Intra can be installed to dedicated server or one already running the web server software. The software requires Windows NT/2000/XP/2003/Vista/2008, Solaris, AIX, Linux, Mac OS X or other UNIX operating system with Java VM 1.4 or newer installed.

Example of a good dedicated server would be Windows 2003 with 2 GB RAM, running MS SQL server. If there is no need for e.g. intranet pages running on the server, IIS can be disabled for better performance. This also allows TypingMaster Intra to use standard http port 80 making it easier to access.

TypingMaster Intra works also together with any web server (e.g. IIS in Windows Server 2003), it just runs alongside. We have the Linking feature as part of the install, it allows administrator (using a simple html page) to transfer users easily from the web server to TypingMaster Intra without them even noticing. Look for it during the installation.

CONFIGURING THE SERVER

Once the physical (or virtual) server is selected you have the option of either running TypingMaster Intra in a 3rd party Web Application Server (e.g Tomcat or IBM Websphere) or just using the default server included. You also have the option of using the included light database or if you expect thousands of users we recommend using your own third party database, such as MySQL, Microsoft SQL Server 2000/2005 or Oracle. Note that these are all just options, you can just download the demo and do the Standard install and have it up and working in minutes.

Once you run the install you are taken to the setup screen, first select your database type (by default the internal database we provide), then enter the login details for the Administrator account. You may wish to enter the details of the person who plans on administrating the program, or have them with you. You can of course just provide the login details later to the actual administrator.

WORKSTATION INSTALLATIONS

Once you have TypingMaster Intra installed proceed to setup your account. You will be shown the link needed to login to TypingMaster Intra. This link needs to be placed on your training pages, or sent out by email, however you like. Users will click on the link, first time users create an account and start using the program. They will need to access the login link each time to get back to the program.

The distribution of the content is totally dynamic. There is no need to pre-install any software. All content is delivered as the user accesses the program. You will need to check, though, that the typing tutor can load in your employees' computers. In some high security environments some problems may occur when loading the actual tutor software. There are several solutions and a small trial using the free demo we offer (or we can offer a Trial License for full evaluation) should be able to show any problems and we can help you eliminate them.

CONFIGURING TYPINGMASTER SETTINGS

Finally use the Manager to setup the requirements and settings you want your users to have.

If possible you should investigate which settings are best for your company, so we strongly suggest that the person in charge reads the Manager manual. It is available with the install or online at:

http://www.typingmaster.com/support/intra/manager_manual.html

Some points in the manual include ways you import large amounts of users, how to hide and show certain courses and how to change the settings for the courses. Configuring groups and changing user passwords among many other things.

A possible setup could be to just have one group which you configure so there are only 1-2 courses including Touch Typing Basic Course. Next choose Lesson Pass Requirements for the Touch Typing Basic Course, for example 20 WPM and 80% accuracy. Then you should have the goals you want your employees to reach for the Final Test Settings, for example 40 WPM and 90% with a standard 5 minute test.

These are just possible solutions and something you should look into with more detail for your company.

USING INTEGRATED TYPINGMASTER APPLICATION SERVER

By default TypingMaster Intra setup program installs a light application/web server that hosts TypingMaster MiniLMS (Learning Manager Server) and courseware. This server is capable of hosting TypingMaster course for up to 50,000 users. If more users are going to use the software, it is recommended to use 3rd party application server (please see next chapter).

During setup process, TypingMaster Intra Server port number must be selected. Be sure to use the Test Port button to ensure the port you select is available. Some common and recommended port numbers (8080, 9090 and 80) are presented but you are also free to select your own. If you are unsure about which port to choose please consult your System or Network Administrator. If you are using a personal firewall, it might popup during the port selection asking for the permission to open this port. Please grant the permission to allow the installation to continue.

Note: If you plan to have TypingMaster Intra accessed through an extranet or you have a firewall within your internal intranet you may need to configure your firewall to allow the new port you selected. Please consult your System or Network Administrator for details.

CONFIGURING THE JRE MEMORY

Java Runtime of TypingMaster Intra Server is configured to use no more than 256 MB of RAM by default. This should be increased to 512 MB if there are more than 20,000 students or if you receive *OutOfMemoryError* exception in the LOG Files. The log files are located in tmintra3/logs folder (see both the latest *lws_log.<timestamp>.log* and *stderr.log* files) and can be cleaned out time to time.

By default JRE has a parameter -Xmx256m that can be edited from the following files:

Windows:

```
C:\Program Files\tmintra3\ntservice\svcsetup.cmd
```

Execute this script after editing it in order to register the changes to NT Service.)

Unix/Mac OSX/Solaris:

```
/tmintra3/bin/lws.sh
```

Execute shutdown.sh and startup.sh again to register the changes.

CONFIGURING THE LIGHT APPLICATION SERVER

The default values for Application server are good for running up to 50,000 students. However, if there are connections drop or you have more students you can adjust the configuration file with Notepad or similar tool.

The configuration is loaded during server startup from a simple text file called

C:\Program Files\tmintra3\conf\ server.properties (or /tmintra3/conf/server.properties in Unix)

The additional settings are described in a file:

C:\Program Files\tmintra3\conf\ server.properties.def

The most important application server settings and their good default values are:

`server.port=8080` - The port number the server shall listen to for HTTP requests. Good defaults are 80, 8080,9090.

`server.backlog=100` - The maximum queue length for incoming connection indications.

`server.conntimeout= 20000 (20 seconds)` - The number of milliseconds to wait for data on a connection.

`server.threadmin=10` - The number of request handling threads to create when the server starts

`server.threadmax= 100` - The max number of threads that shall be created.

DATABASE CONFIGURATION

The database configuration is located in these 2 files:

1. C:\Program Files\tmintra3\webapps\tmintra\appdata\ custom3_lmsconfig.properties
2. C:\Program Files\tmintra3\webapps\tmintra\appdata\lmsconfig.properties

Editing of these files is not recommended.

The setup process automatically displays an easy setup wizard that allows adjusting all database related settings.

However, some advanced settings such as database login password can be changed by hand if necessary:

`#JDBC session pool settings`

`dbmaxconn = 50`

`dbidlesecs = 300`

`dbthreadsecs = 100`

USING 3RD PARTY APPLICATION SERVER - WEB APPLICATION INSTALLATION

If you have more than 50,000 users, you should consider installing TypingMaster Intra web application into Apache TomCat application server or similar for better performance. First install Tomcat and then follow these steps to install TypingMaster Intra (WAR).

1. First download the latest WAR file from:

<http://www.typingmaster.com/business/intra/demo.asp>

On this page look for the link "Installation to an Application Server" link to find two alternative download links. If you are installing on AIX or would like only the English version select the AIX option, otherwise please select the standard WAR.

2. Load the WAR file as you would any other WAR file. No special context name is needed. If possible we recommend that you load it over the top of your existing version of TypingMaster Intra. Note that the WAR file is named differently, so you may need to rename it.

If you are unable to do this certain extra steps must be taken. First load the WAR into a separate location/context. Start the application and go to its context. There you will be asked for language and the database information. Once you have entered the database information you must stop and restart the application. This forces the program to do any updates they are needed. Once you have restarted TypingMaster Intra it is ready to use.

PLEASE NOTE: if you are using the internal database, which is not recommended when using a 3rd party application server, please contact us for information on how to keep user data. If possible we suggest using a 3rd party database such as MySQL, Oracle, MS SQL. Switching database however would mean that user information would be lost.

3. TypingMaster Intra is now ready to be used. You can find more on installing TypingMaster Intra at:

<http://www.typingmaster.com/support/intra/installguide.html>

MULTIPLE SITES / ACCOUNTS – RECOMMENDED FOR SCHOOL DISTRICTS

With multiple accounts, each account has their own Administrator and database table. All data is kept separate from each other. To reach the login page for your account(s), you must now use the following link:

<http://<yourservername>:<portnumber>/tmintra/login?id= < account number 1...n>>

ENABLING MULTIPLE ACCOUNTS (REQUIRES TMINTRA 3.0.353 OR NEWER)

Go to your TypingMaster Intra Manager / Tools page. Choose “Manage multiple accounts”.

With multiple account management, you can create as many separate accounts as you wish. This is especially useful in large companies with many subdivisions or in a school district with many schools. In multiple account mode, you only need one instance of TypingMaster Intra running with each subdivision using their own account. In multiple account mode, each account will have a unique login link with the format <http://yourserver.com/tmintra/login?id=1> and so on. Also note that each account will require a unique license key. You cannot enter the same license into multiple accounts. You can decide if one administrator or all administrators can manage these accounts.

To activate multiple account mode, click on the Activate multiple accounts button.

You can now both create and delete accounts from the Accounts Management page that now appears.

Notes:

- There must be always at least 1 account. You can also easily add licenses to the accounts from this page.
- With multiple accounts, each account has their own Administrator User that is in charge of managing the account. The email addresses for Administrators need to be unique. When the account has been set up, a welcome email is sent to the Administrator's email address.
- After creating the account, log in to this account with the Administrator's user information and enter the license key. Each account will have to be licensed individually. When the account has been licensed you need to tell the actual Administrator their login information so that they can start using their account.

CONFIGURING THE FIREWALLS

Both client side firewalls and server firewalls might need to be adjusted to allow TM Intra to serve its clients. Make sure you enable the port 8080 (default) after Setup.

Note: If TypingMaster Intra is installed into a dedicated server, you should choose the standard port 80 (HTTP). In this case there is no need for client side firewall configurations and it is easier for users to access the service.

WINDOWS FIREWALL USERS (XP/2003/VISTA/2008)

Windows Firewall is turned on by default. Setup opens the Windows Firewall Port automatically. If you run into problems with Windows Firewall, go to the command prompt, type:

```
netsh firewall set portopening TCP 8080 ENABLE and then press ENTER.
```

MAC OSX

To configure firewall on Mac OS X 10.3 please go the System Preferences then Sharing under the Internet and Network heading. Here click the Firewall tab and click on the New.. button. From the options that appear select Other from the Port Name drop down. Enter the port number 8080 (or 9090) and then a Description such as TypingMaster Server, or TypingMaster Intra, it can be anything you like. Press OK. Make sure the entry is checked.

FIREWALL TIPS

Check for possible firewall problems beforehand: Even though your internal testing of TypingMaster Intra may be going well there may be some problems when external locations try to use the service. This is most likely due to a firewall blocking the typing tutor from getting files or saving results back to the server where it is hosted. We strongly recommend that you do a small test in each of your sites you plan to give TypingMaster Intra access.

Get a normal user/employee to use TypingMaster Intra from the external sites, just load the typing tutor take one exercise and see that everything is saved. Try to avoid using a IT professional with privileged access to the computers and network, or at least have them login as a standard account. This will help you find any possible firewall issues before you roll out to all your employees.

If you do encounter any difficulties please contact us with details and we can provide you with a solution.

CLIENT SIDE - JAVA/ACTIVEX MODULE

There are two types of TypingMaster tutors running on client side, a more advanced ACTIVEX one for Windows and a more simple cross platform one (JAVA). The Windows based one requires that Active X is turned on and that you are using Windows Internet Explorer.

Requirements for Client Web Browsers:

- Java 1.2 (or newer) or ActiveX capable Web Browser
- 800 x 600 display resolution or better
- Session Cookies are required
- Optional: JavaScript recommended

Example browsers:

- Windows: Internet Explorer 5 or newer Firefox 2 or newer Opera 7 or newer
- Mac OSX: Internet Explorer 5, Netscape 6 or newer , Safari 1.0 or newer, Opera 7 or newer
- Linux/Solaris : Mozilla 1.0 or newer , Netscape 6 or newer , Opera 7 or newer

ACTIVEX INSTALLATION ISSUES

To run the ActiveX typing tutor on TypingMaster Intra you must be using a Windows operating system 98/NT/2000/XP/2003/Vista with the web browser Internet Explorer (5.0 or greater). All other operating systems will use the Java typing tutor as well as all other web browsers (Netscape, Firefox, Opera) on a Windows operating system.

When using Internet Explorer with Windows XP or Vista you will have to take extra steps to ensure it loads. When loading the course the page will display an error saying it is unable to load, however there is a thin alert bar just below the tool bar (where you can type in the link, the Back and Stop buttons are there. A pop up window may also appear that alerts you to this thin bar. You must click on the warning bar to be able to load the tutor. Clicking on the bar will provide you with options, select Install program (the text may vary on your system). Follow the instructions to get the tutor to work. You may have to reload the studying page to get the tutor to open.

If you are still experiencing difficulties there are several steps you can take:

- Please check that the security settings on your browser are not too high, this can prevent the typing tutor from loading. In Internet Explorer you can check the security settings in the Tools > Internet Options, then on the Security tab select Internet zone and set the level to Medium or lower. Then press OK.
- You can also set the levels more precisely by clicking on the Custom Level... button and making sure ActiveX and Java are activated. You can also control Java settings from the Advanced Tabs, just scroll down to the Java section and make sure everything is checked.
- If none of this helps it could be your firewall that's causing the problem and you will need to allow signed ActiveX components to pass through the firewall.

If an error page appears when trying to load the tutor look for the link: "install this required ActiveX component" - Try installing it manually. Often automatic installation of ActiveX components is blocked.

If this still does not work it may be that a system administrator has blocked ActiveX components either for your user account, or for the machines that you are using. For this you will need to consult your system administrator to allow you to have more access on that computer / your user account.

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Here are some tips to ensure TypingMaster Intra enters your work place easily:

1) To easily roll out TypingMaster Intra you can pre-load the typing tutor for Internet Explorer using our easy to use install package. You can find the CAB/MSI file in your install of TypingMaster Intra:

`\Program files\TMIntra3\webapps\tmintra\itutor\TMIntra.msi`

It is also available via download:

`http://your-servername:port/tmintra/itutor/TMIntra.msi`

You can use this to advance push the tutor onto your workstations to cut down on bandwidth issues and also avoid any problems that might arise from your users not having Administrator rights to their computers. Pre-loading the software will avoid this issue and is highly recommended. It is also possible to do this using Active Directory.

Also note that pre-loading of the typing tutor can only be done when the workstations are using Windows with Internet Explorer. This is not for the Java tutor used when the workstations have other operating systems or web browsers.

After module is installed, you can use this test page to see if the module was registered OK:

`http://www.TypingMaster.com/support/test-tool`

PERFORMANCE REQUIREMENTS

The standard install provides all the software you need. With a 50 concurrent users the default light web server and an internal SQL database should be enough to handle your needs. Only if you plan to have hundreds of people connecting do we recommend your own SQL database or a more advanced java server. Note that the SQL database we provide is not a real SQL server, it does not take up any extra memory or resources.

RECOMMENDED CONFIGURATIONS

1. One school/site

TypingMaster Intra with default installation (integrated database) is enough.

2. Multiple Sites (< 50.000 users) - Dedicated Server

TypingMaster Intra with external database and integrated application server is recommended.

3. School Districts (> 50.000 users) – Dedicated Server

TypingMaster Intra with external database and 3rd party application server is recommended.

INSTALLING NEW MYSQL JDBC DRIVERS

Follow these steps to install a new MySQL JDBC driver for TypingMaster Intra

First shut down the TypingMaster Intra service.

Then download the newest JDBC driver from the following address:

<http://www.mysql.com/products/connector/j/>

Unzip the downloaded file and copy the file with the .jar ending to the following subfolder under you TypingMaster Intra installation folder.

[installation folder]/webapps/tmintra/WEB-INF/lib/

To change your database settings, you can run the database setup again by deleting the following file:

[installation folder]/webapps/tmintra/custom_Imconfig.properties

This file contains your database settings. When it is missing and the service is restarted, it will run the database setup again. Alternatively you can modify the database settings in that file with a text editor.

USER ACCOUNTS

All users including the teachers and administrators have to have a login name and password. TypingMaster Intra can also be hooked up to an external LDAP system such as Novell Authentication or Microsoft Active Directory. We have LDAP support fully described in another white paper called **TMIntra3LDAP.pdf**. LDAP installation requires TomCat.

Also, logins can be passed by URL parameters if necessary by using syntax like this:

```
http://localhost:8080/tmintra/studentlogin?id=1&student_login=xxx&student_pass=xxx
```

Users can create their own accounts (self-registering can be also disabled). The Administrator can create user accounts also and we provide an easy import feature for adding large amounts of users at one time (CSV file).

If the SMTP server name is configured into TypingMaster Settings, forgot passwords can be easily recovered.

The newest feature is SCORM integration, that allows communication between any LMS and TypingMaster.

RESET USER STUDY DATA

The Manager interface allows teacher to reset user data e.g. when school year changes. The clear study data button is visible and allowed only for transferable and concurrent licenses.

MIGRATING INTERNAL DATABASE TO EXTERNAL DATABASE

We have created a tool that will dump the contents of the internal database into a standard sql dump file and allow you to migrate this data to a new SQL server. Please follow these steps to transfer your data to a new database:

First stop your TypingMaster Intra server from the TypingMaster Intra Start -menu. Then download the database dump tool from here: http://download.typingmaster.com/misc/tmintra_db2sql.zip

Unzip this package to the "webapps\tmintra\appdata" subfolder of your TypingMaster Intra installation folder.

(Usually in "C:\Program Files\tmintra\webapps\tmintra\appdata") Once you have done this, run the db2sql.bat

This will create a dump.sql with all the data of the database as SQL INSERT commands.

Now you will need to create a new database for TypingMaster Intra with the new database server you are going to use. Note: Most databases come with administrative tools that let you import SQL data from a dump file. If you have not installed these kinds of tools for your database, do so now.

Create a database and a database user for TypingMaster Intra in your database server. Then create a database structure for the new database by running a database creation script which can be found in the "webapps\tmintra\appdata" subfolder. Run the script which corresponds to your database server. The files are as follows:

MySQL: com.mysql.jdbc.Driver.sql

Oracle: oracle.jdbc.OracleDriver.sql

Other SQL databases: default.sql

Internal HSQLDB database: internal.sql

Note: Before running the script, remove the last statement (INSERT INTO...) because this data is already in your dump-sql data.

You can run the database commands by importing the file as an SQL script/dump file with your database tool. Alternatively you can copy & paste the commands from the script file directly to your SQL console.

Once you have created the structure, import the data by importing the dump.sql file with your database tool. If your database tool does not support importing script/dump files you can try to copy and paste the contents of the file. However, you may have to do this in multiple steps because the file may be too big for the clipboard.

After you have imported your data delete the custom_lmsconfig.properties from your "appdata" subfolder. This file has the old database settings stored. Start the TypingMaster Intra server and go to the web address of your TypingMaster Intra.

You will be taken to the setup screen. Enter the information for your new database. If you have not downloaded a JDBC driver for your database, the setup will guide you in installing this. After you have entered your database

information, you will be taken into the login screen, since the program will notice that your database has already been set up and is running.

Now all your data is moved to the new server and you can log in normally to TypingMaster Intra.

TAKING BACKUPS

TypingMaster Intra provides a backup feature in Manager / Tools page. You should backup your data from time to time.

If you chose to use the Internal Database (the recommended and default option) then the data is stored in (this has the default installation folders):

Windows: C:\Program Files\tmintra3\webapps\tmintra\appdata\backups

Mac OS X: /Applications/tmintra3/webapps/tmintra/appdata/backups

Backing up the entire appdata folder will ensure all your settings and user data are kept. If you are using another database please see your database vendor for instructions on how to backup your information.

However, taking server down for a while may be required if files are locked (it depends on the backup software). This can be automated by a backup script.

LINUX TERMINAL SERVER LTSP – PERFORMANCE INCREASE

To speed up LTSP slowness during screen drawing in Java Applet can be done with these changes on server:

1. Edit /opt/ltsp/i386/etc/lts.conf

add there these 3 rows:

```
[default]
```

```
LDM_DIRECT = true
```

```
X_COLOR_DEPTH = 16
```

2. next, run this command to update the client software (affects next time when terminals restarted):

```
sudo ltsp-update-image
```

This will make things much faster, it also allows the client to not encrypt all the data through SSH.

MASS DELETE/ARCHIVE STUDENT RECORDS

To delete more users at once simply add eg. &limitsize=200 at the end of your TypingMaster Intra / Online URL.

For example, select users tab and go to the address field. Your address looks like this:

<http://online3.typingmaster.com/tmonline3/tmmanager/users>

Replace tmmanager/users with tmmanager/users?limitsize=200. The address will then look like this:

<http://online3.typingmaster.com/tmonline3/tmmanager/users?limitsize=200>

If you already have the 50 user limit in the address, replace tmmanager/users?limit=50 with tmmanager/users?limit=50&limitsize=200 to change the view.

<http://online3.typingmaster.com/tmonline3/tmmanager/users?limit=50>

->

<http://online3.typingmaster.com/tmonline3/tmmanager/users?limit=50&limitsize=200>

INTRA :

If you wish to configure your user view permanently there is a file called lmsconfig.properties that you could edit to show more than 50 users per page, just replace this row:

```
userviewlimit = 50
```

Use notepad or similar tool to edit:

```
c:\Program Files\tmlntra3\webapps\tmlntra\appdata\lmsconfig.properties
```

```
userviewlimit = 200
```

After this you can restart the TypingMaster Intra to take the setting in use.

CUSTOMIZING THE WELCOME PAGE LOGO

Administrator can add company logo into TypingMaster Intra in two different methods:

1: EDITING WELCOME MESSAGE

Any standard HTML IMG tag can be placed to welcome message field that will be shown to users, this field can be edited from Manager/SETTINGS page.

2: CUSTOMIZING SERVER HTML FILES

Another way is to edit directly the login HTML File.

Note that the file is a template file, so avoid breaking the dynamic content and keep a backup.

The file you want to edit is at:

INSTALL DIRECTORY/webapps/tmintra/tmpl_login.html

The logo image file is:

INSTALL DIRECTORY/webapps/tmintra/pictures/logo.gif

SOLVING SERVER INSTALLATION PROBLEMS

SERVER LOG FILES

You can find detailed error messages from the text files with extensions .err and .log located in TypingMaster folder:

"C:\Program Files\tmintra3\logs"

If you need to get more information about error, try to turn on extra logging – just go to:

Windows: C:\Program Files\tmintra\webapps\tmintra\appdata

OS X: /Applications/tmintra/webapps/tmintra/appdata

With a text editor such as Notepad or TextEdit open the file:

Imsconfig.properties.

At the bottom of the text there add the line:

```
loglevel = 5
```

Save and close the file, then stop and start TypingMaster Intra.

Windows: Start Menu > Programs > TypingMaster Intra

OS X: You can do this in the bin folder: /Applications/tmintra/bin/

SETUP PROGRAM MAY NOT START WHEN DEP ENABLED

Setup may not start properly if you have enabled the DEP (Data Execution Prevention) function in your Server. Our cross platform installer cannot load with DEP on, since it needs to create the startup executable dynamically due to the cross platform nature of the installer.

Please disable DEP for the TypingMaster Intra installer file following these instructions. Note that the actual TypingMaster Intra program can run with DEP on, only the installer needs to be added to the list.

1. Log in as the Administrator and open "Start > Settings > Control Panel > System".
2. Click the Advanced tab and, under Performance, click Settings.
3. Click the Data Execution Prevention tab.
4. In the Turn on DEP for all programs and services except those I select list, select the check box next to the program name and click OK. (If the name of the program doesn't appear in the list, click Add, navigate to your Program Files folder, select the program's executable file which will have an .exe file extension, and click OK).

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