

# **ILWIS 2.1 for Windows**

The Integrated Land and Water Information System

## **Installation Guide**

ILWIS Department,  
International Institute for  
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Enschede, The Netherlands

### **ITC**

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# Preface

ILWIS is an acronym for the Integrated Land and Water Information System. It is a Geographic Information System (GIS) with image processing capabilities. ILWIS has been developed by the International Institute for Aerospace Survey and Earth Sciences (ITC), Enschede, The Netherlands. For more than a decade, since 1985, the software has undergone major improvements. The last of which includes the change from DOS to Windows. The release of ILWIS for Windows marks a new era in the development of the software.

As a GIS package, ILWIS allows you to input, manage, analyse and present geographical data. From this data you can generate information on the spatial and temporal patterns and processes on the earth surface.

## The ILWIS media

The ILWIS Installation Guide is part of the documentation for ILWIS 2.1. The full documentation includes:

- **ILWIS Installation Guide.** Instructions for installing ILWIS 2.1 and guidelines for the configuration of the hardware, such as digitizers and printers;
- **ILWIS Beginner's Guide.** A first look at ILWIS, introducing the basic concepts, some essential ILWIS techniques and the main operations included in ILWIS;
- **ILWIS User's Guide.** Training in the skills you need to work with ILWIS. It provides numerous exercises to practice GIS techniques and Image Processing operations;
- **ILWIS Applications Guide.** Advanced procedures to work with ILWIS, providing 25 case studies for various research disciplines;
- **ILWIS Reference Guide.** Detailed description of the functionality of ILWIS including its window types, the objects, the operations, etc., illustrated with tips and examples.

Besides these Guides, extensive on-line and context-sensitive Help is available in the program.

## The ILWIS Installation Guide: Main objectives

The ILWIS Installation Guide is designed for system managers. It contains general information on the package, instructions on the installation of ILWIS 2.1 and the configuration of the hardware.

### Structure of the ILWIS Installation Guide

The ILWIS Installation Guide consists of 5 chapters.

- Chapter one; The ILWIS 2.1 package and related services, contains information on your package and the ILWIS Hardware Key.
- Chapter two; Hardware and software requirements, contains information on minimum and recommended hardware and software requirements and on display drivers.
- Chapter three; Installing ILWIS 2.1, describes the procedure to install ILWIS 2.1 under Windows 3.1 and 95 and contains information on ILWIS 2.1 icons, file structures and the ILWIS 2.1 directories.
- Chapter four; Installation and configuration of digitizers, describes the Set up procedure of a digitizer and contains information on settings for some widely available digitizers.
- Chapter five; Printer and plotter Set up, describes the Set up procedure of a printer and a plotter.

### Conventions used in the ILWIS Installation Guide

This manual is formatted in such a way that the specific actions related to the software are separated from the accompanying text.

- All information that should be supplied by the user is shown in *Courier New 10*, as well as all the names of the objects, programs and the roots.
- For example: `landuse`
- The names of operations, dialog boxes and the options in dialog boxes are shown in *Arial 10*.  
For example: `Options`.

# The ILWIS 2.1 package and related services

## 1.1 The ILWIS 2.1 package

The ILWIS 2.1 package contains the following items:

- 1 sealed CD-ROM, containing the system and accessory data;
- 2 ILWIS Hardware Key (not included when upgrades are involved);
- 3 Installation Guide (this volume);
- 4 Beginner's Guide;
- 5 User's Guide;
- 6 Applications Guide;
- 7 Reference Guide.

If any of these items are missing or damaged, please contact your local distributor or the ILWIS Group.

Before you break the seal of the CD-ROM, carefully read the terms of the ILWIS 2.1 software license agreement (Appendix A). By breaking the seal you signify that you have read this agreement and accept its terms.

## 1.2 Warranty

There is a 60-days warranty on the entire package, starting on the date the package leaves our premises. In the event of notification and return of the defective part(s) within the warranty period, your local distributor or the ILWIS Group will replace the defective part(s).

## 1.3 Delivery on diskette

By default ILWIS 2.1 is delivered on CD-ROM. ILWIS 2.1 is also available on diskette. However against a nominal surcharge. Please note that the diskettes merely contain the ILWIS 2.1 system. Reference data for the Applications Guide, User's Guide and the Demo are available on CD-ROM only. The installation procedure for installing ILWIS 2.1 from diskette is also included in this Installation Guide.

## **1.4 ILWIS hardware key**

The ILWIS 2.1 software package is protected against unauthorised use by a unique hardware key. ILWIS 2.1 software can be executed only when this hardware key is plugged in properly and your unique registration code is entered (see the installation procedure). Do not lose or damage the hardware key, without this key ILWIS 2.1 software can not be activated! Lost or damaged keys will not be replaced. It is recommended to keep a copy of your registration code. Always store the hardware key in a secure place when not in use. We advise users to insure the ILWIS hardware key for the price of the package.

## **1.5 Technical support and software maintenance**

The ILWIS Group provides a Help Desk service to assist users in solving ILWIS 2.1 related problems. However, before requiring this assistance, we advise users to consult the on-line help or documentation first. Questions that require in-depth analysis should be reported through the Customers Services Report Form (Appendix B).

ILWIS Users may obtain a Software Maintenance Contract (SMC). The SMC covers all package improvements released by the ILWIS Group during the contract period. For more information on the SMC, contact your local distributor or the ILWIS Group.

# Hardware and software requirements

## 2.1 Minimum hardware and software requirements

To ensure that ILWIS 2.1 under Windows runs properly you need at least a CPU with 80386 processor, 8 MB RAM, 256 colors graphics board with a resolution of 640x480, a 3 1/2 inch disk drive or a CD-ROM and a mouse. Operating System: Microsoft Windows 3.1 or later.

## 2.2 Recommended hardware and software requirements

To work with ILWIS 2.1 under Windows optimally, we recommend to use a CPU with Pentium processor, 16 MB RAM or more and a 24 bit graphics Windows accelerator board, with a resolution of minimum 1024x768, a 3 1/2 inch disk drive or a CD-ROM and a mouse. Operating System: Microsoft Windows 3.1 or later.

## 2.3 Digitizers, printers and plotters

The most common method to enter spatial data in ILWIS 2.1 is by digitizing a map or any other paper document (e.g. photo-interpretation). To be able to digitize in ILWIS 2.1, a digitizer tablet with a digitizer cursor with a minimum of 4 cursor buttons is needed. For digitizer installation and configuration, see chapter 4. To be able to print or plot maps, graphs and tables, a printer or plotter is needed. For printer and plotter installation, see chapter 5.

## 2.4 Display drivers

ILWIS makes all graphic calls to Windows. Windows and the associated graphic card device drivers then create the graphic output on the screen. Certain problems that people encounter are related to graphic drivers. It is useful to check some issues related to display drivers, this can be done in Windows Set up. Under Options, choose Change System Settings (Windows 3.1) or click Control Panel, double-click Display and click the Settings tab (Windows 95).

- Make sure that you have installed the correct display driver. If you do not know which one to use, the option **Standard display types** should always works. If you experience any display driver errors, please contact your manufacturer.

- To work with ILWIS for Windows you should have a resolution of at least 256 colours (8 bits). When using less colours (16 colours) the display of some of the maps and images will be confusing. In addition it is sometimes not possible to display the results of some operations performed in ILWIS. When you use 256 colours, in general the display quality is satisfactory. However, the display quality of 24 bit images will not be optimal. This may also happen when displaying colour maps in several windows at the same time. Optimal results can be achieved when display drivers are used with 16 or 24 bits.

## 2.5 Required hard disk space

For a full installation from CD-ROM, you need approx. 200 megabytes of hard disk space, from which the system files require approx. 20 megabytes, the Beginner's Guide data approx. 2.7 megabytes, the User's Guide data approx. 65 megabytes, the Applications Guide data approx. 100 megabytes and the Demo approx. 1.5 megabytes .

For a full installation from diskette you need approx. 23 megabytes of hard disk space, from which the system files require approx. 20 megabytes and the Beginner's Guide data approx. 2.7 megabytes.

# Installing ILWIS 2.1

## 3.1 ILWIS 2.1 release notes

The ILWIS software and documentation is updated regularly. The latest changes and other important information about this release are described in the Release Notes, see the `readme.wri` file. This file is found on the CD-ROM or on Disk 1. Read this file before installing the software, because it may contain information that is important for the installation procedure.

## 3.2 Installing ILWIS 2.1 under Windows 3.1

The set up program can be used to:

- Install ILWIS from diskette or CD-ROM.
- To add components that were not previously installed.

Before running the ILWIS set up program, it is strongly recommended that you exit all Windows programs.

When you have started the set up program, you can walk through the different dialog boxes by clicking the Next and Back buttons. If you want to exit the set up program, click the Cancel button.

### 3.2.1 Installation from CD-ROM

1. Place the ILWIS Hardware Key in one of the parallel ports. The selected port can still be used by a printer device simultaneously.
2. Start up the computer and Windows 3.1
3. Insert the CD-ROM into the CD-ROM drive and select Run from the Program Manager File menu.
4. Type:  
D:\setup.exe (where D is the letter of the CD-ROM drive)
5. The installation program is now started, and the Welcome dialog box will open.
6. Read the text in this dialog box, and click Next to open the next dialog box.
7. Read the text in the Information dialog box, and click Next to continue.
8. The Setup Type dialog box opens. Select Hardware key, and click Next to continue.
9. The Restart Windows dialog box opens. To be able to use the Hardware key, you need to restart Windows. Therefore, click OK to reboot the system.
10. Run the set up program again (see step 3 and 4).

11. Go to the **Setup Type** dialog box and select **Software**. Click **Next** to continue.
12. The **Select Components** dialog box opens. Select the components that you want to install by clicking the checkbox in front of the components. A checkmark appears in the checkbox when a component is selected. To deselect a component, click a checkbox again. When a component consists of subdirectories, the **Change** button will become active. Click this button to view the subdirectories so that you can select or deselect them. When you select a component and press the **Change** button, the components subdirectories are automatically selected and visa versa. Click **Next** to continue.
13. The **Select** dialog box opens. Accept the defaults to create new directories or select the directories in which you want to install the program files, the **Beginner's Guide Data**, the **User's Guide data** and the **Applications Guide data**. Click **Next**.
14. The **Select Program Folder** dialog box opens. In this dialog box select the default to create a new ILWIS 2.1 program group or select an existing program group to which the program icons must be added. Click **Next**. ILWIS 2.1 will now be installed. A progress bar appears indicating the status of installation. The installation procedure can be interrupted by pressing the **Cancel** button. During installation ILWIS will try to add `ansi.sys` in the `config.sys` file if not yet included. The setup will search for the `ansi.sys` file on harddisk, and if found will ask the user to confirm addition to the `config.sys` file. In that case a backup will be made. The line in `config.sys` will resemble the line: `device=c:\dos\ansi.sys` The `ansi.sys` driver is used by the **Convert14** program. Although not required, the display of this DOS program will look much better with the driver loaded.
15. When the installation is not interrupted, the **Setup Complete** dialog box opens. Select **Yes, I want to view the Release Notes** and **Yes, I want to register the security key** and click **Finish**.
16. The `readme` file now opens. Read this file and close the Window when you are done.
17. The **Register ILWIS Key** program now starts. Enter your registration code and click **OK**. The registration code is printed on the inside front cover of the **User's Guide**. Note that it is case-sensitive and must therefore be entered **exactly** as written, i.e. with small characters and capitals!
18. When you have installed ILWIS 2.1 correctly and entered your registration code correctly, you can now run ILWIS 2.1. by double-clicking the ILWIS 2.1 icon in the appropriate folder.

### 3.2.2 Installation from diskette

1. Place the ILWIS Hardware Key in one of the parallel ports. The selected port can still be used by a printer device simultaneously.
2. Start up the computer and Windows 3.1
3. Insert disk 1 into the 3 1/2 inch drive and select **Run** from the **Program Manager File** menu.

4. Type:  
A:\setup.exe (where A is the letter of the 3 1/2 inch drive)
5. The installation program is now started, and the **Welcome** dialog box will open.
6. Read the text in this dialog box, and click **Next** to open the next dialog box.
7. Read the text in the **Information** dialog box, and click **Next** to continue.
8. The **Setup Type** dialog box opens. Select **Hardware key**, and click **Next** to continue.
9. The **Restart Windows** dialog box opens. To be able to use the Hardware key, you need to restart Windows. Therefore, click **OK** to reboot the system.
10. Run the set up program again (see step 3 and 4).
11. Go to the **Setup Type** dialog box and select **Software**. Click **Next** to continue.
12. The **Select Components** dialog box opens. Select the components that you want to install by clicking the checkbox in front of the components. A checkmark appears in the checkbox when a component is selected. To deselect a component, click a checkbox again. The **Change** button is inactive, because when you install from diskette there are no subdirectories which you can install. Click **Next** to continue.
13. The **Select** dialog box opens. Accept the defaults to create new directories or select the directories in which you want to install the program files and the **Beginner's Guide Data**. Click **Next**.
14. The **Select Program Folder** dialog box opens. In this dialog box select the default to create a new ILWIS 2.1 program group or select an existing program group to which the program icons must be added. Click **Next**. ILWIS 2.1 will now be installed. A progress bar appears indicating the status of installation. During the installation, the set up program will prompt you which ILWIS 2.1 installation diskette you have to insert sequentially, to complete the installation. The installation procedure can be interrupted by pressing the **Cancel** button. During installation ILWIS will try to add `ansi.sys` in the `config.sys` file if not yet included. The setup will search for the `ansi.sys` file on harddisk, and if found will ask the user to confirm addition to the `config.sys` file. In that case a backup will be made. The line in `config.sys` will resemble the line:  
device=c:\dos\ansi.sys The `ansi.sys` driver is used by the **Convert14** program. Although not required, the display of this DOS program will look much better with the driver loaded.
15. When the installation is not interrupted, the **Setup Complete** dialog box opens. Select **Yes, I want to view the Release Notes** and **Yes, I want to register the security key** and click **Finish**.
16. The `readme` file now opens. Read this file and close the Window when you are done.
17. The **Register ILWIS Key** program now starts. Enter your registration code and click **OK**. The registration code is printed on the inside front cover of the **User's Guide**. Note that it is case-sensitive and must therefore be entered **exactly** as written, i.e. with small characters and capitals!

18. When you have installed ILWIS 2.1 correctly and entered your registration code correctly, you can now run ILWIS 2.1. by double-clicking the ILWIS 2.1 icon in the appropriate folder.

### 3.2.3 Add components to the current installation

If you did not install all ILWIS 2.1 components during the first installation, this can be done afterwards.

To add components:

1. Insert disk 1 or the CD-ROM and select **Run** from the Program Manager File menu.
2. Type:  
X:\setup.exe (where X is the letter of the 3 1/2 inch drive, or CD-ROM drive)
3. Go to the **Setup Type** dialog box opens. Select **Software**, and click **Next** to continue.
4. The **Select Components** dialog box opens. The set up program recognizes previous installed components, therefore you only have to select the components that you want to add. Select these components and click **Next** to continue.
5. The **Select** dialog box opens. Accept the defaults to create new directories or select the directories in which you want to install the new components. Click **Next** to continue. However, when you want to install components which have been previously installed, the **Confirm Delete Directory** dialog box opens. Accept to delete the previously installed components and install the selected components or reject to continue without changing this directory.
6. The **Select Program Folder** dialog box opens. In this dialog box select the default to create a new ILWIS 2.1 program group or select an existing program group to which the new program icons must be added. Click **Next**. The new components will now be installed. A progress bar appears indicating the status of installation. When installing from diskette, the set up program will prompt you which ILWIS 2.1 installation diskette you have to insert sequentially, to complete the installation. The installation procedure can be interrupted by pressing the **Cancel** button.
7. When the installation is not interrupted, the **Setup Complete** dialog box opens. Optionally, select **Yes, I want to view the Release Notes** and click **Finish** or click **Finish** immediately to complete the set up procedure.
8. You can now run ILWIS 2.1. by double-clicking the ILWIS 2.1 icon in the appropriate folder.

### 3.2.4 Uninstalling the ILWIS 2.1 software

To uninstall ILWIS 2.1 double-click the uninstall icon in the program group to which the ILWIS 2.1 icons have been added. All data that has been added to your harddisk by the installation program will now be deleted. Data that has not been added by the installation program (e.g. data that you created) will not be deleted. However, when you created new data using the installed data, make sure that

dependency links are broken. Otherwise, this data will be removed as well. When you delete installed files by other methods, an error message will appear when using uninstall afterwards, however this does not effect the uninstall procedure.

Before using the uninstall option, copy all installed data files that you do not want to remove to another directory.

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Note that you can only uninstall using the same platform as you used to install ILWIS 2.1.

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### **3.3 Installing ILWIS 2.1 under Windows 95**

The set up program can be used to:

- Install ILWIS from diskette or CD-ROM
- To add components that were not previously installed.

Before running the ILWIS set up program, it is strongly recommended that you exit all Windows programs.

When you have started the set up program, you can walk through the different dialog boxes by clicking the **Next** and **Back** buttons. If you want to exit the set up program, click the **Cancel** button.

#### **3.3.1 Installation from CD-ROM**

1. Place the ILWIS Hardware Key in one of the parallel ports. The selected port can still be used by a printer device simultaneously.
2. Start up the computer and Windows 95.
3. Insert the CD-ROM into the CD-ROM drive and select **Run...** from the **Start** menu.
4. Type:  
D:\setup.exe (where D is the letter of the CD-ROM drive)
5. The installation program is now started, and the **Welcome** dialog box will open.
6. Read the text in this dialog box, and click **Next** to open the next dialog box.
7. Read the text in the **Information** dialog box, and click **Next** to continue.
8. The **Setup Type** dialog box opens. Select **Hardware key**, and click **Next** to continue.
9. The **Select Components** dialog box now opens. Select the components that you want to install by clicking the checkbox in front of the components. A checkmark appears in the checkbox when a components is selected. To deselect a component, click a checkbox again. When a component consists of subdirectories, the **Change** button will become active. Click this button to view the subdirectories so that you can select or deselect them. When you select a component and press the **Change** button, the components subdirectories are automatically selected and visa versa. Click **Next** to continue.

10. The **Select** dialog box opens. Accept the defaults to create new directories or select the directories in which you want to install the program files, the Beginner's Guide Data, the User's Guide data and the Applications Guide data. Click **Next**.
11. The **Select Program Folder** dialog box opens. In this dialog box select the default to create a new ILWIS 2.1 folder or select an existing folder to which the program icons must be added. Click **Next**. ILWIS 2.1 will now be installed. A progress bar appears indicating the status of installation. The installation procedure can be interrupted by pressing the **Cancel** button. During installation ILWIS will try to add `ansi.sys` in the `config.sys` file if not yet included. The setup will search for the `ansi.sys` file on harddisk, and if found will ask the user to confirm addition to the `config.sys` file. In that case a backup will be made. The line in `config.sys` will resemble the line:  
device=c:\windows\command\ansi.sys The ansi.sys driver is used by the **Convert14** program. Although not required, the display of this DOS program will look much better with the driver loaded.
12. When the installation is not interrupted, the **Setup Complete** dialog box opens. Select **Yes, I want to view the Release Notes** and **Yes, I want to register the security key** and click **Finish**.
13. The `readme` file now opens. Read this file and close the Window when you are done.
14. The **Register ILWIS Key** program now starts. Enter your registration code and click **OK**. The registration code is printed on the inside front cover of the User's Guide. Note that it is case-sensitive and must therefore be entered **exactly** as written, i.e. with small characters and capitals!
15. When you have installed ILWIS 2.1 correctly and entered your registration code correctly, you can now run ILWIS 2.1. by double-clicking the ILWIS 2.1 icon in the appropriate folder.

### 3.3.2 Installation from diskette

1. Place the ILWIS Hardware Key in one of the parallel ports. The selected port can still be used by a printer device simultaneously.
2. Start up the computer and Windows 95.
3. Insert disk 1 into the 3 1/2 inch drive and select **Run...** from the **Start** menu.
4. Type:  
`A:\setup.exe` (where A is the letter of the 3 1/2 inch drive).
5. The installation program is now started, and the **Welcome** dialog box will open.
6. Read the text in this dialog box, and click **Next** to open the next dialog box.
7. Read the text in the **Information** dialog box, and click **Next** to continue.
8. The **Setup Type** dialog box opens. Select **Hardware key**, and select the **Register code** checkbox by clicking it. Click **Next** to continue.
9. The **Select Components** dialog box now opens. Select the components that you want to install by clicking the checkbox in front of the components. A checkmark appears in the checkbox when a components is selected. To

deselect a component, click a checkbox again. The **Change** button is inactive, because when you install from diskette there are no subdirectories which you can install. Click **Next** to continue.

10. The **Select** dialog box opens. Accept the defaults to create new directories or select the directories in which you want to install the program files and the Beginner's Guide Data. Click **Next**.
11. The **Select Program Folder** dialog box opens. In this dialog box select the default to create a new ILWIS 2.1 folder or select an existing folder to which the program icons must be added. Click **Next**. ILWIS 2.1 will now be installed. A progress bar appears indicating the status of installation. During the installation, the set up program will prompt you which ILWIS 2.1 installation diskette you have to insert sequentially, to complete the installation. The installation procedure can be interrupted by pressing the **Cancel** button. During installation ILWIS will try to add `ansi.sys` in the `config.sys` file if not yet included. The setup will search for the `ansi.sys` file on harddisk, and if found will ask the user to confirm addition to the `config.sys` file. In that case a backup will be made. The line in `config.sys` will resemble the line:  
`device=c:\windows\command\ansi.sys` The `ansi.sys` driver is used by the **Convert14** program. Although not required, the display of this DOS program will look much better with the driver loaded.
12. When the installation is not interrupted, the **Setup Complete** dialog box opens. Select **Yes, I want to view the Release Notes** and **Yes, I want to register the security key** and click **Finish**.
13. The readme file now opens. Read this file and close the Window when you are done.
14. The **Register ILWIS Key** program now starts. Enter your registration code and click **OK**. The registration code is printed on the inside front cover of the User's Guide. Note that it is case-sensitive and must therefore be entered **exactly** as written, i.e. with small characters and capitals!
15. When you have installed ILWIS 2.1 correctly and entered your registration code correctly, you can now run ILWIS 2.1. by double-clicking the ILWIS 2.1 icon in the appropriate folder.

### 3.3.3 Add components to the current installation

If you did not install all ILWIS 2.1 components in the first installation, this can be done afterwards.

To add components:

1. Insert disk 1 or the CD-ROM and select **Run...** from the **Start** menu.
2. Type:  
`X:\setup.exe` (where `X` is the letter of the 3 1/2 inch drive, or CD-ROM drive)
3. Go to the **Setup Type** dialog box opens. Select **Software**, and click **Next** to continue.

4. The **Select Components** dialog box now opens. The set up program recognizes previous installed components, therefore you only have to select the components that you want to add. Select these components and click **Next** to continue.
5. The **Select** dialog box opens. Accept the defaults to create new directories or select the directories in which you want to install the new components. Click **Next** to continue. However, when you want to install components which have been previously installed, the **Confirm Delete Directory** dialog box opens. Accept to delete the previously installed components and install the selected components or reject to continue without changing this directory.
6. The **Select Program Folder** dialog box opens. In this dialog box select the default to create a new ILWIS 2.1 folder or select an existing folder to which the new program icons must be added. Click **Next**. The new components will now be installed. A progress bar appears indicating the status of installation. When installing from diskette, the set up program will prompt you which ILWIS 2.1 installation diskette you have to insert sequentially, to complete the installation. The installation procedure can be interrupted by pressing the **Cancel** button.
7. When the installation is not interrupted, the **Setup Complete** dialog box opens. Optionally, select **Yes, I want to view the Release Notes** and click **Finish** or click **Finish** immediately to complete the set up procedure.
8. You can now run ILWIS 2.1. by double-clicking the ILWIS 2.1 icon in the appropriate folder.

### 3.3.4 Uninstalling the ILWIS 2.1 software

To uninstall ILWIS 2.1 double-click the uninstall icon in the folder to which the ILWIS 2.1 icons have been added. All data that has been added to your harddisk by the installation program will now be deleted. Data that has not been added by the installation program (e.g. data that you created) will not be deleted. However, when you created new data using the installed data, make sure that dependency links are broken. Otherwise, this data will be removed as well. When you delete installed files by other methods, an error message will appear when using uninstall afterwards, however this does not effect the uninstall procedure. Before using the uninstall option, copy all installed data files that you do not want to remove to another directory.

---

Note that you can only uninstall using the same platform as you used to install ILWIS 2.1.

---

## 3.4 After installation from CD-ROM

### 3.4.1 ILWIS icons

When a full installation is performed, i.e. when all ILWIS 2.1 components are installed, the new folder ILWIS 2.1 or the selected folder will contain the following icons (Windows 3.1 format):



Double-click this icon to start ILWIS 2.1, with the Beginner's Guide data directory as the Start up directory;



Ilwis Help

Double-click this icon to open the on-line help file;



Operations Reference

Double-click this icon to open the Operation Reference help file;



Ilwis Menu Reference

Double-click this icon to open the ILWIS Menu Reference help file;



Ilwis 2.1 Release Notes

Double-click this icon to display the release notes;



Register Ilwis key

Double-click this icon to start the ILWIS Hardware Key registration program;



Uninstall Ilwis 2.1

Double-click this icon to start the uninstall program.



Ilwis Demo

Double-click this icon to start the ILWIS 2.1 demo, see chapter 3.8.

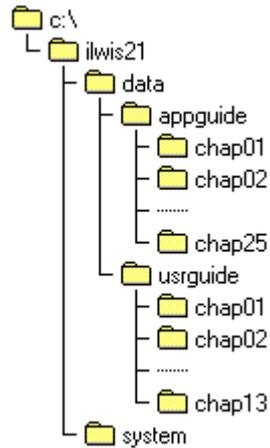
### 3.4.2 File structure

The following files are added or changed:

- An ILWIS 2.1 directory is added to the root;
- In your windows directory an ILWIS.INI file is added;
- In the SYSTEM.INI file a hardlock virtual device driver is added. In addition a 386ENH device line is added (Windows 3.1).

### 3.4.3 ILWIS 2.1 directory structure

The ILWIS 2.1 directories will have the following structure:



Where `c:\` is the drive and `ILWIS21` the directory on which you installed ILWIS 2.1. The files in each `chap` subdirectory correspond to the files needed for each guide chapter.

If you did not perform a full installation, consequentially some chapters or guides are not installed and therefore not part of the structure.

## 3.5 After installation from diskette

### 3.5.1 ILWIS icons

When a full installation is performed, i.e. when all ILWIS 2.1 components are installed, the new folder ILWIS 2.1 or the selected folder will contain the following icons (Windows 3.1 format):



Double-click this icon to start ILWIS 2.1, with the Beginner's Guide data directory as the Start up directory;



Double-click this icon to open the on-line help file;



Double-click this icon to open the Operations Reference help file;



Double-click this icon to open the ILWIS Menu Reference help file;



Double-click this icon to display the release notes;



Double-click this icon to start the ILWIS Hardware Key registration program;



Double-click this icon to start the uninstall program.

### 3.5.2 File structure

The following files are added or changed:

- An ILWIS 2.1 directory is added to the root;
- In your windows directory an ILWIS.INI file is added;
- In the SYSTEM . INI file a hardlock virtual device driver is added. In addition a 386ENH device line is added (Windows 3.1).

### 3.5.3 ILWIS 2.1 directory structure

The ILWIS 2.1 directories will have the following structure:



Where `c:\` is the drive and `ILWIS21` the directory on which you installed ILWIS 2.1.

### 3.6 Viewing ILWIS documentation pdf files

The directory `\doc` on the CD-ROM contains the text files of the ILWIS documentation, stored in `.pdf` format, and the Adobe Acrobat reader 3.0. The Adobe Acrobat Reader 3.0 is used with permission of Adobe Systems Incorporated. The directory has the following structure:

|                       |                                                                                                                                                                                                                                                                                                                    |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>readpdf</code>  | This directory contains the Adobe Acrobat reader for the <code>.pdf</code> files and consists of two subdirectories:<br>16bit: for installing the Adobe Acrobat reader under Windows 3.1<br>32bit: for installing the Adobe Acrobat reader under Windows 95.                                                       |
| <code>appguide</code> | The 25 chapters of the ILWIS Applications guide, stored as <code>appch00.pdf</code> (contents and preface), <code>appch01.pdf</code> (chapter 1) to <code>appch25.pdf</code> (chapter 25).                                                                                                                         |
| <code>bgnguide</code> | The file <code>bgnguide.pdf</code> contains the text of the ILWIS Beginner's guide.                                                                                                                                                                                                                                |
| <code>insguide</code> | The file <code>insguide.pdf</code> contains the text of the ILWIS Installation guide.                                                                                                                                                                                                                              |
| <code>refguide</code> | Because of problems during converting to <code>.pdf</code> files this file is not complete. This file contains the 8 chapters and some appendices of the ILWIS Reference Guide, stored as <code>refch01.pdf</code> (chapter 1) to <code>refch08.pdf</code> (chapter 8) and <code>refappen.pdf</code> (appendices). |
| <code>usrguide</code> | The 13 chapters of the ILWIS User's Guide, stored as <code>usrch00.pdf</code> (contents and preface), <code>usrch01.pdf</code> (chapter 1) to <code>usrch13.pdf</code> (chapter 13) and <code>usrindex.pdf</code> (index).                                                                                         |

#### 3.6.1 Installing the Adobe Acrobat pdf reader under Windows 3.1

1. Insert the CD-ROM into the CD-ROM drive and select Run from the Program Manager File menu.
2. Type:  
`D:\doc\16bit\setup` (where D is the letter of the CD-ROM drive)
3. Follow the instructions of the set up program.

The set up program will create a program group Adobe Acrobat on your harddisk, and it will associate .pdf files with the Adobe Acrobat Reader. After that you can open the .pdf files and look at their contents. There is no need to copy the .pdf files to the harddisk, they can be viewed from the CD-ROM. You can also print and copy the files or parts from it.

### 3.6.2 Installing the Adobe Acrobat pdf reader under Windows 95

1. Insert the CD-ROM into the CD-ROM drive and select Run... from the Start menu.
2. Type:  
D:\doc\32bit\setup (where D is the letter of the CD-ROM drive)
3. Follow the instructions of the set up program.

The set up program will create a program group Adobe Acrobat on your harddisk, and it will associate .pdf files with the Adobe Acrobat Reader. After that you can open the .pdf files and look at their contents. There is no need to copy the .pdf files to the harddisk, they can be viewed from the CD-ROM. You can also print and copy the files or parts from it.

## 3.7 Starting the ILWIS Demo

The ILWIS 2.1 Demonstration can run from the ILWIS 2.1 CD-ROM or from the harddisk. To run the demonstration from the harddisk, copy the \demo directory from the ILWIS 2.1 CD-ROM to the harddisk. The demonstration performs best using small fonts and a screen resolution of at least 800\*600 with 256 colors.

To run the demonstration:

1. Insert the ILWIS 2.1 CD-ROM into the CD-ROM drive (when you want to run the demonstration from CD-ROM).
2. Double-click the ilwisdem.exe file in the \demo directory on the CD-ROM or in the directory to which you copied the \demo directory; the demonstration is now started.

Or when you have installed ILWIS 2.1:

1. Insert the ILWIS 2.1 CD-ROM into the CD-ROM drive.
2. Double-click the ILWIS Demo Icon in the folder where ILWIS 2.1 has been installed; the demonstration is now started.

During the demonstration different menu items can be selected. When selectable, the item will highlight and a mouse pointer will appear in front of it when the mouse pointer is moved over the item. When highlighted, press the left mouse button to activate the item. Also, the following buttons can be pressed during the demonstration:

|           |                                                        |
|-----------|--------------------------------------------------------|
| Main Menu | Return to the Main Menu.                               |
| Next >    | Proceed to the next form.                              |
| < Prev.   | Return to the previous form.                           |
| Exit      | Exit the demonstration.                                |
| OK        | Exit the current item and return to the previous menu. |
| Show      | View an example of the current item.                   |

To view only parts of the demonstration, double-click the .exe file of this part in the \demo directory on the ILWIS 2.1 CD-ROM. The Lotus ScreenCam options can now be used (Pauze, Afsp (Play), Rew, FF and Afsl (Exit)).

---

# Installation and configuration of digitizers

The most common method to enter spatial data in ILWIS 2.1 is by digitizing a map or any other paper document (e.g. photo-interpretation). To use a digitizer, it must be properly installed and configured first. Depending on the type of digitizer used, it can be configured manually or with the use of a WinTab driver. A WinTab driver usually is supplied by the digitizer manufacturer. Using a WinTab driver is advised because it makes it easier to set up your digitizer and the digitizer can be used for other applications too.

## 4.1 Set up your digitizer using a WinTab driver

1. Connect all cables of the digitizer to the proper components.
2. Install the WinTab driver (see your digitizer manual or WinTab documentation).
3. Start ILWIS 2.1.
4. In the Main window, open the Options menu, choose Digitizer, Setup Digitizer. The Setup Digitizer dialog box appears.
5. Select the WinTab option to configure your digitizer.
6. You can now reference your map (see [How to reference a map](#) in the Reference Guide) and start digitizing (see [How to digitize](#) in Reference Guide).

---

When you start Windows after you have installed the WinTab driver and the digitizer is disconnected or switched off, an error message is displayed because Windows can not detect the tablet. If you continue, the digitizer cannot be used, unless you connect and/or switch on the tablet and reboot your system.

---

## 4.2 Set up your digitizer manually

1. Connect all cables of the digitizer to the proper components.
2. Configure your digitizer, using the configuration software and/or the digitizer dip switches. Make sure that the digitizer:
  - is set in stream (run) mode (sometimes called continuous mode),
  - sends data in ASCII format,
  - gives Carriage Return (cr) and/or Line Feed (lf),
  - sends data using serial communication (rs-232-c),
  - supports Xon/Xoff signals.

3. Write down the configuration for the Baud Rate, Parity, DataBits and Stop Bits and the Resolution (lines per inch or per mm). For more information, refer to your digitizer manual or chapter 3.3, where the settings for some widely available digitizers are described.
4. Up till this stage, you do not need ILWIS yet!
5. Start ILWIS 2.1.
6. In the Main window, open the Options menu, choose Digitizer, Setup Digitizer. The Setup Digitizer dialog box appears.
7. Select the serial port (COM1 to COM4) to which your digitizer is connected. A message box now appears which lists the communication settings of the selected port (baud rate, parity, data bits, stop bits, flow control).
8. Make sure that these port settings are **exactly** the same as the communication settings of your digitizer, which you wrote down at step 3. If these settings are exactly the same press **yes** to open the Setup digitizer dialog box and continue with step 8. When the settings do not match press **No** to open the Control Panel (Windows 3.1) or the System Properties (Windows 95), and change the Port settings until they match with the digitizer configuration. Go back to step 5.
9. When communication is established between the digitizer and the port, the coordinates are displayed as readable numbers that change when the digitizer cursor is moved. Continue with step 10. If this is not the case, check the set up of the digitizer tablet itself, and change the port settings accordingly to the digitizer settings until you have communication. When you do have communication, but not in readable numbers, it is most likely that you did not configure the digitizer in ASCII mode or that wrong port settings are selected. If so, reconfigure the digitizer in ASCII mode or change the port settings.
10. Follow the displayed instructions for automatic set up; press the digitizer cursor buttons which you want to use as buttons 0, 1, 2 and 3 (Press the button you want to use as 0 button, when asked **Press Button 0**, etc.). Remember the sequence you have entered, because these are the buttons you have to press to execute the command following a 0, 1, 2 or 3 in the different Digitizer Menus of the editors. After you have entered the sequence, continue with step 10. If for some reason the automatic set up does not work, it is also possible to do the set up manually. Click the **manual** button in the Setup Digitizer dialog box. You can now enter the format and the flag codes in the dialog box. These can be obtained by analysing the received coordinates in the second dialog box. These contain the amount of characters, the position and amount of the X and Y characters and the flag codes. Move the cursor horizontally and vertically over the tablet to obtain X and Y position. The flag codes can be obtained by pressing the cursor buttons sequentially. The corresponding characters will show on the flag codes position.

Received Coordinates:

03791,07676,0

Means:

Format: XXXX,YYYY,c

(Format: X characters, Y characters, flag codes)

Flag Codes: 1248 (depending on the tablet you use)

And thus:

Nr chars: the amount of characters in the format is 11

X Pos: the start position of the first X character is 1

X Length: the amount of X characters of the format is 4

Y Pos: the start position of the first Y character is 6

Y Length: the amount of Y characters of the format is 4

Flag Pos: the position of the flag codes is 11

Flag Codes: the flag codes are 1248

Note that all characters are counted as positions. You can also find the format and flag codes in your digitizer manual. You can now enter the format and flag codes in the dialog box and click OK to continue with step 10.

11. In the upper part of the **Setup Digitizer Size** dialog box (see figure 1): check if all buttons work, and check whether the X-values increase by moving the digitizer cursor to the right, and Y-values increase by moving the cursor up. If the communication is not correct, press CANCEL to return to the previous dialog box and change until the communication is correct. When you have good communication, fill out the resolution (lines per inch or per mm) that the digitizer is using and the size of the digitizer. Remember to enter the same resolution, as you have configured for your digitizer. The resolution can be checked by locating the digitizer cursor in the upper right corner of the tablet. The received X and Y coordinates (in mm or inch) mentioned under the **Lines per mm** (or inch) option should now be equal to the filled out digitizer size (at the bottom of the dialog box). If the resolution is not correctly specified, an incorrect scale will be displayed during Map Referencing. Check the feedback you obtain in the lower part of the dialog box and make changes until satisfied.

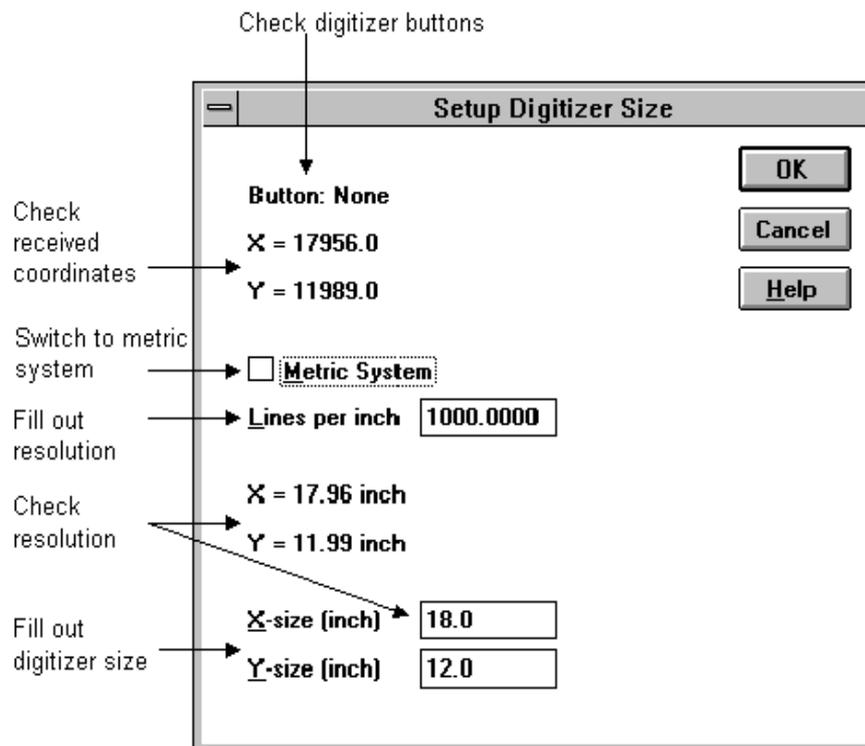


Fig. 1. Setup Digitizer Size dialog box.

12. Reference your map (see [How to reference a map](#) in the Reference Guide) and start digitizing (see [How to digitize](#) in the Reference Guide).

### 4.3 Settings for some widely available digitizers

The next pages list possible configurations of some well known digitizers. Note that these are just suggestions; digitizers can often be configured for several data formats. This appendix only presents one of the possibilities. Other configurations may well be possible. Note that the set up is not always automatically saved, this depends on the type of digitizer used. In some cases, it may well be possible that you have to reconfigure your digitizer every time you use ILWIS! Read your digitizer manual for more information.

---

If your digitizer does not store the set up, put the set up command in the autoexecute.bat.

### 4.3.1 4.3.1 CalComp 2000

Dip switch settings:

|    | 1    | 2     | 3     | 4    | 5     | 6     | 7    | 8    | 9     |
|----|------|-------|-------|------|-------|-------|------|------|-------|
| S1 | open | open  | close | open | close | close | open | open | open  |
| S2 | open | close | open  | open | close | close | open | open | close |
| S3 | open | open  | open  | open | open  | open  | open | open | close |

This configures the digitizer for the following set up:

Baud Rate 9600, Even Parity, 7 Data Bits, 1 Stop Bit and Resolution 1000 lines per inch.

Format: XXXX,YYYY,c

Flag Codes: 1248

### 4.3.2 CalComp Drawing Board 2

All sizes, using the set up menu.

Menu settings:

|        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|
| bank A | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  |
| bank B | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

This configures the digitizer for the following set up:

Baud Rate 9600, Even Parity, 7 Data Bits, 2 Stop Bits and Resolution 1000 lines per inch.

Format: XXXXX,YYYYY,c

Flag Codes: 1248

### 4.3.3 CalComp Drawing Board 3

All sizes, using the set up menu.

Menu settings:

|        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|
| bank A | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  |
| bank B | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| bank C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |

This configures the digitizer for the following set up:

Baud Rate 9600, Even Parity, 7 Data Bits, 2 Stop Bits and Resolution 1000 lines per inch.

Format: XXXXX,YYYYY,c

Flag Codes: 1248

### 4.3.4 Numonics 2205 (12"x12") / 2206 (12"x17")

Dip switch settings:

|     |     |     |    |    |    |     |    |
|-----|-----|-----|----|----|----|-----|----|
| 1   | 2   | 3   | 4  | 5  | 6  | 7   | 8  |
| off | off | off | on | on | on | off | on |

This configures the digitizer for the following set up:

Baud Rate 9600, Even Parity, 7 Data Bits, 2 Stop Bits and Resolution 200 lines per inch.

Format: XXXX,YYYY,c

Flag Codes: 1234

### 4.3.5 Numonics 2207

The program SETTAB.COM, which is a content of your digitizer package, is needed to configure your digitizer.

To configure:

Go in DOS to the directory where SETTAB.COM is located.

Type:

```
SETTAB ASCII 7E COM1
```

(enter)

The digitizer is now configured. This will set your digitizer on ASCII format, with 7 data bits and even parity on comport 1. Make sure that the tablet is attached to the specified Comport (here: COM 1). If the tablet is attached to another Comport, change the 1 in the formula in the Comport no. used (e.g. 2).

Then RESTART Windows (NOT your computer!) and start ILWIS.

This configures the digitizer for the following set up:

Comport 1, Baud Rate 9600, Even Parity, 7 Data Bits, 2 Stop Bits and Resolution 200 lines per inch.

Format: XXXX,YYYY,c

Flag Codes: 1248

### 4.3.6 Numonics GraphicMaster

To configure the digitizer for ILWIS:

This digitizer can be configured with Softkey Selection (See the digitizer manual).

First align the Numonics set up Sheet with the bottom left side of the digitizer.

Then remove the digitizer cursor. Install the cursor again, but when you do this, keep one cursor button pressed down. The set up Menu is now active. Select Baud Rate 9600, 8 Data Bits, None Parity, 1 Stop Bit, Enable XON/XOFF, Stream Mode, Stream Rate 20, Metric Resolution 10 (not higher, or the format changes) and Standard Formats S-BP1 ASCII.

Exit with Save Configuration.

This configures the digitizer for the following set up:

Baud Rate 9600, None Parity, 8 Data Bits, 1 Stop Bit and Metric Resolution 10 lines per mm.

Format: XXXX,YYYY,c

Flag Codes: 1248

### 4.3.7 Numonics GraphicMasterII

To configure the digitizer for ILWIS:

This digitizer can be configured with Softkey Selection (See the digitizer manual).

First align the Numonics set up Sheet with the bottom left side of the digitizer.

Then place the cursor over the Softkey labelled set up. The beeper will emit a continuous series of beeps. Press and hold any cursor button, until the beeper stops.

The set up Menu is now active. Select Standard Formats S-BPII ASCII, Baud Rate 9600, 7 Data Bits, Even Parity, 2 Stop Bit, Enable XON/XOFF, Stream Mode, Stream Rate 20, Metric Resolution 10 (not higher, or the format changes).

Exit with Confirm Change or Save to.

This configures the digitizer for the following set up:

Baud Rate 9600, Even Parity, 7 Data Bits, 2 Stop Bits and Resolution 200 lines per inch.

Format: XXXX,YYYY,c

Flag Codes: 1248

### 4.3.8 SummaSketch II

The SummaSketch does not have the possibility to store a configuration. The programs SEND.COM and MMRST.COM, which are a content of your digitizer package, are needed to configure your digitizer.

To configure:

Go in DOS to the directory where SEND.COM and MMRST.COM are located.

Type:

```
mmrst /1
```

```
send /1 /Cza@
```

(enter)

The digitizer is now configured. Make sure that the tablet is attached to the specified Comport (here: COM 1). If the tablet is attached to another Comport, change the 1 in the formula in the Comport no. used (e.g. 2).

This configures the digitizer for the following set up:

Comport 1, Baud Rate 9600, Odd Parity, 8 Data Bits, 1 Stop Bit and Resolution 20 lines per mm.

Format: XXXX,YYYY,c



## Printer and plotter setup

In ILWIS a printer and/or plotter is necessary to generate output of maps and images. This chapter describes the steps to take to set up a printer or a plotter. Note that using a plotter under Windows may cause problems, we therefore recommend to create a plot file instead and send this to the plotter.

We will only describe the set up procedure for a printer. Since the set up procedure for printer and plotter is identical, simply read “plotter” instead of “printer” for plotter set up.

Set up your printer:

1. Connect all cables of the printer to the proper components. Make sure that you connect a parallel to a parallel port and a serial printer to a serial port!
2. Install the printer driver (see your printer manual and/or Windows documentation).
3. Configure your printer using the printers configuration software and/or dip switches. For more information about the configuration, see the printer manual.
4. Start ILWIS.
5. Open the Printer Setup dialog box: open the File menu of a graph window, table window or a map window, and select the option Printer Setup. Fill out the following options:

- |                   |                                                                                                                                                                                     |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Default printer:  | Select this option as the printer that you want to use is set as the default, or                                                                                                    |
| Specific printer: | Select the printer you want to use; ILWIS only lists installed printer drivers.                                                                                                     |
| Orientation:      | Select the orientation of the paper in relation to the map(s) you want to print:                                                                                                    |
| Portrait:         | Vertical paper orientation.                                                                                                                                                         |
| Landscape:        | Horizontal paper orientation.                                                                                                                                                       |
| Paper:            | Select the paper size and the source of the paper:                                                                                                                                  |
| Paper size:       | Select the paper size for the selected printer, e.g. A4 or A3, or another paper size appearing in the drop-down list box. The paper sizes that appear depend on the printer driver. |
| Source:           | Select the paper source for the selected printer. The paper sources that appear in the drop-down list box depend on the printer driver.                                             |
| Options button:   | Controls printer settings for the printer you select in the Specific Printers list. The available options vary depending                                                            |

on the printer driver. To get Help for the selected printer, choose the Options button, and then choose the Help button.

Network button: Connects your computer to a network printer. The Network button is available only if your computer is connected to a network. To get Help on network printers, choose the Network button, and then choose the Help button.

6. Click the **OK** button to finish the set up, or the **Cancel** button to return without changes.
7. You can now print, see the Reference Guide : How to print maps, tables and annotation.

# ILWIS 2.1 Software License Agreement

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Appendix B

# Customers Services Report Form

Please send a copy of the form to :

**ITC**  
**ILWIS Help desk**  
**P.O. Box 6**  
**7500 AA Enschede**  
**The Netherlands**  
**Fax : +31 53 4874484**  
**E-mail : ILWIS@itc.nl**

Key:.....  
License:.....  
Version:.....

Name.....  
Organization:.....  
Address:.....  
Country:.....  
Telephone:.....  
Fax:.....  
E-mail:.....

Define your problems :

Problem type:

- Computer reboots
- Computer crashes
- Program quits at unexpected moment
- Error message, namely :.....
- Incorrect results

Problem frequency:

- Regularly
- Irregularly
- Data related
- In connection with:.....

Hardware used and platform type:.....  
.....  
.....  
.....  
.....  
.....  
.....

Operations in use:.....  
.....  
.....  
.....  
.....  
.....  
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.....

Specify procedure in detail:.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

Expected results:.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

What happened, please specify in detail:.....  
.....  
.....  
.....  
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.....  
.....  
.....

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