

# IRI Software Installation Guide

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# IRI SOFTWARE INSTALLATION GUIDE

## Table of Contents

IRI Products .....	1
Minimum System Requirements .....	2
Platforms Supported .....	2
Installing CoSort on Unix and Linux Operating Systems .....	3
Installing Workbench on Linux and Unix .....	8
Installing CoSort and IRI Workbench on Windows .....	9
Installing DarkShield .....	25
Getting Started with IRI Workbench .....	29
Installing Third-Party CoSort Plug-ins .....	36
Install NextForm on Windows with or without COBOL .....	37
Installing CellShield EE .....	41
Installing FACT .....	45
We Need Your Input .....	46

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## IRI Products

### **sortcl**

**sortcl** is the executable used for **CoSort**, **NextForm**, **FieldShield**, **DarkShield**, and **RowGen** operations, which are all supported in the IRI Voracity data platform. Therefore, use the CoSort install procedure for all of these.

### **IRI Data Manager Suite**

- **CoSort** uses **sortcl** to execute scripts that can be created in IRI Workbench. These scripts can filter, join, aggregate, and perform many more functions.
- **NextForm** uses **sortcl** to remap data, convert data types, and change the endianness of data in fields and columns. At the same time it facilitates file, database, and platform migrations.
- **RowGen** uses **sortcl** to execute scripts that can create fake data that emulates real data. These scripts can be created in IRI Workbench.
- **FACT** is used to extract large database tables to flat files using SQL queries that can be done using parallelism.

### **IRI Data Protector Suite**

- **FieldShield** uses the **sortcl** executable and IRI Workbench to locate, categorize, risk-score, and de-identify sensitive data such as PII.
- **DarkShield** relies on **sortcl** for licensing, but uses a Java RPC API that is called programmatically from the command line, or from IRI Workbench. It is used to discover, extract, mask and report on sensitive data in structured, semi-structured, and unstructured sources.
- **CellShield EE** is an add-in product for Excel that finds, reports on, and masks PII and is used in conjunction with IRI Workbench.

### **IRI Workbench**

**IRI Workbench** is an Eclipse IDE used to discover data, and to design and manage **sortcl**-compatible jobs for the components of the Data Manager and Data Protector products.

### **NextForm Special Versions**

To install these, see the instructions at [www.iri.com/nextform](http://www.iri.com/nextform).

<b>Lite</b>	Includes the NextForm executable.
<b>COBOL</b>	Includes Lite and Micro Focus libraries.

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## Minimum System Requirements

The minimum requirements to run any IRI software using **sortcl** is as follows:

- 40MB RAM but can require up to 4GB with IRI Workbench. This is especially true for **FieldShield** and **DarkShield** users when enumerating tables and annotations.
- 150MHz CPU speed
- Hard drive space should allow for at least 3X the size of the largest input file that will be accessed at any given time. It needs 1X for the input file(s), 1X for the temporary files that are generated at runtime, and 1X for the output file(s)
- **CoSort** supports several processor architectures, including:
  - Alpha EV4-6
  - IBM POWER3-8
  - MIPS
  - PA-RISC1.1-2.0w
  - SPARC
  - UltraSPARC
  - ia64
  - ppc and ppc64
  - s390 and s390x for zlinux
  - x86 and x86-64

For a complete, up-to-date list of supported platforms and processor architectures, visit [www.iri.com](http://www.iri.com), or refer to the Compatible Platforms section in the Introduction chapter of the *CoSort User Manual & Programmer's Guide*.

## Platforms Supported

Platforms compatible with IRI software products include:

- AIX 5.1 and above on IBM Power architecture
- HP-UX 11.0 and above on the Intel Itanium architecture
- Linux kernel 2.6 and above on Intel x86 & x64 and ARMv6
- Linux kernel 2.6 and above on ARMv6 and above architecture
- Solaris 5.8 and above on Sun Sparc architecture
- Solaris 10 on Intel x64 architecture
- Windows 7 and above on Intel x86 & x64 architecture
- Windows Server 2003 and above on Intel x86 & x64 architecture

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## Installing CoSort on Unix and Linux Operating Systems

The installation of **sortcl** is required if you purchased products that include **CoSort**, **FieldShield**, **RowGen**, or **NextForm**.

Refer to *Platforms* on page 23 for more operating system-specific configuration instructions.

If upgrading, it is not necessary or advisable to remove your existing version. To test a new **CoSort** version on the same system, modify the value of **\$COSORT\_HOME** to the installation path of the version you want to run.

### Loading

1. Obtain the files **cosort-installer.sh** and **CoSort110x.platform.tar.gz** from your IRI representative.
2. In binary mode, move these files to the machine on which the **CoSort** product will be licensed.
3. Enter: `sh cosort-installer.sh CoSort105x.platform.tar.gz`

### Installation and Registration

Answer all the following prompts:

Specify `COSORT_HOME`. This is the directory for the CoSort software:

Enter the full path name that will contain the **CoSort** installation directory and subdirectories, or press **Enter** to accept the default **cosort110** that is shown in the prompt.

Would you like to view the Release Notes (readme) now? (y/n)

If installing this version of **CoSort** for the first time, select `y` to view the readme file for known issues. Details on product changes and enhancements since the prior version are included. Scroll through the file by pressing any key.

Otherwise, select `n` to continue.

Would you like to run "bin/cs\_setup" now ? (y/n)

You must run **cs\_setup** in order to register, license, and tune **sortcl**. If you choose not to run **cs\_setup** at this time, select `n`. You are instructed on how to run **cs\_setup** in the future when you are ready.

To run **cs\_setup**, enter `y`.

---

## Running Setup from the Command Line

**cs\_setup** is located in the **\$COSORT\_HOME/bin** directory. After executing **cs\_setup**, the **CoSort Setup** screen opens with the following options available:

- 1.First Time Setup
- 2.Update License
- 3.Tune CoSort
- 4.Exit

1. Select **First Time Setup**. Complete all of the relevant fields in the CoSort Customer Registration Form. This form is required to obtain license keys. **Do not** use a Customer Registration Form that was created on another computer! This will result with you receiving invalid license keys.

Upon completion, a **RegForm.txt** file will appear in the *installation/bin* directory (**\$COSORT\_HOME/bin**) that you specified earlier. E-mail the **\$COSORT\_HOME/bin/RegForm.txt** and **\$COSORT\_HOME/etc/cosort.rc** to *licenses@iri.com*. Note that you can edit this form with a text editor after the setup process is complete.

2. After pressing enter for the last item in the RegForm, a menu of resource control (RC) options displays. These are:
  1. **THREAD\_MAX**  
This sets the total number of cores (Number of CPUs X Cores per CPU) that were entered in the RegForm. Typically this is set to the number of THREADS that are purchased with your license. A higher setting will result in a license violation error at runtime.
  2. **THREAD\_MIN**  
This sets the minimum number of threads for running a job. The default is 1.
  3. **MEMORY\_MAX**  
This sets the upper memory limit used for in-memory sorts before data overflows to disk-based temporary files. Default is AUTO. This provides the best performance when running a single instance of **sortcl**. MINIMIZE provides the best performance when running multiple instances of **sortcl** jobs simultaneously. You can also set this to a literal value or percentage of RAM.
  4. **WORK\_AREAS**  
Specify the directories where temporary files are written. You can specify multiple directories one at a time. The default is *./*. This is the current directory from where a job is started.

For Unix and Linux users, if your sort input, temporary, or output files will be read from or written to remote, NFS-mounted drives, then you should add the following entry to the **cosort.rc** file:

---

AIO OFF

to disable use of AIO (Asynchronous Input/Output) by **CoSort**. By default, AIO ON is set.

5. BLOCKSIZE

This defines the size of the sort buffers. When MEMORY\_MAX is set to AUTO or MINIMIZE, the BLOCKSIZE is set automatically; otherwise, the default for UNIX is 1200KB and for Windows is 2048KB. When setting for a specific job, it is best set to a little more than a multiple of the expected input record size.

6. MONITOR\_LEVEL

The monitor level specifies the degree of detail for reporting sent to **stderr** when running a **CoSort** job. The setting can be from 0 to 9. With MONITOR\_LEVEL 0, there is no monitoring. Each level gives progressively more information, like the opening and closing of files. Levels 3-9 give the number of processed records with 3 reporting every 1,000,000 and 9 reporting every record. The default MONITOR\_LEVEL is 0.

7. MINIMUM\_YEAR

This is used by **CoSort** jobs to set a *sliding century window* with two data types for specifying a minimum century year for the handling of pre-year 2000 data. The relevant **CoSort** data types are CS\_Y2K\_ASCII\_JULIAN and CS\_Y2K\_ASCII\_YR. The default setting is 70.

8. ON\_EMPTY\_INPUT

This setting determines the disposition of **sortcl** targets when all data sources are empty (that is, when they exist but contain 0 bytes). The options do not apply to piped input or input procedures, or when any single input file in a multi-source list contains records. The following four options are supported:

PROCESS\_WITH\_ZEROS

The default. Output data is created assuming zero-value input data.

The output will not be empty. It may contain zero values for summary columns and other requested **sortcl** formatting data.

EMPTY\_OUTPUT

An empty output target with zero bytes is created.

UNCHANGE\_OUTPUT

If an output file of the same name already exists prior to **sortcl** processing of empty input, the original target is unchanged.

DELETE\_OUTPUT

If a target of the same name already exists prior to **sortcl** processing of empty input, the original output file will be deleted. No new output file will be created.

---

## 9. OUTPUT\_TERMINATOR

Determines the record terminator used when output is specified as variable-length with /PROCESS=RECORD. The following options are supported:

### INFILE

The default behavior. When input is variable-length, this option uses the same terminator as the input file; that is, either a linefeed (LF) or a carriage-return-linefeed (CRLF). Typical termination for variable length records for a Linux or UNIX operating system a linefeed (LF). It is equivalent to \n. Use the DOS option (see below) if you prefer CRLF.

### DOS

Typical termination for variable length records for a DOS or Windows operating system. It is equivalent to \r\n, that is, a carriage-return-linefeed (CRLF).

### Unix

Typical termination for variable length records on a Linux or Unix operating system. It is equal to \n, that is, a linefeed.

### character

The character, or character string, that you specify — possibly the null string "" — is appended to each output record.

3. Change individual RC values by selecting the corresponding menu number to enter new values. Any changes will be applied to the **cosort.rc** file. See *Resource Control Settings* in your **CoSort** user manual for details, and see *Platforms* on page 23 for information pertaining to your particular version of Unix/Linux. Values are stored by default in **\$COSORT\_HOME/etc/cosort.rc**.

4. To save your changes and continue, press 0. The following displays:

```
Save the Resource Control Settings to  
[/install_dir/cosort110/etc/cosort.rc]: ?
```

5. The **cosort.rc** file is based on the above responses and is stored in the directory **\$COSORT\_HOME/etc**, which, by default, is used for all jobs run with **CoSort** compatible user interfaces and APIs. However, you can store one or more **cosort.rc** files elsewhere on your system for special job requirements, as described in "Using Customized Resource Control Files" in Appendix D of the **CoSort** user manual. That section describes all **cosort.rc** settings. You can use any text editor or IRI Workbench to add or modify settings.
6. Press **Enter** to accept the default location and file name. If you want to save to a different location or file name, type the full path and name that is desired, then press **Enter**. The **cosort.rc** file and the **RegForm.txt** file will be saved to the indicated locations. The **RegForm.txt** needs to be sent to licenses@iri.com so that your license keys can be generated and sent to you.
7. Be sure to set the **\$COSORT\_HOME** environment variable according to the on-screen instructions. This is required to run any **CoSort** tool.

- 
8. Press **Enter** to end the setup program.
  9. Repeat all the previous steps for any other licensed machines where you want to do an installation.

### License Key Activation

1. When license keys are received, run **cs\_setup** from the **\$COSORT\_HOME/bin** directory by entering: `./cs_setup`
2. Select the **Update License** option. The **CoSort License Entry** dialog opens.
3. Enter in order, the three license key values provided by IRI, then click **OK**.
4. Select **Exit**.



The license can be updated the license even if a job is in progress. The new keys will be used in the next job so long as the executable is in the same **\$COSORT\_HOME** environment.

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### Re-Tuning

Your IRI representative may provide you with alternative recommendations for your **cosort.rc** settings. Contact [support@iri.com](mailto:support@iri.com) or call your IRI representative for assistance.

Run **\$COSORT\_HOME/bin/cs\_setup** and select **Tune CoSort** to modify your default resource settings. You can also use a text editor to add or modify settings in the **cosort.rc** file. Appendix D of the CoSort manual describes all settings for the **cosort.rc** file.

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## Installing Workbench on Linux and Unix

Workbench for Linux and Unix is shipped as a tar.gz file. IRI recommends unpacking the contents into a folder named workbench2, located in the parent of the \$COSORT\_HOME directory. However, this is not a requirement.

The unpacked files will contain the iri-workbench executable file

Unpack on Linux with the GNU tar command:

```
tar -xvzf com.iri.pelican.workbench-linux.gtk.x86_64.tar.gz
```

On Unix where there is no GNU tar command, use the following command:

```
gunzip -c com.iri.pelican.workbench-linux.gtk.x86_64.tar.gz | tar -xvf -
```

Run the executable to open IRI Workbench. Check for updates from the Help menu.

---

## Installing CoSort and IRI Workbench on Windows

The installation of **sortcl** is required if you purchased products that include **Voracity**, **CoSort**, **FieldShield**, **RowGen**, **DarkShield**, or **NextForm**.

Download the installation program for Windows from the URL provided by your IRI representative.



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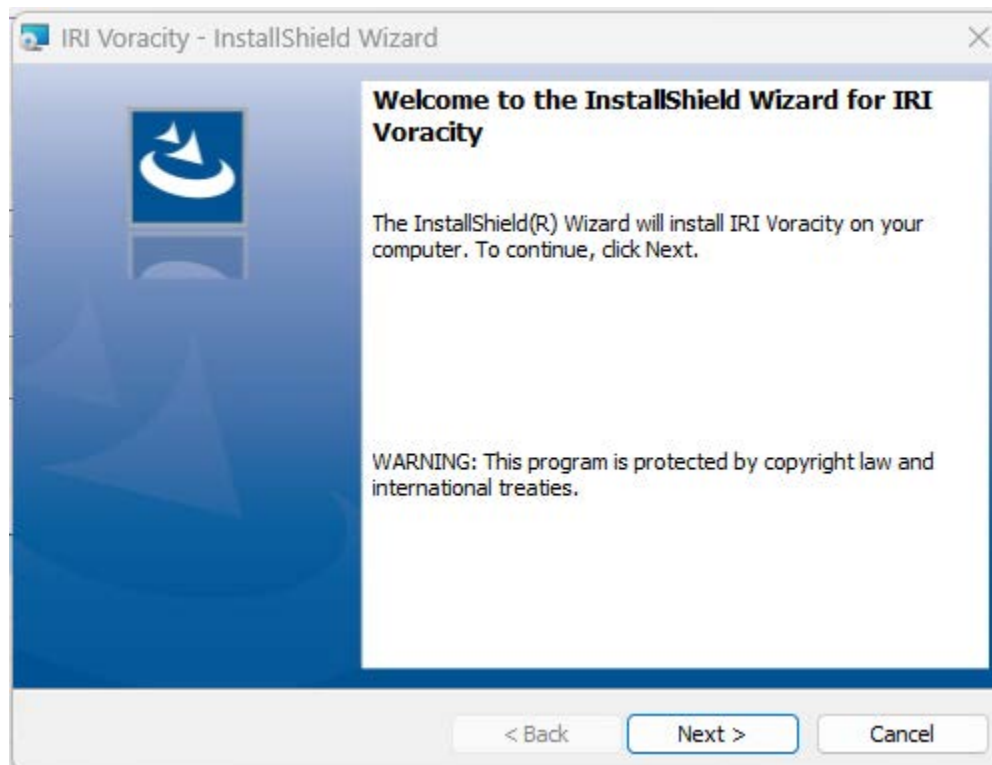
When upgrading, it is not necessary or advisable to remove the existing version. To test a new **CoSort** version on the same system, modify the value of **%COSORT\_HOME%** to the installation path for the version you want to install.

---

### Installing sortcl or Voracity on Windows operating systems:

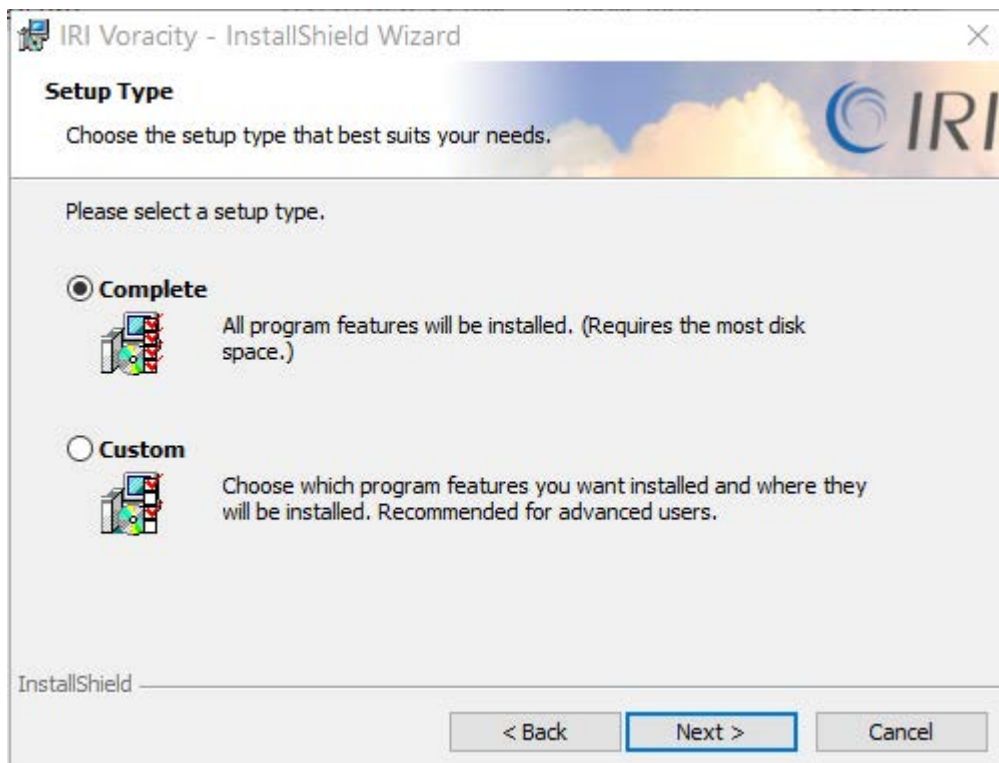
#### Loading

1. Run the installation program. The **InstallShield** Wizard prepares the setup. A splash screen displays when the setup is ready to start.



When the **Welcome** screen displays, click **Next** to continue.

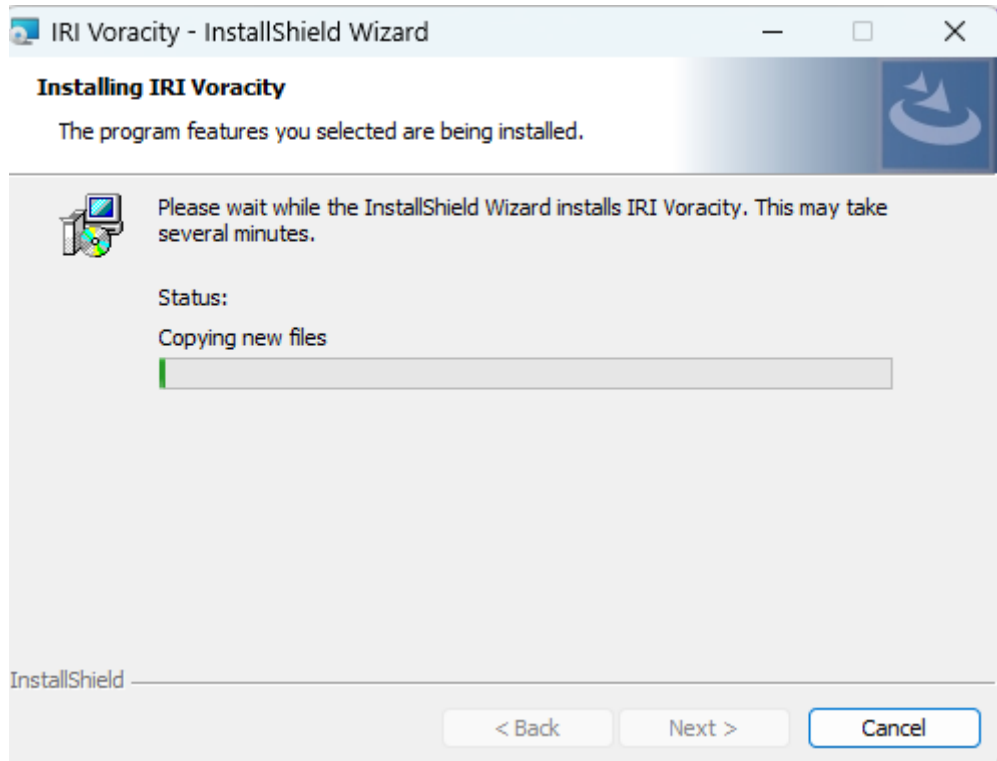
2. The Software License Agreement screen opens. Read the license agreement. If you accept the terms, select the option **I accept the terms in the license agreement**. (You can choose to print the license agreement.) Then click **Next**.
3. The **Customer Information** screen then displays. Fill in **User Name** and **Organization**, then click **Next**.
4. Now select the **Setup Type**. By default, the **Complete** setup will install the **CoSort** command line tools plus IRI Workbench in **C:\IRI**. If you opted for **Darksheild**, that program will also be installed. Select **Custom** to choose the features to be installed or to choose a different directory for the install. For most people, **Complete** should be selected, then click **Next**.



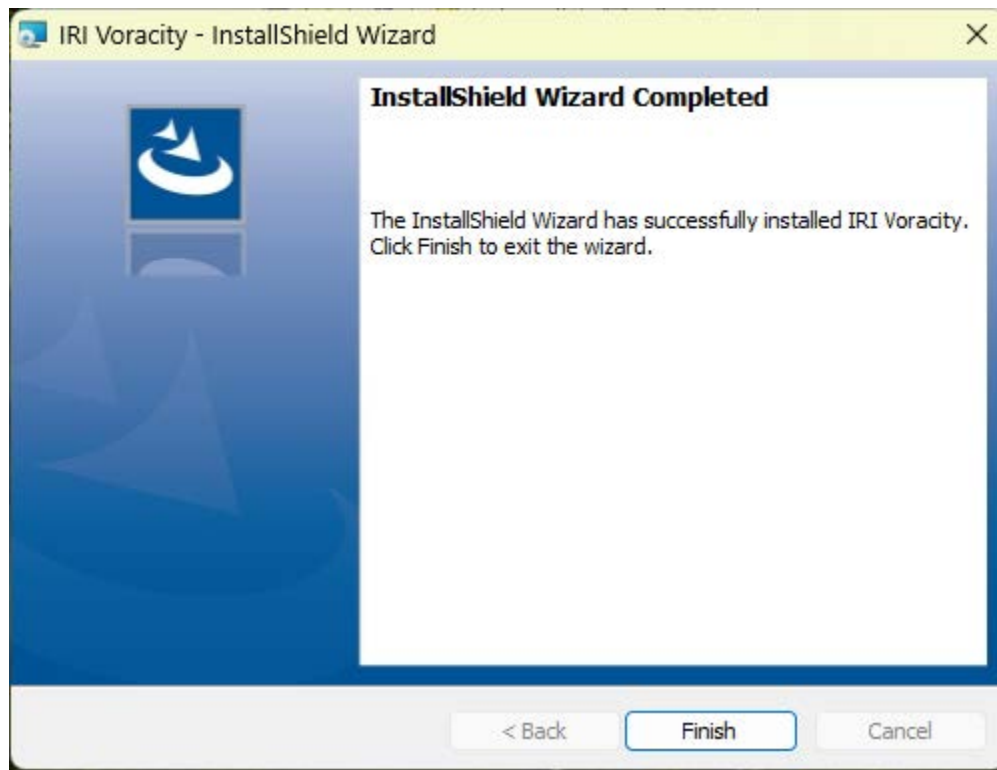
5. On the next screen, click this button to begin the installation:  
A screen with a progress bar will display during the installation.



6. This screen will display during the installation

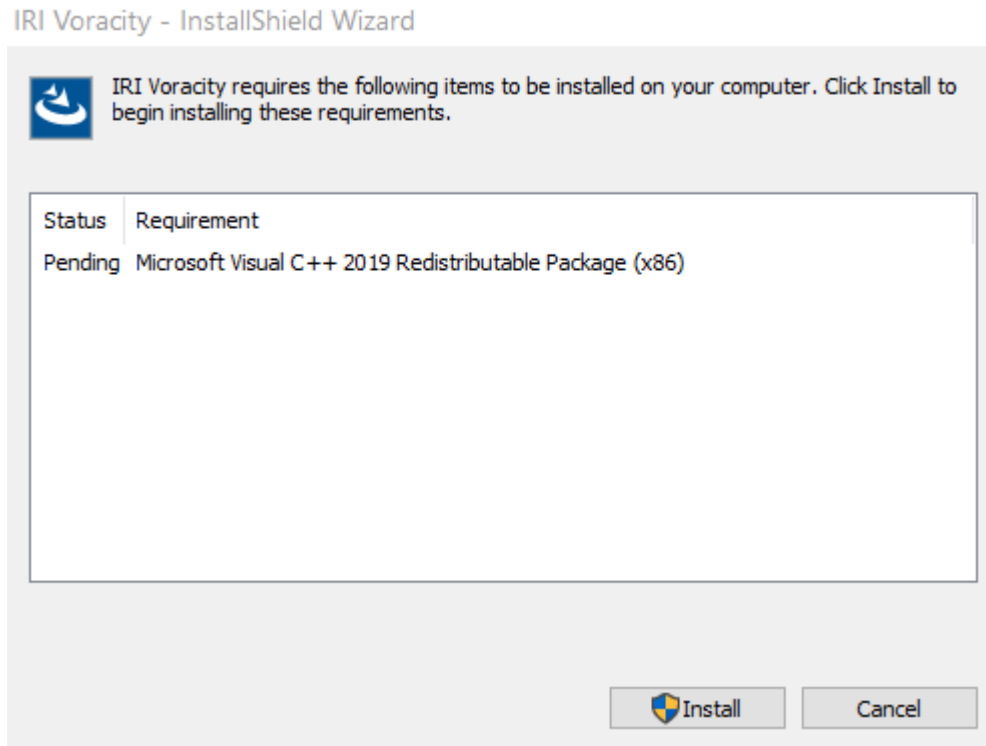


7. When the installation is complete, click **Finish**.



8. The %COSORT\_HOME% environment variable has been set to the directory ***install\_dir***. In addition, the PATH for the executable of the IRI tool (***install\_dir\cosort110\bin***) has been added to the environment variable %PATH%. If the full install was chosen, then the IRI Workbench icon is now on your desktop.

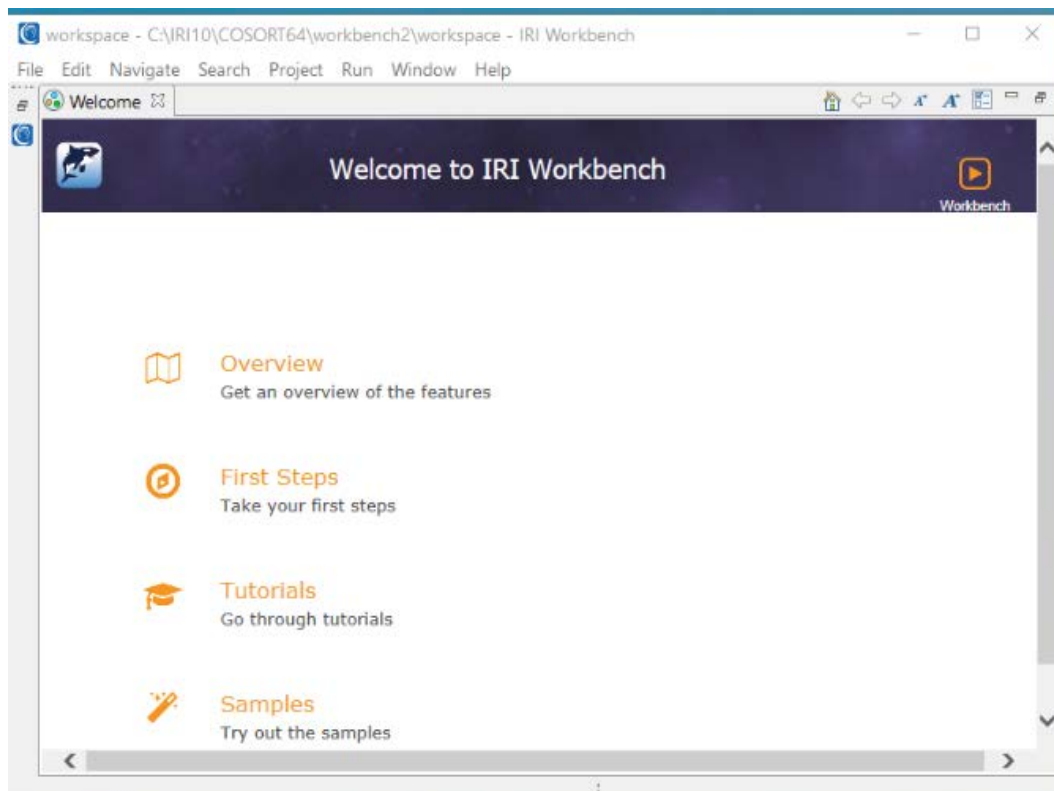
- 
9. To run the 64bit version of CoSort, Microsoft C++ needs to be present. The following screen will display if it needs to be installed:



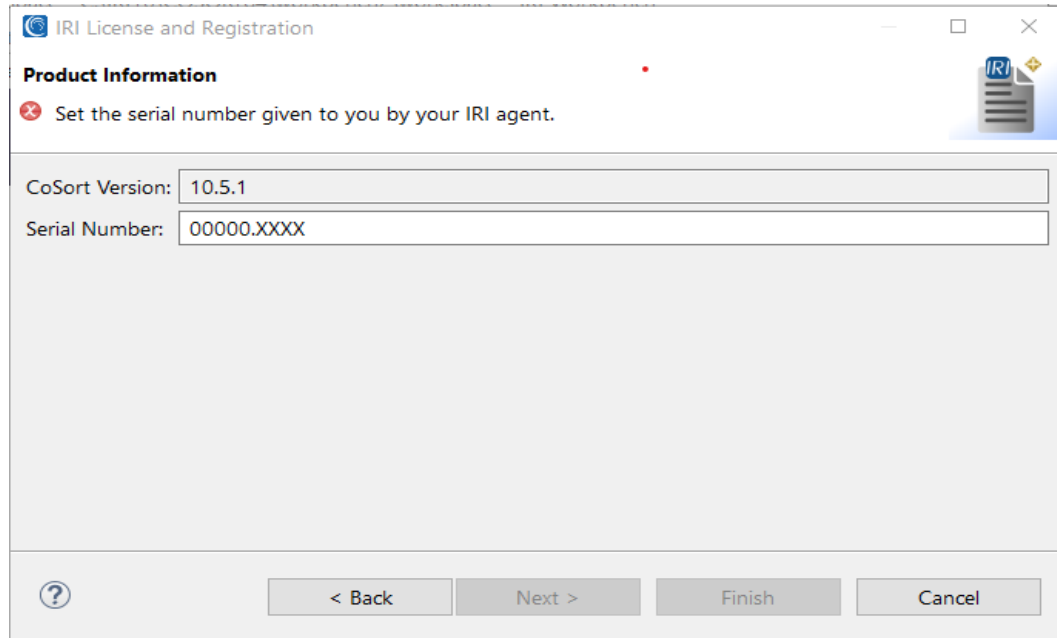
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## Running Setup from IRI Workbench

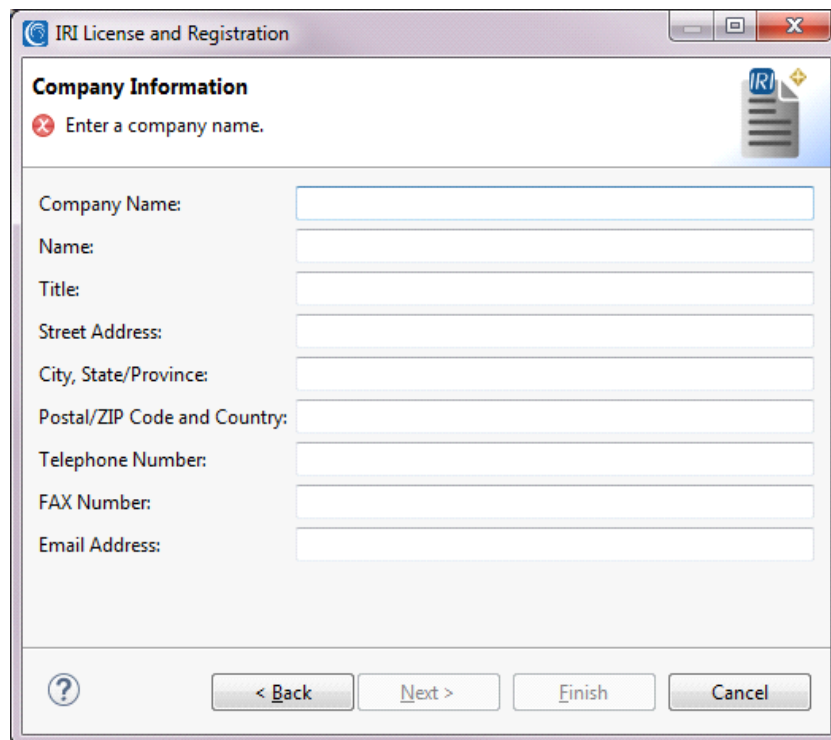
1. To perform the setup from IRI Workbench, double-click on that icon on your desktop. You are asked for a path for the *workspace* directory. This is the directory where items created in IRI Workbench are saved. Accept the default *workspace* or browse to select a different one.
2. The **Welcome** screen displays. Select **First Steps**, then select **Registration**.



3. If the **Welcome** screen does not display and you are taken directly into Workbench. Select **Help** from the Menu bar, and then **IRI Registration**.
4. Either of the two previous steps will bring up the **Product Information** page. The **Serial Number** on this page should be empty or have zeros and X's. If it has something else, then you have a **COSORT\_HOME** environment variable set for a different **CoSort** installation and you need to unset that environment variable before continuing.



5. Enter the serial number that was emailed to you, then select **Next**.
6. Fill out the items on the **Company Information** page, then select **Next**.



- 
7. On the **Hardware Information** page, some of the items have been filled in for you. Complete any remaining items, then select **Finish**.
  8. The information on the two preceding pages is recorded in the file named **RegForm.txt**. After **Finish** is selected, a popup will give the path with the name for the **RegForm.txt** file. E-mail this file to *licenses@iri.com*. The license keys that are required to activate your IRI product can then be emailed to the email address indicated in the form. Select **Finish**.
  9. Go to the below section, **Running Setup from the Command Line**, to set resource control options. This is done by selecting the option to **Tune CoSort**. You can accept the default values or change those values

## Running Setup from the Command Line

From a command prompt, change to the directory `\install_dir\cosort110\bin`.

Enter `cs_setup`. The **CoSort Setup** screen opens as below:

```
-----  
CoSort 11.0.1 Setup  
-----
```

Enter the number of one of the following options:

1. First Time Setup
2. Update License
3. Tune CoSort
4. Exit

If you have not completed a **RegForm.txt** file, select **First Time Setup**. Complete all of the relevant fields in the **CoSort Customer Registration Form**. This form is required to obtain license keys. **Do not** use a **Customer Registration Form** that was created on another computer!

Once the Registration form is filled out, you are in the area for the **Cosort Tuning Info**. This is where you can set the default values for some of the items in the CoSort Resource Control File. The values that are set here affect the performance of the CoSort jobs. Here are the values that can be set now. You can accept the default values, or change any values by selecting the number for that value..

---

Here are the current settings:

1. THREAD\_MAX        8 (This should be set to the number processors that you purchase)
2. THREAD\_MIN        1
3. MEMORY\_MAX        AUTO
4. WORK\_AREAS        .\
5. BLOCKSIZE
6. MONITOR\_LEVEL     0
7. MINIMUM\_YEAR      70
8. ON\_EMPTY\_INPUT    PROCESS\_WITH\_ZEROS
9. OUTPUT\_TERMINATOR INFILE

Here are explanations of the items:

1. THREAD\_MAX  
This sets the total number of cores (Number of CPUs X Cores per CPU) that you entered in the RegForm. Typically, this is set to the number of THREADS that are purchased for your license. A higher setting will result in a license violation error at runtime
2. THREAD\_MIN  
This sets the minimum number of threads for running a job. The default is 1.
3. MEMORY\_MAX  
This sets the upper memory limit used for in-memory sorts before data overflows to disk-based temporary files. Default is AUTO. AUTO provides the best performance when running a single instance of **sortcl**. MINIMIZE provides the best performance when running multiple instances of **sortcl** jobs simultaneously. You can also set this to a literal value or to a percentage of RAM.
4. WORK\_AREAS  
Specify the directories where temporary files are written. You can specify multiple directories one at a time. The default is ./, which is the directory where a job is started.

For Unix and Linux users, if your input, temporary, or output files for a sort will be read from or written to remote, NFS-mounted drives, then you should add the following entry to the **cosort.rc** file:

```
AIO OFF
```

This disables the use of *Asynchronous Input or Output* by CoSort.

---

## 5. BLOCKSIZE

This defines the size of the sort buffers. When MEMORY\_MAX is set to AUTO or MINIMIZE, the BLOCKSIZE is set automatically; otherwise, the default for UNIX is 1200KB and for Windows is 2048KB.

## 6. MONITOR\_LEVEL

The monitor level specifies the degree of detail for reporting that is sent to **stderr** when running a **CoSort** job. The setting can be from 0 to 9. With MONITOR\_LEVEL 0, there is no monitoring. Each level gives progressively more information, such as the opening and closing of files. Levels 3-9 give the number of processed records with 3 reporting every 1,000,000 and 9 reporting every record. The default MONITOR\_LEVEL is 1.

## 7. MINIMUM\_YEAR

This is used by **CoSort** jobs to set a *sliding century window* for the data types CS\_Y2K\_ASCII\_JULIAN and CS\_Y2K\_ASCII\_YR. It specifies a minimum century year for the handling of pre-year 2000 data. The default setting is 70.

## 8. ON\_EMPTY\_INPUT

This setting determines the disposition of **sortcl** targets when all data sources are empty (that is, when they exist but contain 0 bytes). The options do not apply to piped input or input procedures, or when any single input file of a multi-source list contains records. The following four options are supported:

### PROCESS\_WITH\_ZEROS

The default. Output data is created assuming zero-value input data. The output will not be empty. It may contain zero values for summary columns and other requested **sortcl** formatting data.

### EMPTY\_OUTPUT

An empty output target (with zero bytes) is created.

### UNCHANGE\_OUTPUT

If an output file of the same name already exists prior to **sortcl** processing of empty input, the original target is unchanged.

### DELETE\_OUTPUT

If a target of the same name already exists prior to **sortcl** processing of empty input, the original output file will be deleted. No new output file will be created.

## 9. OUTPUT\_TERMINATOR

Determines the record terminator used when output is specified as variable-length with /PROCESS=RECORD. The following options are supported:

### INFILE

The default behavior. When input is variable-length, this option uses the same terminator as the input file; that is, either a linefeed (LF) or a carriage-return-linefeed (CRLF). For fixed-length input, the default output terminator is LF. Therefore, use the DOS option (see below) if you prefer CRLF.

### DOS

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Typical termination for variable length records for a DOS or Windows operating system. It is equal to `\r\n`, that is, a carriage-return-line-feed.

Unix

Typical termination for variable length records on a Linux or Unix operating system. It is equal to `\n`, that is, a linefeed.

*character*

The character, or character string, that you specify — possibly the null string "" — is appended to each output record.

Enter an option number to modify, or 0 to save and continue

Once the `cosort.rc` file is saved, the following screens displays. This is the same screen that displays when you select "Governance Setup" from the main menu.

This has created the file `RegForm.txt` which can be found in the directory `%COSORT_HOME%\etc`

To request a license key, please email the file or contents to `licenses@iri.com`. Be sure the email address in the form is correct to receive the key.

Press Enter to continue. This will take you back to the main menu. Press 5 to Exit.

Now you can email the request for license keys.

When you receive your license keys from IRI, run `%COSORT_HOME%\bin\cs_setup` again and select '2. Update License' from the menu. You will be asked to enter each of the keys.

If you previously completed the **RegForm.txt** file, select **Tune CoSort**, where you can set values for nine of the resource control (RC) options by skipping to item 7 in this section.

10. Upon completion, a **RegForm.txt** file will appear in the **install\_dir\bin** directory (**%COSORT\_HOME%\bin**) that you specified earlier. E-mail the combined **%COSORT\_HOME%\bin\RegForm.txt** and **%COSORT\_HOME%\etc\cosort.rc** to `licenses@iri.com`. Note that you can edit this form with a text editor, if necessary, after the setup process is complete.

11. After pressing enter for the last item in the RegForm, a menu of eleven resource control (RC) options displays.

12. The RC options are:

1. `THREAD_MAX`

This sets the total number of cores (Number of CPUs X Cores per CPU) that

---

you entered in the RegForm. Typically, this is set to the number of THREADS that are purchased for your license. A higher setting will result in a license violation error at runtime.

2. **THREAD\_MIN**  
This sets the minimum number of threads for running a job. The default is 1.
3. **MEMORY\_MAX**  
This sets the upper memory limit used for in-memory sorts before data overflows to disk-based temporary files. Default is AUTO. AUTO provides the best performance when running a single instance of **sortcl**. MINIMIZE provides the best performance when running multiple instances of **sortcl** jobs simultaneously. You can also set this to a literal value or to a percentage of RAM.
4. **WORK\_AREAS**  
Specify the directories where temporary files are written. You can specify multiple directories one at a time. The default is ./, which is the directory where a job is started.

For Unix and Linux users, if your input, temporary, or output files for a sort will be read from or written to remote, NFS-mounted drives, then you should add the following entry to the **cosort.rc** file:

5. **AIO OFF**  
to disable use of AIO (Asynchronous Input/Output) by **sortcl**. By default, AIO ON is set.
6. **BLOCKSIZE**  
This defines the size of the sort buffers. When MEMORY\_MAX is set to AUTO or MINIMIZE, the BLOCKSIZE is set automatically; otherwise, the default for UNIX is 1200KB and for Windows is 2048KB.
7. **MONITOR\_LEVEL**  
The monitor level specifies the degree of detail for reporting that is sent to **stderr** when running a **CoSort** job. The setting can be from 0 to 9. With MONITOR\_LEVEL 0, there is no monitoring. Each level gives progressively more information, such as the opening and closing of files. Levels 3-9 give the number of processed records with 3 reporting every 1,000,000 and 9 reporting every record. The default MONITOR\_LEVEL is 0.
8. **MINIMUM\_YEAR**  
This is used by **CoSort** jobs to set a *sliding century window* with two data types. This specifies a minimum century year for the handling of pre-year 2000 data. The relevant **CoSort** data types are CS\_Y2K\_ASCII\_JULIAN and CS\_Y2K\_ASCII\_YR. The default setting is 70.

9. **ON\_EMPTY\_INPUT**  
This setting determines the disposition of **sortcl** targets when all data sources are empty (that is, when they exist but contain 0 bytes). The options do not apply to piped input or input procedures, or when any single input

---

file of a multi-source list contains records. The following four options are supported:

PROCESS\_WITH\_ZEROS

The default. Output data is created assuming zero-value input data. The output will not be empty. It may contain zero values for summary columns and other requested **sortcl** formatting data.

EMPTY\_OUTPUT

An empty output target (with zero bytes) is created.

UNCHANGE\_OUTPUT

If an output file of the same name already exists prior to **sortcl** processing of empty input, the original target is unchanged.

DELETE\_OUTPUT

If a target of the same name already exists prior to **sortcl** processing of empty input, the original output file will be deleted. No new output file will be created.

10. OUTPUT\_TERMINATOR

Determines the record terminator used when output is specified as variable-length with /PROCESS=RECORD. The following options are supported:

INFILE

The default behavior. When input is variable-length, this option uses the same terminator as the input file; that is, either a linefeed (LF) or a carriage-return-linefeed (CRLF). For fixed-length input, the default output terminator is LF. Therefore, use the DOS option (see below) if you prefer CRLF.

DOS

Typical termination for variable length records for a DOS or Windows operating system. It is equal to `\r\n`, that is, a carriage-return-linefeed.

Unix

Typical termination for variable length records on a Linux or Unix operating system. It is equal to `\n`, that is, a linefeed.

*character*

The character, or character string, that you specify — possibly the null string "" — is appended to each output record.

8. Change individual RC values by selecting the corresponding menu number. Any changes will be applied to the **cosort.rc** file. See Resource Control Settings in your **CoSort** user manual for details. Values are stored by default in **%COSORT\_HOME%\etc\cosort.rc**.

9. To save your changes and continue, enter 0. The following displays:

```
Save the Resource Control Settings to
[install_dir\cosort105\etc\cosort.rc]: ?
```

- 
10. The **cosort.rc** file contains the settings from your above responses and is stored in the directory **%COSORT\_HOME%\etc**, which, by default, is used for all jobs run with **CoSort** compatible user interfaces and APIs. However, you can make and use one or more **cosort.rc** files elsewhere on your system for special job requirements, as described in "Using Customized Resource Control Files" in Appendix D of the **CoSort** user manual. That section describes all possible **cosort.rc** file settings. You can use IRI Workbench or any text editor to add or modify settings.
  11. Press **Enter** to accept the default location and file name. If you want to save to a different location or file name, type the full path and name that you want, then press **Enter**. The **cosort.rc** file and the **RegForm.txt** file have been saved to the indicated locations. The **RegForm.txt** and the **cosort.rc** files need to be sent to licenses@iri.com so that your license keys can be generated and sent to you.
  12. Enter 5 to exit the setup program.

### Activating Your License Using Workbench

1. After you receive your three license keys, start IRI Workbench.
2. You can select **First Steps** from the **Welcome** screen or select **IRI License** from **Help** on the menu bar. This returns you to the **License Key** page.
3. Type in each of the license keys, then select **Finish**. The license for your IRI tool is now active. To verify that your license is active, select **Version Information** from the **Help** menu. On that screen, you will see something similar to the following which displays the version, serial number, and expiration date:

```
CoSort 10.5.1 R105240201-1825 x86_32 Copyright 1978,2024 IRI, Inc. www.iri.co
2024-02-10 13:36:13 #99999.test 6 CPU
Expiration Date: non-expiring
```

4. If your keys are not working, you will see something similar to below.

```
CoSort 10.5.1 R105240201-1825 x86_64 Copyright 1978,2024 IRI, Inc. www.iri.com
2024-02-10 13:51:33 #99999.test 0 CPU
Monitor Level: 1
<00:00:00.00> error (46): 99999.test license violation:
incorrect node or invalid key
```

Check your write permission for the file **%COSORT\_HOME%\etc\cosort.lic**. Once you have permission to edit the file **cosort.lic**, you should manually edit that file to insert the three key values, then verify that the keys are working. If there is still a problem, then contact your IRI agent.

### Activating Your License from the Command Line

1. Once you receive your license keys, at the command prompt, change to the directory **\install\_dir\cosort105\bin**
2. Enter **cs\_setup**. The CoSort Setup screen opens with the following options:

- 
- First Time Setup
  - Update License
  - Tune CoSort
  - Exit

3. Select **Update License**.

4. Type in each of the three keys. Press enter after each is entered.

5. You will then see the following line:

```
The license file has been updated successfully.  
Press the Enter key to continue...
```

```
This will return you to the main menu.
```

6. Select **Exit** to close the CoSort Setup screen.

```
The following is then displayed:
```

```
You may add $COSORT_HOME/bin to your  
PATH, and $COSORT_HOME/lib to your  
LD_LIBRARY_PATH.
```

```
Make sure that the permissions for the  
executables in $COSORT_HOME/bin  
are set correctly for all users.
```

```
Governance controls such as sortcl job  
permissions, auditing, and log retention  
policies can only be changed by a member of  
the cs_governor group, which must be established  
with one or more members on the operating system.
```

```
Type sortcl /v from the install_dir\bin directory to verify that your keys are  
working. There should be a message similar to:
```

```
CoSort 11.0.1 R110260227-1825 x86_64 Copyright 1978,2024 IRI, Inc. www.iri.com  
2024-03-18 15:05:52 #99999.TEST 6 CPU  
Expiration Date: non-expiring
```

7. If your keys are not working, you will see something similar to below.

```
CoSort 11.0.1 R110260227-1825 x86_64 Copyright 1978,2024 IRI, Inc. www.iri.com  
2024-03-10 13:51:33 #99999.test 0 CPU  
Monitor Level: 0  
<00:00:00.00> error (46): 99999.test license violation:  
incorrect node or invalid key
```

```
Check your write permission for the file %COSORT_HOME%\etc\cosort.lic.  
Once you have permission to edit the file cosort.lic, you should manually edit  
that file to insert the three key values, then verify that the keys are working. If  
there is still a problem, then contact your IRI agent.
```



---

The license can be updated even if a job is in progress. The new keys will be used in the next job so long as the executable is in the same **%COSORT\_HOME%** environment.

---

## Installing DarkShield

DarkShield can be installed either as a backend API engine, or with an installation of the IRI Workbench (GUI). It can be a standalone product or bundled in the IRI Voracity data management platform.

**sortcl** is the executable for the IRI CoSort engine. The installation process for CoSort must be done to enable **sortcl** to execute masking jobs.

To run any jobs, you must first start the DarkShield server via one of the following:

1. Shell or batch startup script in the DarkShield API distribution **bin** directory
2. Workbench **Window > Preferences > IRI > DarkShield properties** dialog
3. DarkShield API Status view in your workspace

### 1 The IRI Workbench Version of DarkShield

DarkShield is installed as part of the IRI Workbench installation.



*DarkShield* appears on the tool bar.

Open the DarkShield API configuration dialog in **Preferences** under the **Window** menu, then enter the local or remote folder location of the DarkShield API distribution in the box for **Specify folder location of a Darkshield API distribution** (e.g., C:\IRI\DarkShield\API\plankton-1.5.1).

Click the **Start Server** button, then **Apply and Close**. Startup messages for the API server should appear in the Workbench console window confirming that the DarkShield API is configured correctly for use and management in Workbench.

## 2 Installing DarkShield for Remote Procedure Calls

### 2.1 Installation

The DarkShield RPC, also know as Plankton, is a web services platform for IRI API services. IRI Plankton provides services through a plugin interface, allowing the user to choose the needed functionality by installing the appropriate plugins.

The operating system can be Linux or Windows, either on a local system or in a cloud, including within a container.

The below dependencies must be installed prior to installing the Plankton API on the system.

- CoSort 10+
- Java JRE 11+
- Python 3.5+
  - This is required for the DarkShield plugin. These dependencies are compiled at startup using pip.

The full Plankton API can be downloaded, or the API can be downloaded without the API files. The **.zip** or **.tar** file for the Plankton API can be extracted in any directory creating the following file structure:

```

+-- bin
    +-- plankton
    +-- plankton.bat
*-- conf
    +-- config.json
    +-- log4j2.xml
+-- docs
    +-- license_dependency.html
    +-- license_dependency.json
    +-- license_dependency.xml
+-- lib
    +-- {plugin}-{version}.jar
+-- static
    +-- docs
+-- LICENSE
  
```

## 2.2 Execution

To start the API, execute the file **plankton** on Unix or the file **plankton.bat** on Windows. These are located in the **bin** directory. To learn more about the various command line parameters, the commands can be executed with the *-help* flag.

Once the server has started, the *OpenAPI* documentation for the API can be opened in the browser in the docs path of the server address. All information regarding the different endpoints and payload structures for the different plugins are documented there. If a web browser is not available, the different *OpenAPI* documents can also be downloaded from the **/docs/{plugin}.yaml** endpoints

## 2.3 Configuring Logging

The Plankton API uses **slf4j** with a **Log4j2** implementation for logging purposes. The logging options can be edited in **conf/log4j2.xml**. The default configuration disables all logging information from non-plankton components and outputs the results to standard out.

For faster throughput, DarkShield uses asynchronous logging provided by default through Log4j2. To disable asynchronous logging for resource constrained environments, remove the following option from either the **bin/plankton** or **bin/plankton.bat** scripts:

```
Dlog4j.contextSelector=org.apache.logging.log4j.core.async.  
    AsyncLoggerContextSelector
```

The *Log4j2* backend can be changed for another *slf4j* compatible implementation by replacing the *log4j2* jars with the new implementation jars in the **lib** directory. A full list of these is available from <https://logging.apache.org/log4j/2.x/manual/appenders.html>.

## 2.4 Configuring Start

By default, the Plankton server will launch on **http://localhost:8959/**. This can be modified in the **conf/config.json** file by editing the host and port parameters.

To expose the API to the network, the host parameter can be set to the IP Address or host name of the network interface that the server uses to interact with the network. Another possibility is to use a reverse proxy server like Apache or NGINX to route requests to a locally hosted Plankton API. The reverse proxy approach is recommended for including additional functionality like load balancing or user authentication, since these concerns are not handled by the API

## 2.5 Configuring SSL

The DarkShield server can be started with SSL options enabled by adding an **ssl** object to the **conf/config.json** file:

```
"ssl": {  
    "certPaths": ["path/to/certificate.pem"],  
    "keyPaths": ["path/to/key.pem"]  
}
```

- *certPaths* is a list of paths to the certificate files.
- *keyPaths* is a list of paths to the private key files.

## 2.6 Configuring a Remote SSH CoSort Server

The *Plankton API* can be configured to operate with a CoSort installation which is hosted on a different server. Note that this approach is *NOT* recommended for production environments where latency is an issue.

To configure a remote **sortcl**, enter the following information in the **conf/config.json** file:

```
"cosort": {
  "ssh": {
    "username": "required",
    "host": "required",
    "port 22",
    "password": null,
    "passphrase": null
  }
}
```

- *username* is the username for the ssh connection
- *host* is the host ssh server
- *port* is the ssh port on the remote server. This defaults to port 22.
- *password* is used if the connection should be authenticated using a password instead of a public key. It can be excluded if no password is necessary.
- *passphrase* is used to access an encrypted private key. It can be excluded if no passphrase is necessary.

## 2.7 Configuring a Different OpenAPI View

By default, *Plankton* renders the *OpenAPI* documentation using *Swagger-UI*. However, other implementations may be used by replacing the `static/docs/index.html` file with an `index.html` file from a different implementation, like Redoc.

The *OpenAPI* documentation files can be found under the **static/docs/openapi** folder. The folder also contains an **extensions.json** file which contains a mapping between the plugin name and the specific *OpenAPI* documentation file for that plugin.

---

## Getting Started with IRI Workbench

[IRI Workbench](#) is a Graphical User Interface (GUI) and Integrated Development Environment (IDE) for all IRI software products. IRI Workbench is built on Eclipse™.

IRI Workbench installs either standalone or as part of the full product installation for IRI products on Windows. Ask your IRI representative if you need a Linux version.

The workbench directory is located within the base product installation directory.

If you did not perform a full product installation, install IRI Workbench from the zip file provided by your IRI representative.

### Installing IRI Workbench from a .zip File

#### To install:

1. Download the IRI Workbench installation zip file from the link provided by your IRI representative and copy it to the target Windows computer.
2. Unzip the file into the directory where the files will reside; c:\IRI is advised.
3. Create a desktop shortcut using the icon for the **iri-workbench.exe** file.
4. Run **iri-workbench.exe**. The **Select a Workspace** screen opens. The workspace location defaults to the directory from where you ran the executable.

A directory named **workbench** is created that will contain your workspace. Give **workspace** a unique name.

The **Welcome to IRI Workbench** screen opens.



If you install the IRI Workbench from its standalone zip file, you will need to manually create the start menu and desktop shortcuts. These are setup automatically in a full product installation.

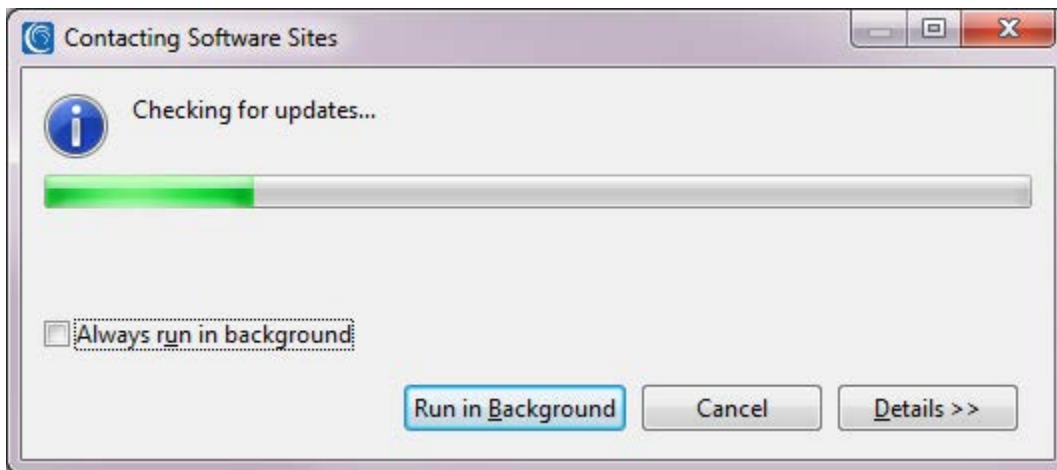
---

#### Check for updates:

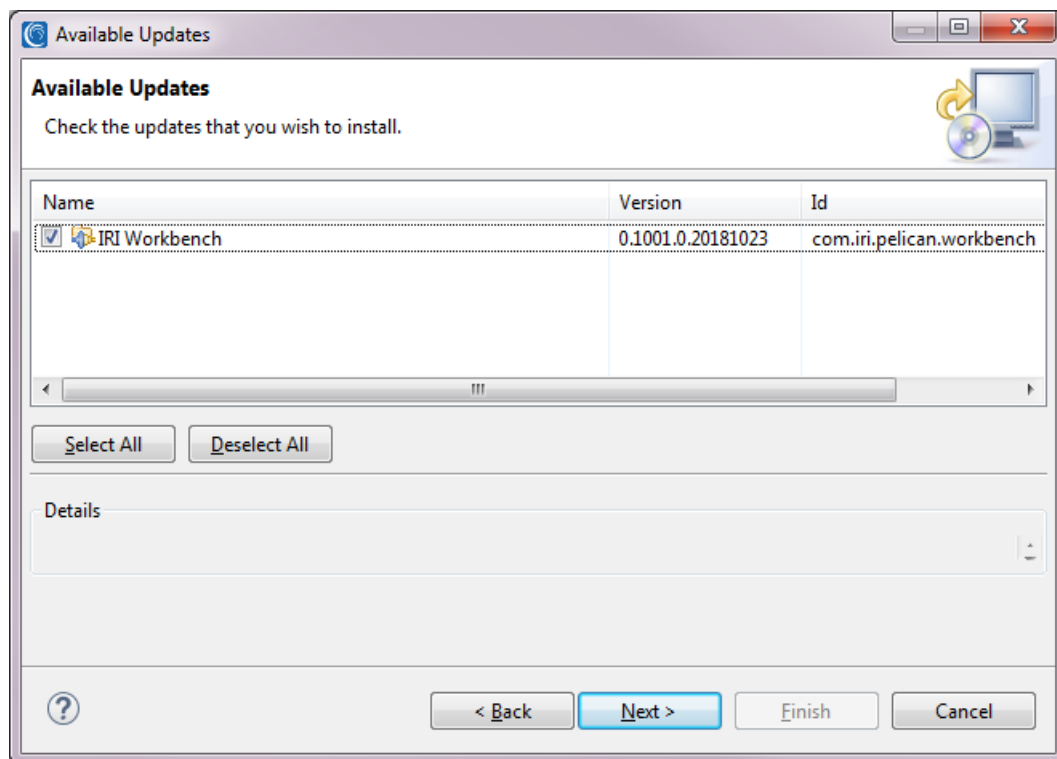
To run the latest IRI Workbench, check for updates online.

1. Click **Help** on the menu bar.
2. Select **Check for updates**.

This pop-up will display while the check is executed:

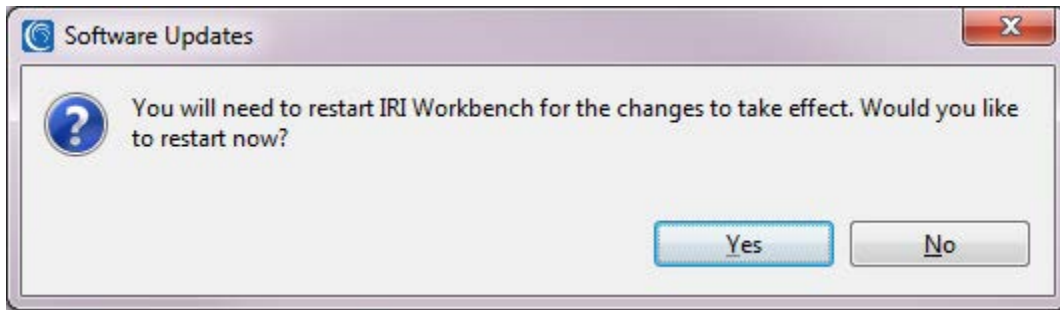


3. When the check is complete, the following screen displays:



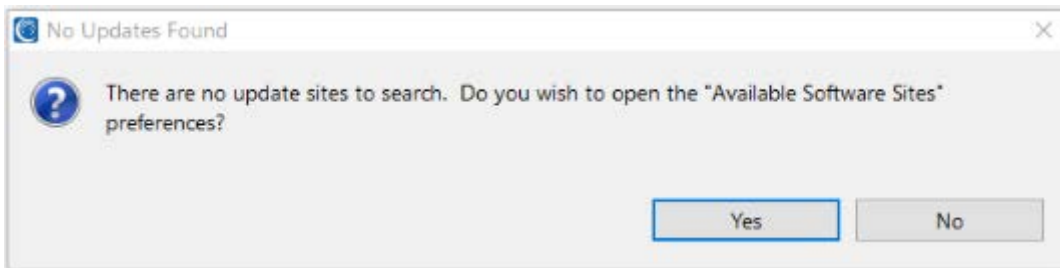
There will be a check mark next to the items that have updates available. Click **Next**, then select "I accept the terms of the license agreements", and click **Finish**.

- 
4. Once the update has completed, the following pop-up displays:

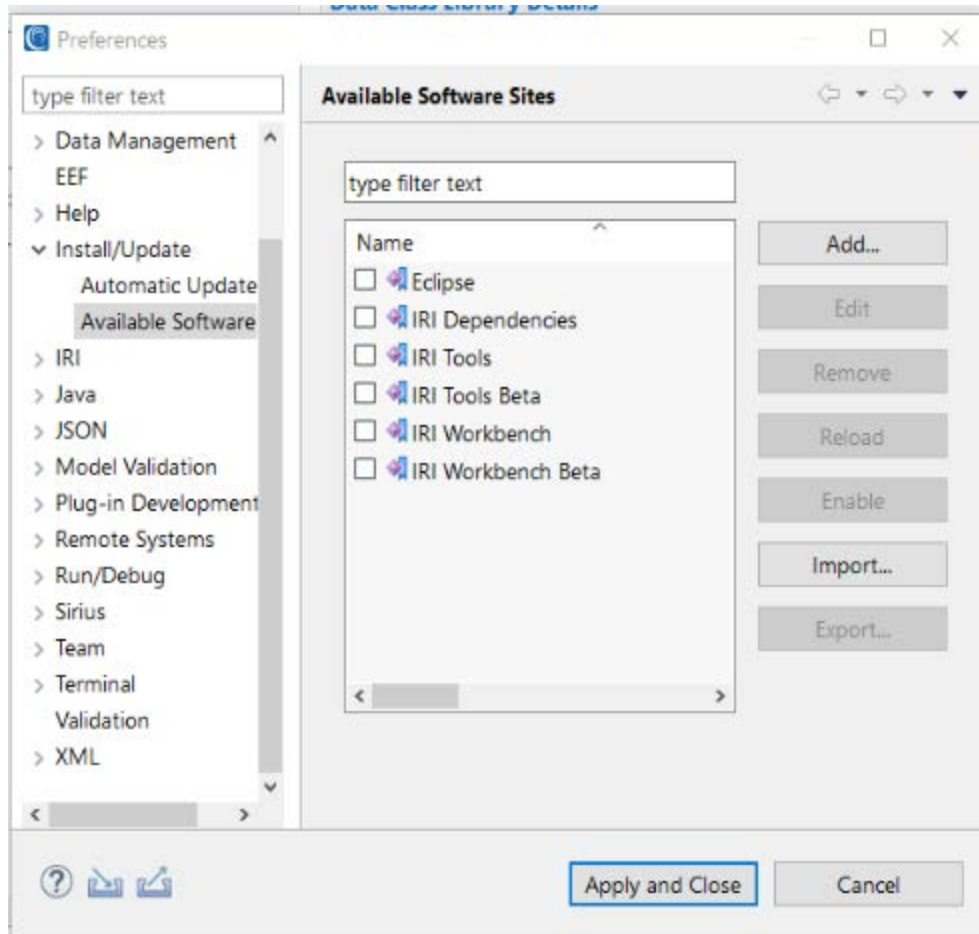


Click **Yes** to restart IRI Workbench.

5. It is possible that your IRI Workbench is not set up to get updates. If this is the case, then you will see the below dialog. Answer **Yes**.



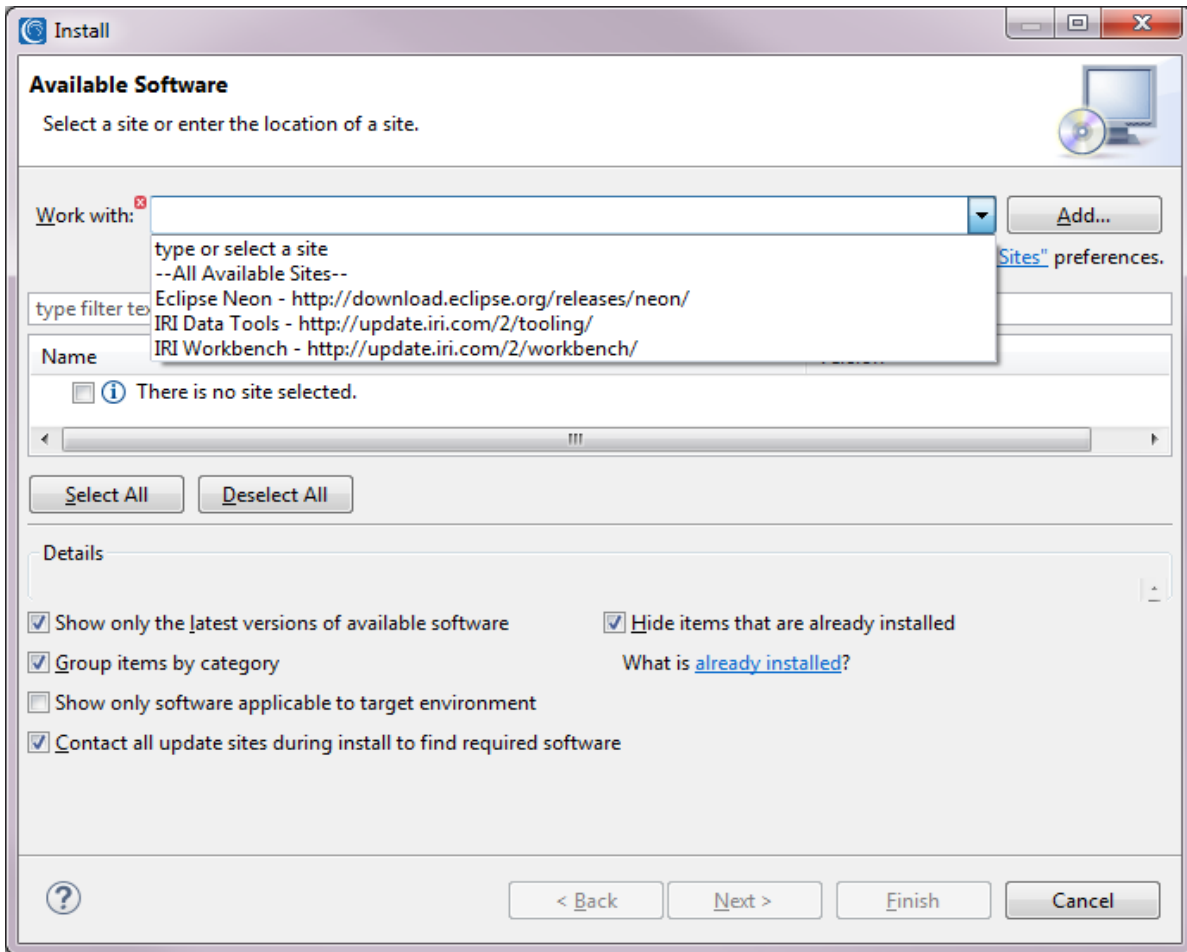
This will take you to a dialog that looks similar to the following one. Click on the checkboxes for **IRI Tools** and **IRI Workbench**. Then click **Apply and Close**.



You can also reach this dialog by selecting **Window** from the menu bar -> **Preferences** -> double-click **Install/Update** -> **Available Software Sites**

6. There are certain features that may not be present initially in your IRI Workbench such as **New Re-ID Risk Scoring** on the **FieldShield** menu. For this feature, the *IRI Risk Scorer* plugin is needed.

To add any features, select **Help** from the menu bar -> **Install New Software**. A screen similar to the following displays when the **Work with** dropdown is exposed:



7. Select **IRI Data Tools** from the dropdown.
8. If **IRI Data Tools** is not listed, then click "Available Software Sites" and select **IRI Data Tools** so that it is added to the **Work with** dropdown, then select it from the dropdown.
9. **IRI Data Tools** now appears in the box under **Name**. Expand to see the features available for installation. Select the ones that you want installed and click **Next** and **Next** again.
10. Select "I accept the terms of the license agreements", and click **Finish**.

---

## Welcome to IRI Workbench

The Welcome screen, shown at startup or available from the *Help* navigation bar, links to resources that help you become familiar with the purpose and functions of **IRI Workbench**, and that prepare you to use the many tools available through this interface.

Overview	Links to an introduction for each product and describes the wizards and dialogs involved in the use of the product. Product documentation links are included on the Overview screen, as well as information about the Eclipse Data Tools Platform (DTP) that connects to and works with JDBC-compatible data sources.
Tutorials	Links to <b>Getting Started</b> tutorials and <b>Cheat Sheets</b> for each IRI product.
First Steps	Provides links that guide you in the use IRI Workbench, including setting up the connections to your databases, through both Open Database Connectivity (ODBC) and Java Database Connectivity (JDBC), and cheat sheets that take you through the process of creating and starting jobs.
Samples	Links to a cheat sheet that guides you through creating IRI projects and importing an example job script.

While on the Welcome screen, from the top navigation toolbar select **Help --> Help Contents**. Here the following topics can be selected:

- **IRI Workbench Tools User Guide**
- **Java development user guide**
- **Plug-in Development Environment Guide**
- **Data Tools Platform User Documentation**
- **Egit Documentation**
- **IRI Ripcurrent User Guide**
- **IRI Scheduler**
- **IRI Workbench Tools User Guides - This gives access to the user guides for the various IRI products and guides to using the Data Tools Platform User Documentation (DTP) and Remote System Explorer (RSE) plugins. This also covers conventions used for IRI products, descriptions for the wizards, and troubleshooting problems.**
- **RSE User Guide - This covers connections to remote Windows, Linux, and Unix servers where licensed IRI executables are installed.**
- **Sirius**

In the top navigation toolbar you will also find icons for menus specific to each IRI product and for some of the utilities:

	<p>Debug - executes a sortcl-compatible job in debug mode. Previously run jobs can be selected from a list.</p>
	<p>Run - executes a sortcl-compatible job. Previously run jobs can be selected from a list.</p>
	<p>Run Last Tool - used to execute batch jobs and other tools. A previously run job can be selected from a list.</p>
	<p>IRI - links to wizards common to multiple IRI products.</p>
	<p>Voracity - links to wizards for creating new jobs for ETL, data consolidation, DB subsetting, pivoting tables, SCD (Slowly Changing Dimensions), and CDC (Change-Data-Capture).</p>
	<p>CoSort - create sortcl job scripts or flows or add to an existing flow.</p>
	<p>FACT - perform high-speed extractions from relational DB tables.</p>
	<p>NextForm - create jobs that reformat and migrate data</p>
	<p>FieldShield - create jobs that mask PII and other sensitive data.</p>
	<p>RowGen - create a test data job, or a set file to be used with a test data job.</p>
	<p>Discover - profile a database or flat file, build an ER diagram, classify data, train an ER model, or perform a new data class or schema pattern search.</p>
	<p>DarkShield - find and mask sensitive data in unstructured files and NoSQL DBs, and recognize named entities.</p>

---

## Installing Third-Party CoSort Plug-ins

The table below shows the third-party software for which **CoSort** offers drop-in sort replacements. It also provides references to the sections in the **CoSort** User Manual that describe the initialization of each plug-in interface, when applicable.

<b>Product</b>	<b>CoSort User Manual Cross-Reference</b>
ACUCOBOL-GT	Contact your IRI representative
Amdocs Ensemble	Contact your IRI representative
DataStage	Contact your IRI representative
Informatica	Contact your IRI representative
MF COBOL Net Express	<i>MF COBOL WORKBENCH 4.0 AND NETEXPRESS 2.X SORT REPLACEMENT FOR WINDOWS</i> <i>MF COBOL Net Express SORT REPLACEMENT FOR WINDOWS</i>
MF COBOL Server Express	<i>MF COBOL ServerExpress 2.2-4.0 SORT REPLACEMENT FOR Unix</i>
MF COBOL Workbench for Unix	<i>MF COBOL WORKBENCH 4.1 SORT REPLACEMENT FOR Unix</i>
MF COBOL Workbench for Windows	<i>MF COBOL WORKBENCH 4.0 AND NETEXPRESS 2.X SORT REPLACEMENT FOR WINDOWS</i>
SAS	<i>USING COSORT WITH THE SAS SYSTEM</i>
Software AG Natural	<i>USING COSORT WITH SOFTWARE AG NATURAL</i>
Sun MRP (MTP/MBM)	Contact your IRI representative
Unix /bin/sort	The <i>sort PROGRAM</i> chapter

---

## Install NextForm on Windows with or without COBOL

To install the COBOL version of **NextForm Lite**, follow the instructions at [www.iri.com/nextform](http://www.iri.com/nextform) for downloading **Nextform Lite**. Also, download the file **Imsetupx86.msi**. A Micro Focus license is required and must be provided by your IRI representative.



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If upgrading, remove the previous versions of **NextForm** before installing the newer version. To do this, uninstall the previous versions using the Add/Remove Programs facility in the Windows Control Panel, then manually remove any executables from previous versions, such as any locally-stored **nextform.exe** files.

---

### Install NextForm on any Windows operating system

#### Loading

1. Run **NextForm\_full\_install.exe**. The install shield prepares for setup, and a splash screen displays.
2. When the welcome screen displays, click **Next** to continue. The **Software License Agreement** screen opens.
3. Read the license agreement. If you accept the terms, select the option **I accept the terms in the license agreement**, then click **Next**.
4. On the **Customer Information** screen, enter your Name, Organization, and Serial Number (in the form xxxxx.xxxx) provided by your IRI representative. Click **Next**. The Destination Folder screen opens.

#### Installation and Registration

1. By default, **NextForm** installs into **C:\IRI\NextForm**, which is referred to as **install\_dir** throughout this section. Click **Change** to provide a different location. When your destination directory is set, click **Next**. The **Setup Type** screen opens.
2. By default, the **Full** setup is selected to install the **NextForm** command line tools plus **IRI Workbench**. If you want to install the **NextForm** command line tools only, select **Minimal**, then click **Next**. Now the **Ready to Install the Program** screen opens.
3. If you are not satisfied with any of the details shown on this screen, click **Back** to return to previous screens. Otherwise, click **Install**. After the Nextform files are copied to your computer, the **Installation Complete** screen displays.

- 
4. Click **Finish**. By default, **Run the setup program** is selected. You can select **Show the readme file** for details on product changes and enhancements since the prior version.



---

You can update the license even if a job is in progress. The new keys will be used in the next job to start up so long as the executable is in the same **%NEXTFORM\_HOME%** environment.

---

## License Key Activation

**NextForm** trial software is enabled for use without license keys, but drops records at random to prevent production use. To obtain permanent license keys:

1. Select **NextForm Registration** from the **All Program Folder** group you specified during installation. By default, you can access this from **Start -->All Programs -->NextForm**.

The **NextForm Registration** screen opens with the following options available:

- Purchase Keys
  - Enter Keys
  - Exit
2. Select **Purchase Keys**. Complete all the relevant fields of the **NextForm Customer Registration Form**. This is required in order to obtain license keys.
  3. Upon completion, click:
    - **OK** to save a **RegForm.txt** file in the installation directory, then exit the **NextForm Customer Registration Form**.
    - **Save As** to select the directory into which the **RegForm.txt** will be saved.
    - **E-mail** to open your default e-mail client with a copy of the completed registration form pasted to the body of the message. If your e-mail client does not open, use **Save As**.

E-mail the **RegForm.txt** to *licenses@iri.com*. Note that you can edit this form at any time after the setup process is complete.

4. Click **OK** to exit the registration form screen. Click **Exit** on the **NextForm Registration** screen to close.
5. Once you receive your license keys, return to **NextForm Registration** from **Start-->All Programs-->NextForm**.
6. Select **Enter Keys**. Enter the three provided keys, then click **OK**.

- 
7. Select **Exit** to close the **NextForm Registration** screen. If the keys are invalid or have expired, an error message will appear.

The program folder **NextForm** is found in the **Programs** group of the Start menu. To verify that the **NextForm** license is in effect, and to run the product in command-line or script development mode, open a command-line window. Go to the **install\_dir\bin** directory that was specified at installation, and type:

```
nextform /v
```

If there is no error status, you are ready to use **NextForm**.

## COBOL Edition

### To install Micro Focus License Manager on Windows:

1. Run **Imsetupx86.msi**. The **Micro Focus License Manager Setup** wizard opens.
2. Click **Next**. The **End-User License Agreement** screen opens. Read the license agreement and accept the terms by selecting that box, then click **Next**. The **System Firewall** screen opens.
3. Keep the check box selected to **Unblock the systems firewall for the Sentinel RMS License Manager**, and then click **Next**. The Ready to install Micro Focus License Manager screen opens.
4. Click **Install**. The Micro Focus License Manager is installed. The **Completed** screen displays.
5. Click **Finish**.

### To install the Micro Focus license:

1. Go to **Start-->All Programs-->Micro Focus License Manager** and select **License Administration**. The **Micro Focus License Administration** wizard opens.
2. Click the **Install** tab.
3. In the **License file** field, click **Browse** to locate and open the Micro Focus license file provided by your IRI representative.
4. Click **Install Licenses**. A message indicates if the license was successfully added.
5. Click the **Summary** tab to display the status of the Micro Focus license.
6. Select **File-->Exit** to close the **Micro Focus License Administration** wizard.

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## To add the path to the COBOL libraries used by Nextform:

1. Open the **Windows Control Panel** and select **System**.
2. Click **Advanced system settings** in the left navigation pane. The **System Properties** dialog opens.
3. Click **Environment Variables** near the bottom of the page. The **Environment Variables** dialog opens.
4. In the top window, select **PATH**, and then click **Edit**.
5. At the end of current path, enter:

```
C:\Program Files (x86)\Micro Focus\COBOL Server\bin\
```

If you did not use the default path at installation, enter the correct path.

6. Click **OK** to close the edit window, then close any open dialogs. Setup is now complete.

The **NextForm** folder is found in the **All Programs** group of the **Start** menu.

To verify that the **NextForm** license is in effect, and to run the product in command-line mode, open a command-line window. Go to the *install\_dir\bin* directory that was specified at installation, and type:

```
nextform /v
```

If there is no error status, you are ready to use **NextForm**.

## License Key Activation

**NextForm** trial software is enabled for use without license keys, but drops records at random to prevent production use. To obtain permanent license keys:

1. Run the setup program and e-mail a complete **RegForm.txt** to *licenses@iri.com* to obtain permanent license keys.
2. Click **Enter Keys**. Enter the three keys, then click **OK**.
3. Click **Exit** to close the NextForm Registration screen. If the keys are invalid or have expired, an error message will appear.

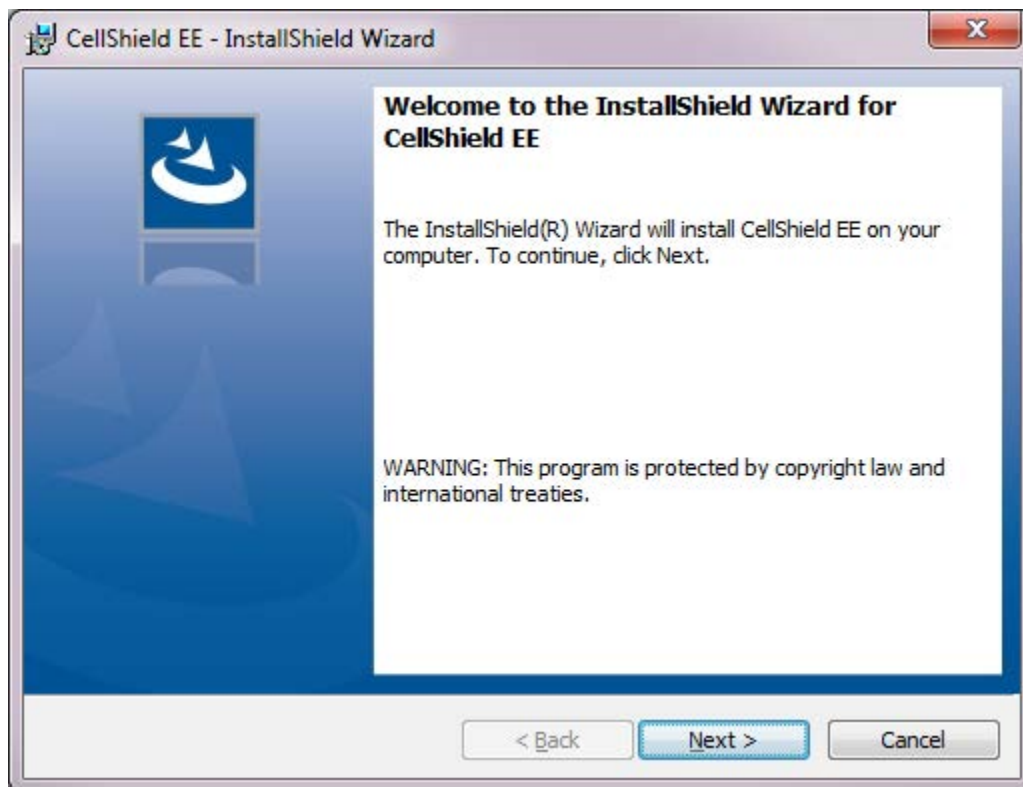
---

## Installing CellShield EE

Use the following steps to install and license IRI **CellShield EE** on Windows. Excel must already be installed because this product is an add-in to Microsoft Excel. However, its operation requires the installation of IRI Workbench either with or without CoSort installed and an update for Workbench that adds the Dark Data Discovery feature

### Downloading

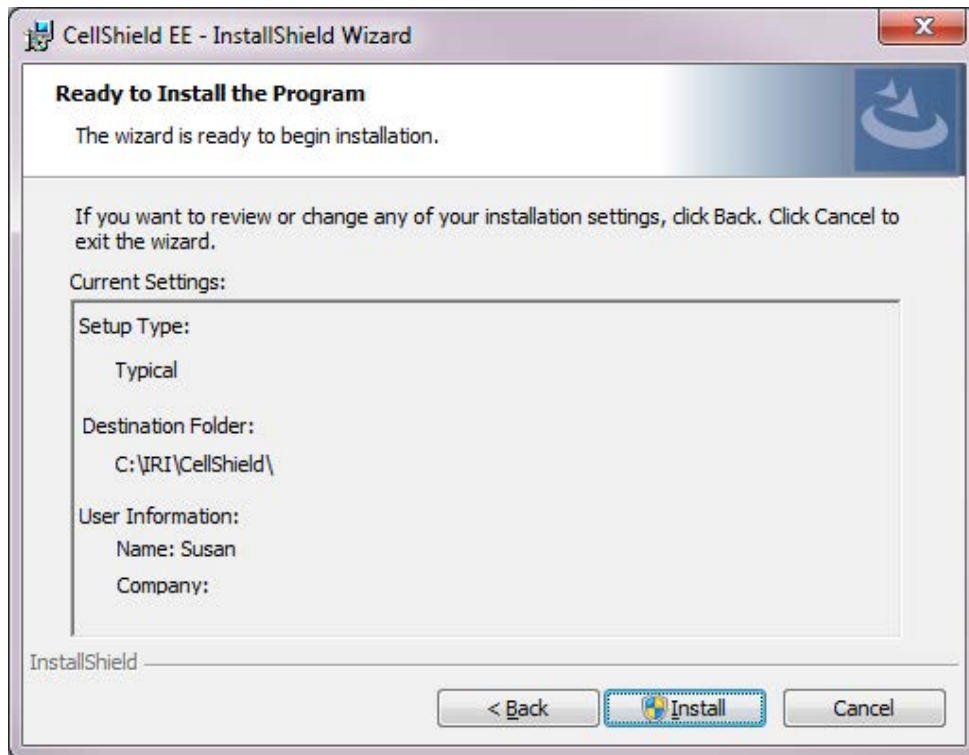
Click on the link in your e-mail. A web page displays where you fill in your first name, last name, and e-mail address. After checking the "I agree to the terms of our NDA", click **Download**. Execute the installer by double-clicking on the downloaded file (for example **CellShieldEE.x86\_32.install.exe**). The following screen will display:



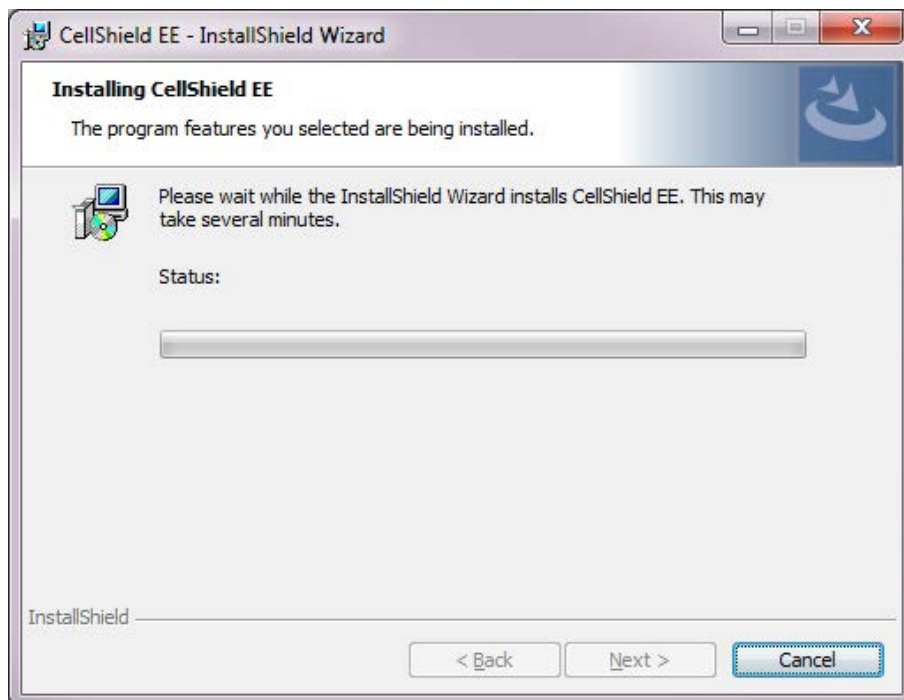
Click **Next**.

You can choose to print the License Agreement. After selecting "I accept the terms in the license agreement", select **Next**.

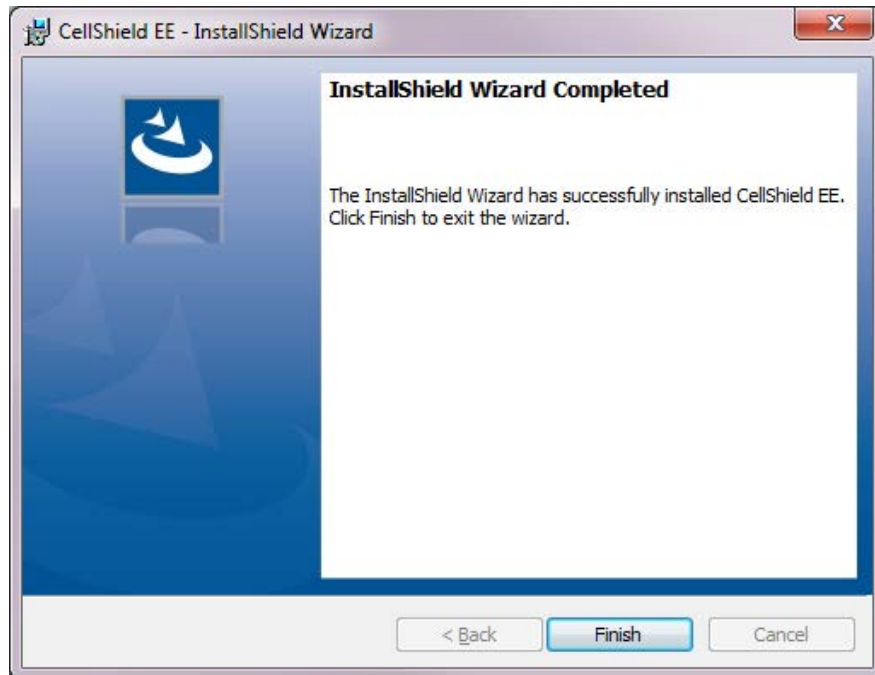
The following screen displays the install information:



It is required that your **Destination Folder** be **C:\IRI\CellShield**. Select **Install**. The below screen will display while the program files are being installed:

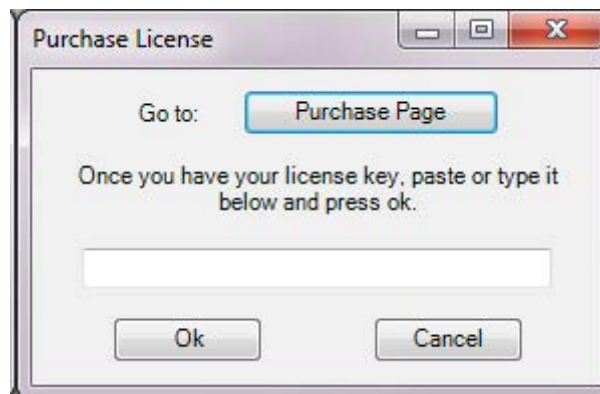


Then click **Finish** on the screen below.



## Activating a License

Open a spreadsheet in Excel and click CellShield on the top tool bar to display the ribbon icons. Click on one of the Data Protection functions, such as **Encrypt & Decrypt**. Select one of the menu items. Since this is your first time using CellShield, you will get the following pop-up:



Click the **Purchase Page** button. This takes you to the IRI "Purchase CellShield" web page. It is not necessary to fill out the items on this page, but you need to send the

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**Setup Key** to licenses@iri.com. IRI will then send you three license keys that are concatenated with a period between each.

Open your Excel and go through the same steps to bring up the **Purchase License** pop-up. Copy the license key string into the box and select **Ok**. The original menu item that you selected will now come up. You can continue with that item or select **Cancel**.

Your **CellShield** license is now active.

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## Installing FACT

The following steps are used to install and license **FACT** (Fast Extract) on Unix, Linux, and Windows. When the database software is Oracle, be sure that the bit architecture of **FACT** matches that of your Oracle OCI libraries.

### Loading

1. Download and unpack the **tar.gz** or **.zip** file provided by your IRI representative.
2. Create an environment variable called `FACT_HOME`, and set it to the **FACT** root directory created in step 1. This contains the **/etc** and **/example** sub-directories, and also holds the **fact** and **factmgr** executables.

### Installation and Registration

3. From the **\$FACT\_HOME** directory, enter: `fact --trylicense`

Follow the prompts and complete all entries to build the registration form. This is required to obtain license keys.

4. The file, **RegForm.txt**, is created in the **\$FACT\_HOME/etc** directory.
5. E-mail the file **RegForm.txt** to `fact@iri.com`. You will then receive a license key or set of keys via e-mail.

### License Key Activation

6. Type `fact --setlicense` and enter the license keys at the prompt. You must then set up the required environment variables before you can use **FACT**. See "Preparing FACT for Use" in the **FACT** User Manual.
7. Type `fact -v` to verify that you have a valid license. See "Fact Execution" in the **FACT** User Manual.

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## We Need Your Input

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