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IRISXtract™ for Documents

Version 5.0

Installation

Administration Guide

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1. Introduction

1.1 About this Document

This is the installation guide of **IRISXtract™ for Documents** (afterwards **X4D**) version **5.0** and therefore part of the administration documentation.

Please find here in explanations on the scope of supply, as well as the requirements for the installation and setup of an **X4D** system in the respective environment. Because there are complex installation scenarios possible this helping guide can be used for preparing or attending an installation of the **X4D** platform, its components or parts and even certain solutions in your designated environment.

1.1.1 Conventions

This document uses typographical standards and graphical symbols as described in the following.

Special headings and icons mark notable information. There are certain types of alerts with specific symbols used throughout this guide. Each symbol indicates one of the following:

Important:

This symbol indicates important information that you have to read and remember. Failure to observe these instructions may lead to errors or malfunctions. Configurations or data can be lost as well.

Note:

This symbol indicates information that you should read and follow. Failure to follow this information may lead to unexpected function.

Tip:

This symbol indicates additional information and useful tips.

For a reference to external documents, especially third party documentation, there is a special notice using an alternative symbol:

Reference:

This symbol indicates information that you should read from an external document. Failure to follow this information may lead to unexpected function.

Table 1: Common Language that X4D User Guides or Manuals Use

Emphasis	Function	Example
Bold letters usually with an arrow as a separator	Menu items and entries. Can be clicked on with mouse	**Start > Settings > Control Panel**
Bold letters all caps with big initial letter	Names of specific software, technology, engine or component names	**SOLUTION DESIGNER**
Italic bold letters	Specific application roles, parameter sets or optional functions.	A ***Verify Supervisor*** workstation
italic mono spaced letters within quotes	File and Folder names	***"C:\Program Files\IRISxtract"***
Common styled scripting code poss. with light gray background	Declarations, parameter sets or functions, of an API (so as code) used in an IDE or XML editor	`' Input and output folders` `Dim oFSO : Set oFSO = CreateObject ("Scripting.FileSystemObject")`

1.1.2 User Skills

You should handle this guide and **IRISXtract™ for Documents**, including all of its software components, with due diligence and care.

Prior to installing **IRISXtract™ for Documents** with perhaps also certain applications or even complete **Solution Packages** (afterwards **SP**), we recommended that you go through this guide. As the reader of this guide, you must have the appropriate knowledge of **IRISXtract™ for Documents**. In addition, you must be generally familiar with the compatible operating systems, SQL databases and in case of developing environments with Microsoft Visual Studio.

You must have the knowledge that is common for system administrators or software engineers to ensure correct installation procedures and use of **IRISXtract™ for Documents**. If you do not, I.R.I.S. does not exercise accountability for any negative results as an outcome.

As an **X4D** administrator you, or an immediate contact to an AD administrator, need to have permission in accessing and adjusting the Active Directory in which the **X4D** system is to be integrated.

This guide requires a basic knowledge about installing and configuring an **X4D** system. This can be achieved by graduating **X4D** trainings. If you feel you do not have the proper knowledge, please get in contact with your I.R.I.S. representative.

1.2 About X4D Installation

Before installing any part of an **X4D** system the adequate environment should be prepared and the necessary prerequisites should be at hand. Read and consider the information about the requirements in *chapter 2 "Installation Preparation"* carefully.

The product platform, with its components and the applicable solution parts can be installed in one guided way by use of **X4D Setup Wizard** which is the first choice to install an **X4D** system and directly activate the licenses in principal. The processes covered by **Setup Wizard** are described in *chapter 3 "Setup Wizard Usage"*.

The special web front end variant of the **X4D** verification component **WEBVERIFY** needs besides the installation of the specific package, certain steps for integrating the web server application. Those information can be read in *chapter 4 "WebVerify Installation Steps"*.

In case of a more complex IT infrastructure or the need to increase the performance by installing the **X4D server** in a distributed environment with software components spread on different nodes the relevant aspects and needed information are given in *chapter 5 "Advanced Installation Aspects"*.

For the integration of **Solution Packages** that are specialized business application solutions of **IRISXtract™ for Documents**, the adequate installation aspects are given in *chapter 6 "Specific PowerShell Commands".*

You can furthermore find in there the procedures for setting up the development environment ready for the project adaption of those **SP**s.

At least this guide also covers the aspects and on certain procedures in creating customized online help links within the common end-user component **VERIFY** as well as **COCKPIT**, which can be found in the last *chapter 7 "Online Help Customization"*.

2. Installation Preparation

Before installing **IRISXtract™ for Documents** the following should be considered.

2.1 Licensing

The license mechanism guards four basic functional areas:

- Unauthorized duplication of **IRISXtract™ for Documents**
- System scaling
- Functional system restrictions according to the current license
- Performance or throughput limitations

The license protection in **IRISXtract™ for Documents** is an option mode which has to be defined in the order process of the software. Two possible modes are achievable within the **X4D** system platform and can be controlled for all the components by the **WOM** server or inside the design tools and the accessory software itself:

- Hardware protection by a local USB Dongle
- Software protection (default setting)

Reference:

For more information on the protection options and the licensing control, please refer to the **X4D** system description "System Overview".

If a license file ("*.lic") is stored in the root folder of the installation medium, this will be chosen by **SETUP WIZARD** automatically when the license mode can be defined. In case this licensing step during installation is skipped or due to any other scenario, the licensing can also be done manually. This can be done in the "Licensing" view in **X4D COCKPIT** for the **X4D** system or in a licensing dialog of the respective software.

The potential hardware protection can also possibly be used within scenarios of a distributed environment, so that the dongle itself is provided on a virtual USB port by sue of a third party device found in the network. The specific driver for simulating a local USB-port and the dongle driver software itself for a correct detection must be installed on the **X4D** server or the design/management node.

Important:

The network dongle licensing provided by the WIBU-Dongle software with "WkLAN service" or "WkNet service" is not supported within an **X4D** environment.

Installing the WIBU Dongle software (optional)

If a hardware-dongle licensing mode is planned, the WIBU-Dongle software package must be installed.

Please perform the following steps to install WIBU driver:

1. Disconnect all WIBU dongles from computer if already present.
2. Start the installer package of the WIBU Key Runtime from the respective installation folder ".\Misc\Wibu\"
3. Follow the instructions with default settings or with your own settings for
   a. Specific language setting
   b. Destination folder and
4. Within the dialog for choosing the network services, please deactivate both options for the use of "WkLAN" or "WkNet". These services are no supported.

Note:

If a network dongle is considered, the dongle server (dongle box), has to ensure the dongle is presented on the **X4D SERVER** itself as plugged in, so that the WIBU device driver can establish the connection properly.

5. After finishing the installation the WIBU dongle has to be connected to the computer. The Windows hardware wizard will start automatically and the dongle recognition must be setup:
   a. Check without search for Windows Update and
   b. automatically installation of the device driver

Now the WIBU dongle driver is installed and can be used for activating the **X4D** System.

2.2 Environmental Aspects

Besides the prerequisites and requirements explained further on, the **X4D** environment and architecture should be clarified before installation so that the document processing solution covers all business aspects as desired. For doing so there are certain technical possibilities that can be exhausted as well as limitations that can lead to unexpected behavior.

System Structure

As a major technology the **X4D** server is representing a workflow platform named **WOM** (**W**orkflow **O**bject **M**anagement). This is responsible for the object-oriented storage of document- and configuration-data, as well as the internal workflow, the access control mechanism, and finally the communication, especially in distributed **X4D** applications.

Thus the system structure should be planned concerning the following aspects:

- Several **X4D** components can either be operated as one "closed" system on one single client machine or as a distributed environment on many client machines to process a wider range of documents and pages at one time. This is to be balanced according to the supplied spread memory contrary the possible latency aspects.

- It is possible to install **X4D** server with all its components on one machine, but that means that all the machines resources are shared to all services and tasks running on that single node. To many processing tasks and a high memory consumption of services can limit the environmental performance.
- When setting up a distributed environment, only the **WOM** components have to be installed on that **X4D** server, all other parts can be allocated anywhere in the network on special client machines. In either case the system component **NODEAGENT** will be installed on the server machine and all client machines be the respective installer packages. The communication mechanism uses the network protocols over TCP/IP.
- If it is planned to integrate adequate business process Add-ons to the **X4D** System the specific dependencies to the relevant **X4D** components have to be ensured. Especially when integrating the multifunctional **IRISCONNECT™** to **X4D**. This tool is used by **X4D EXPORT** and can be configured by **COCKPIT** so it needs to be installed on all these nodes running these **X4D** components.

Administration of Networking Requirements

The following requirements for network administration are mentionable precedent to an integration of an **X4D** application:

Important:

On a Domain Controller server it is strictly prohibited to install any of the **X4D** programs, due to side effects on both services.

Thus it is strongly recommended to use a separate machine and not to install the **X4D** server and/or the SQL Server (used as storage backend by **X4D**) on a Domain Controller.

- All machines are members of a Windows Active Directory which is recommended for interaction and network communication without interruption.
  Other possible forms by choice of local user accounts which need to be mirrored and use equal names and passwords are prone to unspecific failures. Such accounts must furthermore ensure not to have restrictions on their access permissions
- Dedicated user and user groups have to be created in that domain:
  - Special user rights will be assigned to these user accounts on each machine during the installation
  - Those user rights should not be deleted by group policies
  - Additional information regarding the access control mechanism for the users should be considered
- The passwords for the user accounts mentioned above should not expire (the permission for "interactive log on" is not required, however)
- Judicious network settings and especially a consistent DNS configuration are preconditions for an error free communication with high performance
- Server and client machines can be located in different DNS zones
- Network transparency (authentication and file access for instance) should be guaranteed (firewalls may cause troubles and needs an appropriate configuration - the settings have to be ensured, see *chapter 5.1 "Firewall Configuration"*).

2.3 Platform Compatibility with Operating Systems and Database Servers

IRISXtract™ for Documents version 5.0 stands the compatible tests for the following Microsoft operating systems and database products. In relation to the latest available service packs, the current support of Microsoft for the respective product lifecycle is relevant (*https://support.microsoft.com/en-us/lifecycle*).

Microsoft Operating Systems		Microsoft Database systems	
Windows Server (Server machine)	Windows (Client machine)	Local /intranet installation	Cloud hosted
► 2008 R2 ► 2012 ► 2012 R2 ► **2016**	► 7 ► 8.1 ► **10**	► SQL Server 2012 ► SQL Server 2014 ► SQL Server 2016 ► **SQL Server 2017**	► Azure SQL

Information about Database Server

IRISXtract™ for Documents rely on a database as storage backend that is hosted on a Microsoft SQL Server. For larger business processes, which also depend on a more complex system should better use a dedicated version on a remote server. The distribution covers a Microsoft SQL Server Express Edition. This is intended to be used as storage backend for small business solutions for instance as standalone system, which then is installed as a local database.

This edition is free of charge, but has some technical limitations, e.g. the maximum size of the database (must not exceed 10GB), and a restricted license. This allows in a typical **X4D** application a document volume about 20.000 resp. 50.000 pages simultaneously.

The **X4D** system uses BLOBs (binary large objects) within the table rows to get the OCR results, pictures and configuration through the system as well as complete attachment files. The database growth depends on such requested throughput which has to be considered.

Reference:

Please refer to the information stated by Microsoft on the product home page of the SQL Server versions for aspects according to the features of the editions and how they influence the performance.

https://docs.microsoft.com/en-us/sql/sql-server/editions-and-components-of-sql-server-2017?view=sql-server-2017

In case of an existing Microsoft SQL Server instance – with a full edition – and perhaps already existing database should be used, **IRISXtract™ for Documents** is geared up to the need of individual settings by offering the advanced installation mode within **SETUP WIZARD** for the most common situations. If this scenarios do not match, perhaps further aspects have to be considered in manual integration steps then see *chapter 5 "Advanced Installation Aspects"*.

2.4 Average Pertinent Hardware Requirements

The average pertinent hardware requirements for the respective computer node in a typical **X4D** Environment are depending on the performance. These are the assumed daily amounts:

- 50 different document types
- 20 MB master data
- 200 documents per day

Please refer to the situational project specifications for any further demands concerning the number of CPUs, central memory, hard disc systems etc. Generally all hardware requirements have to cover the respective nodes functionality.

Consequentially the following has to be considered in particular:

X4D Server minimal installation (*without Integrated SQL Server*) / **X4D Designing node**	**X4D Server default installation** (*All in one node with SQL Server*)	**Typical client node Minimum** (*e.g. Verify node*)
≥ 2.0 GHz 2-/4-Core CPU	≥ 2.0 GHz 2-/4-Core CPU	≥ 1.0 GHz 2-/1-Core CPU
4 GB RAM enough for a dedicated server, without further X4D components) Additional 4 GB RAM recommended for Visual Studio (SQL Server will require at least additional 1 -2 GB RAM)	8 GB RAM recommended	2 GB RAM (recommended)
80 GB available disk space	80 GB available disk space	60 GB available disk space
100 Mbit/s network adapter		
USB 2.0 support for the dongle based protection mode		

There are perhaps other conditions needed in case of more complex workflows according to the application and its average amount of documents and the business process itself. Consider your specifics, in line with the stated information given before in *chapter 2.2 "Environmental Aspects"*.

2.5 User Administration

The following **user accounts** and **user groups** inside the Windows system are needed by an **X4D** system and have to be created in the actual domain before installation. Even if installation by **SETUP WIZARD** is done in the default complete routine, the used passwords have to be known and the user accounts should not be disturbed by activated security policies. However, **SETUP WIZARD** can assist you while creating the users and groups or can completely create them automatically.

A role-based model realizes the controlling of the user access inside **IRISXtract™ for Documents**. The specific **X4D** roles or specific roles of the **WOM** (**W**orkflow **O**bject **M**anagement) system are installed, which are mapped to Windows user accounts and respectively Windows user groups (a role can be identified as an identity or as a group of identities). Access authorizations for real **X4D** users are implemented by inserting the corresponding user accounts into one or more **WOM** user groups.

The names of the user accounts and user groups inside the Windows system needed by an **X4D** system and mentioned above are predefined by the installation, which are the following:

Table 2: User and Service Accounts

Account	Default Password	Description and user rights on security policies
xtract_server	*IRIS-X4D-ser*	This user operates the **WOM** processes of the **X4D** server. Within the SQL database used as **X4D** storage backend this has to be "*dbowner*" *Local Policies*: "*Log on as a service*"
xtract_worker	*IRIS-X4D-wor*	This user operates with **X4D** components that need no interaction with other users and run as background processes (**ANALYZE**, **IMPORT**, **EXPORT**, **DBMANAGER**, etc.). These components are directly controlled by the **NODEAGENT** service. The user should be a Windows "Power Users" group member. *Local Policies*: "*Log on as a batch job*"
xtract_agent	*IRIS-X4D-age*	The Windows service **WOM NODEAGENT** operates with this user. *Local Policies*: "*Act as part of the operating system*", "*Adjust memory quotas for a process*", "*Debug programs*", "*Log on as a service*", "*Replace a process level token*" and "*Shut down the system*"
xtract_install	*IRIS-X4D-ins*	This is an administrative user account and has the right to install the **X4D** system and do the initial administration. It is necessary for an IRIS support connection.

Table 3: IRISXtract™ for Documents Groups

WOM Server Role / Windows user group	Required account members	Description
Xtract Users	"*yourdomain*\ ***xtract_worker***"	Members of this group are allowed to use **X4D** components and work on documents inside the **X4D** environment.
Xtract Administrators	"*yourdomain*\ ***xtract_agent***" (if needed) "*yourdomain*\ ***xtract_install***"	Members of this group perform controlling tasks and have some privileges inside **X4D** and Windows (they are members of the local administrator group).

2.6 Add-In Development

Since **IRISXtract™ for Documents** version **5.0** the development tool **SOLUTION DESIGNER** supports, for creating project Add-Ins of solution applications, Microsoft Visual Studio as development environment instead of the former used Microsoft VSTA and its technology.

Because of this, **SOLUTION DESIGNER** version **5.0** will open an already before installed Visual Studio edition for coding Add-Ins and furthermore provides an extension package for accessing the application programming interface. The supported versions of Visual Studio starts with 2015, which is the default version in its newest available download revisions at least by use of "*Professional*", "*Community*" or "*Enterprise Edition*". Other former versions and especially the "*Express Edition*" are not supported. At the actual state also version 2017 is supported.

Note:

Some Visual Studio editions can be licensed via the MSDN subscription or equal online registrations which do need an online connection to such an account. In case of a longer offline period, Microsoft prompts to ensure the licensing due to a missing online connection.

Developers who be aware of unstable online connections should use another edition than for example the "community edition" which uses such a license registration.

Within the installation routine of Visual Studio the "*.Net Framework 4.5.1 (target pack)*" at least is a recommended "*individual component*" as well as Visual Basic .Net as programming language because it's used within the default templates for the add-ins given by **SOLUTION DESIGNER**.

The new **X4D** specific API gets reachable within Visual Studio by an extension packages (named "*I.R.I.S. X4D Add-In Development*") that is initially installed into your development environment by a first start and triggered from the customizing workspace within **SOLUTION DESIGNER**.

2.7 Scope of supply and System Requirements

This is information given to use in more customized installation way. Within the major scenario and use of **SETUP WIZARD** the system requirements are automatically checked and if possible additionally prepared for the installation.

Structure of Installation Folders

The "***Distribution***" folder found on the I.R.I.S. FTP server contains the distributed files for installing **IRISXtract™ for Documents** version **5.0**. The common way after downloading the structure is to start the "Setup.exe" which directly opens **SETUP WIZARD** with its optional common scenarios.

The installation routines refer to content of specific distribution folders which contain the following:

- "***\Install***" Sources needed for an installation
- "***\Setup***" Setup files used by the Setup Wizard
- "***\Licenses***" Systems license file and additional ones for the components
- "***\Applications***" Structure of an application folder
- "***\Docu***" The complete documentation

Installation Packages of System Components

You can find in the folder "***\install***" all selectable installer packages of the **X4D** system as follows:

Core and Server Components

- **NODEAGENT**
  a service tool responsible for starting and stopping the processing components; also required on any **X4D** node
- **RECO**
  a package with the basis recognition engine IDRS and configuration components; this is always needed
- **RECO.KADMOS**
  optional package with the recognition engine KADMOS® in addition to the **RECO** package
- **RECO.RECOSTAR**
  optional package with the recognition engine RecoStar® in addition to the **RECO** package
- **WOM SERVER**
  a core package covering the server and controller of the **X4D** system
- **WORKFLOWCONTROLLER**
  also a server component that optionally can be installed on a separate node; it is only needed ones in an **X4D** system

Workflow Components

- **ANALYZE**
  this runs as background service responsible for the recognition, data extraction and preparation; It needs the **RECO** package
- **DBMANAGER**
  runs in background; responsible for handling the master data; there can only be one instance in an **X4D** system
- **EXPORT**
  runs as background service; responsible for exporting the processed documents; configuration via Cockpit.
- **IMPORT**
  runs as background service, responsible for importing scanned image files; configuration via Cockpit
- **VERIFY**
  Major program with a user interface; necessary for data verification of documents; configured via **VERIFY ADMIN**
- **WEBVERFIY**
  Web variant of Verify; package for the web server parts; see *chapter 4 "WebVerify Installation Steps"*

Administration and Design tools

- **COCKPIT**
  Administration tool for inspection, control and set up of the production line and the complete system
- **VERIFY ADMIN**
  A specialization of **VERIFY**, used to setup general and user role specific configurations
- **SOLUTION DESIGNER**
  Designing and developing tool for **X4D** solutions with project files, that have focus and main function to configure the specific document analyzing process according to the required technologies
- **DESIGNER**
  only needed in rare project designs of old fashion forms processing; Solution Designer can prompt to open those projects herein

The potential prerequisites of these are also stored in subfolders in the folder "***\install***" as listed in the next *section "Prerequisites, Optional Tools and Components"*. They are used by **SETUP WIZARD** during the installation procedures. **SETUP WIZARD** bundles the respective installer packages of components and the configuration settings for the desired installation routine. The specific constellation of installation packages depends on the required workflow and the **X4D** system architecture which should be considered. This has to be checked and determined before starting the installation process.

Prerequisites, Optional Tools and Components

As stated before in brief, the directory "***\install***" also contains some optional components and prerequisites found in those respective folders:

- ***dotnet3.5SP1*** The .NET Framework 3.5 with Service Pack 1 for the Microsoft SQL Server 2014 Express Edition
- ***Dotnetfx*** The .NET Framework 2.0
- ***Microsoft Visual C++ 2005 Redistributable 8.0.50727.42***
  The specific programming redistributable package as named
- ***Microsoft Visual C++ 2008 Redistributable 9.0.30729.6161***
  The specific programming redistributable package as named
- ***Misc***: Additional programs used in certain situations and environments
  - ***WIBU*** ***WibuKey*** dongle-driver
- ***msxml6*** Microsoft XML Parser and SDK Version 6.0
- ***ReportViewer*** Microsoft Report Viewer Redistributable 2005 for the **X4D** designing tool **SOLUTION DESIGNER**
- ***Requirements*** Covering additional Microsoft software
  - ***MSSQL2014EXPR*** Microsoft SQL Server 2014 Express Edition
  - ***SQL Server SMO*** SQL Server Management Objects
  - ***VCRedist*** Visual C++ Redistributables in different versions
  - ***Windows Installer*** Windows installation update packages
  - ***Windows PowerShell*** PowerShell update package (for Windows 7 and Server 2008)
- ***WindowsInstaller3_1*** Update Package of Windows installer

All components and thus the respective nodes do also require the **.Net Framework 4.5.1** which might be installed separately in case the operating system does not already provide this.

Dependencies of Prerequisites and Installation Packages

The actual installation packages in the "***install***" folder are intended to be used by **SETUP WIZARD** which is able to install the specific requirements of the component or even for simple updates. If they do not exist on the target node the necessary prerequisites have to be installed.

The provided Microsoft SQL Server Express edition can be used during the installation for the storage backend of the **X4D** system or even a remote connection to an adequate Microsoft SQL Server can be established, see list of supported versions in *chapter 2.3 "Platform Compatibility with Operating Systems and Database Servers"*.

Before starting such advanced installations with a remote SQL Server connection consider the following:

- Further information can be found in *chapter 5 "Advanced Installation Aspects"*
- Commonly dedicated environments with a remote SQL Server are administrated separately with specific access rights
- Especially when SQL authentication instead of the common Windows authentication is used on that SQL Server instance the needed credentials should be known

Note:

In the special case the .Net 3.5 Framework is needed (for Microsoft SQL Server 2014 Express Edition) on a Windows 8 /Server 2012 or higher machine, the original installation DVD or an online connection is needed with access to the Microsoft support resources.

2.8 Special Destination Folders in Different Systems

There are some distinctions in the usage of the specific program folders which are of interest:

Function	Default Folder
Installation folder for X4D programs	***C:\Program Files\IRISXtract*** (**32bit** systems) or ***C:\Program Files (x86) \IRISXtract*** (**64bit** systems)
Shared software components	***C:\Program Files\Common Files\IRISXtract*** (**32bit** systems) or ***C:\Program Files (x86)\Common Files\IRISXtract*** (**64bit** systems)
Log and temporary files	***C:\ProgramData\IRISXtract\Logs***
X4D Server: configuration files and license file	***C:\ProgramData\IRISXtract\WOM***
Other Configuration and license files	***C:\ProgramData\IRISXtract\<component/tool>***

3. Setup Wizard Usage

SETUP WIZARD will be the helper for installing any kind of **X4D** machine, the server as well as the client nodes, by a guided installation process. All necessary software components and prerequisites will be installed or checked to be located on the target machine for the use as **X4D** node. The system configuration will be setup to ensure the correct communication of the components and their process transactions.

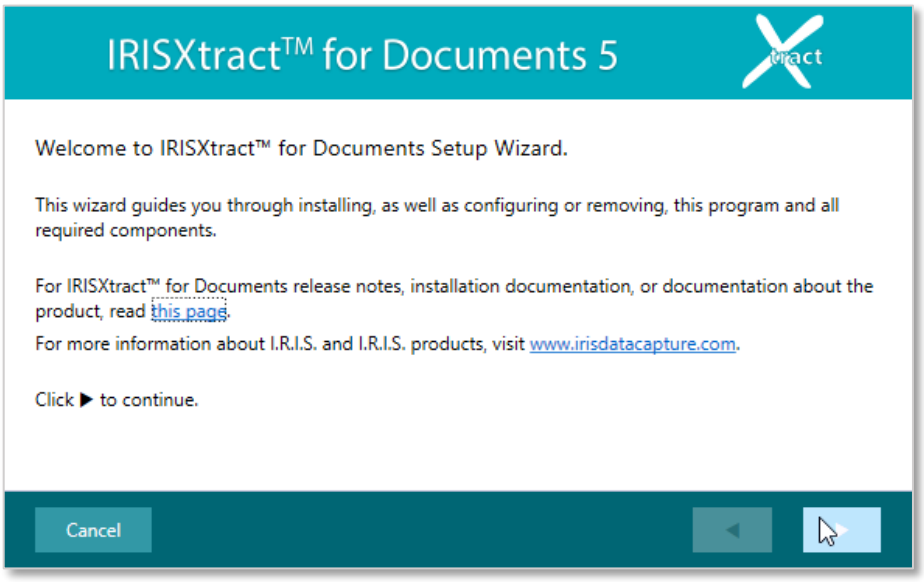

Figure 1: Setup Wizard – Welcome Screen

The general installation process that **SETUP WIZARD** will run, can differentiate in the three major installation modes which have impact on the further process:

1. Automatic complete (Server) installation	2. Expert (Server) installation	3. Client installation
▶ EULA Acceptance		
	▶ Define preconditions: > Service accounts and groups > Storage backend configuration	
	▶ Component selection	
	▶ Configuration	
	> Storage backend (SQL DB)	> Server connection
	> Installation folder setup	
▶ Installation processing		
▶ System licensing and activation		

All of this steps can now be processed in three major installation modes which are described in the following sub chapters.

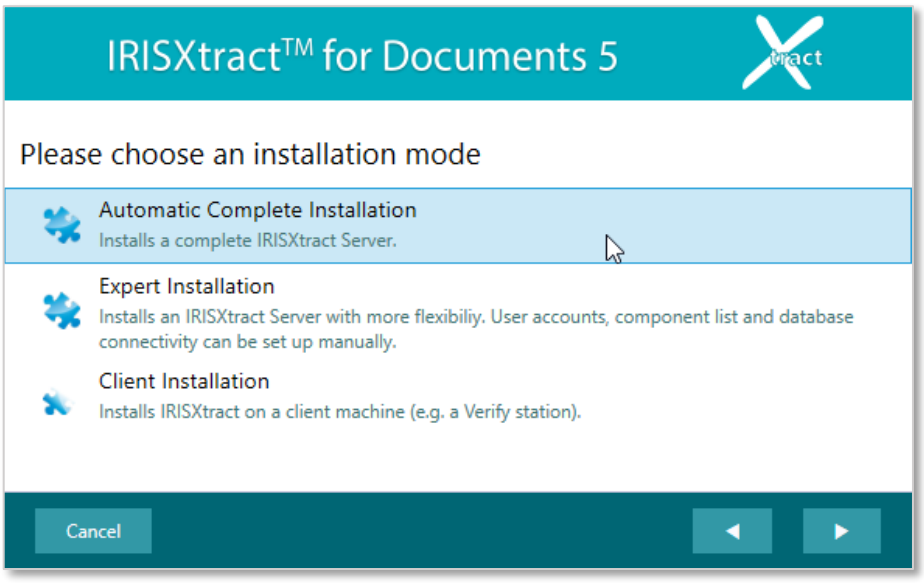

Figure 2: Setup Wizard – Choose fresh installation mode

In case of an already found installation on the certain machine

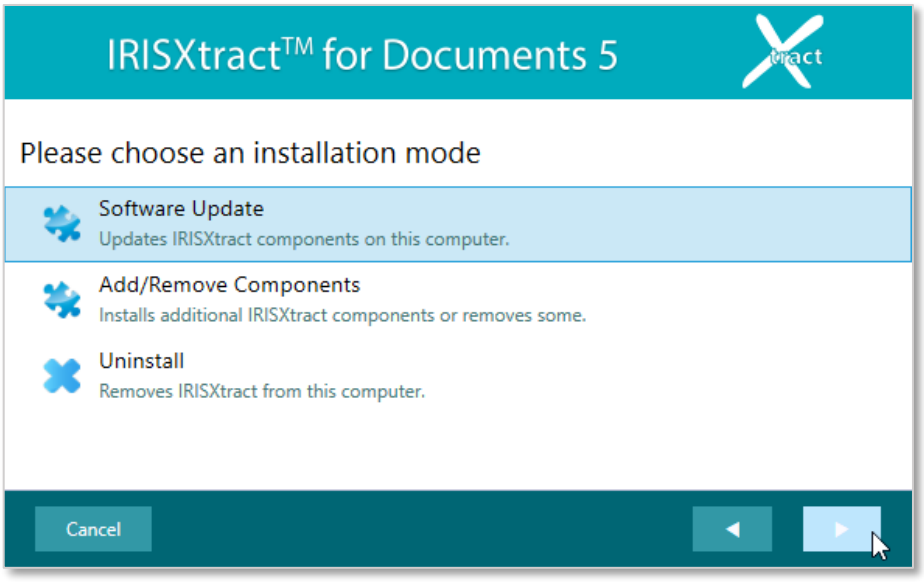

Figure 3: Setup Wizard – Choose installation mode for existing systems

3.1 Installation Mode – Automatic Complete

Information

This installation mode "*automatic complete*" will install the **X4D** Server as single node installation with also all **X4D** components (as **IMPORT**, **ANALYZE**, **VERIFY** and **EXPORT**) installed on this machine. All settings, which can be used for a custom setup configuration, are set on default and the possibility to change them is skipped in this mode. The preconfigured installation settings are:

- All components will be installed on that node into subdirectories of "`\IRISXtract`" in the system's program folder.
- The user accounts and groups are automatically created on the local system with those default names and default passwords as listed in *Table 2 "User and Service Accounts"*.
- Automatically a new instance of the Microsoft SQL Server Express Edition will be added to the designated system.

Note:

If customizing is requested or in case of affecting restriction guide lines, please use one of the other installation modes alternatively. Therefore consider the following:

- The computing environment causes specific requirements in terms of the user/group names and passwords
- The usage of domain bound accounts is favored.

Beyond possible legal issues, there are some situations, in which an automatically created instance is not sufficient:

- A Microsoft SQL Server instance exists, either installed on a local or even on a remote machine, which should be used.
- The new instance name of the SQL Server, by default always "X4D", needs to get a certain custom name.
- The default location for the data storage, usually drive "`C:\`", has not enough free disk capacity for the database files.
- A fine-tuning of technical parameters for the new instance is favored.

Note:

In such scenarios the advanced installation mode (see *section 3.3 "Expert Installation"*) has to be used.

Procedure

1. Read the End User License Agreement (EULA) carefully and please accept these terms in case of agreement by activating the check box and click on the '**Next**' ( ) button.

Figure 4: Setup Wizard – EULA

Get informed about the used "*3rd party*" software or make a "*print*" out on your local default printer by click on the relevant link

2. Afterwards **SETUP WIZARD** starts installing all necessary **X4D** components for a one-node system.

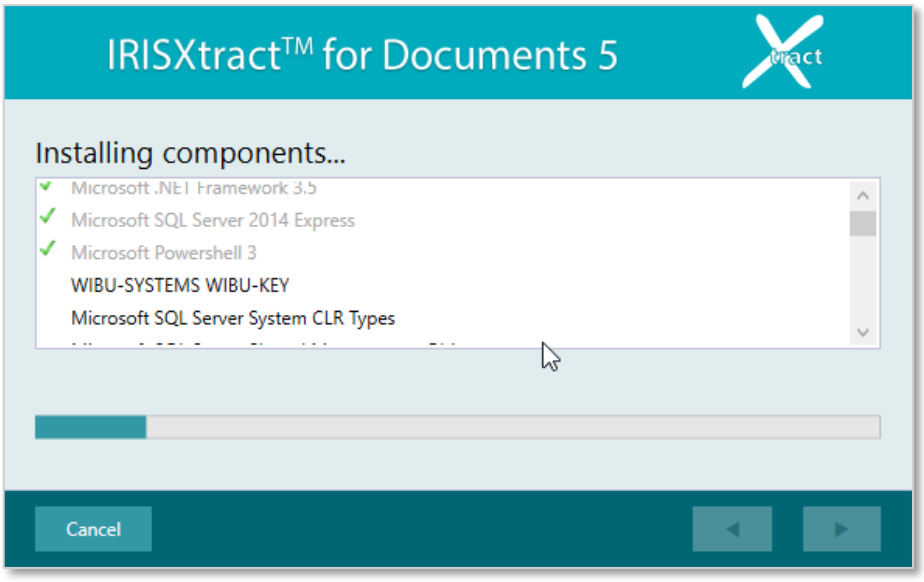

Figure 5: Setup Wizard – Action list in process

These background steps cover the creation and configuration of the needed service accounts as well as the installation of all **X4D** components onto the hard disk. It also covers the installation of needed third-party components, like the device driver for USB dongles, a few supplementary software modules from Microsoft, and an SQL database for the **X4D** storage backend within perhaps a new Microsoft SQL Server instance.

3. The installation will take some time and perhaps need to restart the system at some points. Whenever **SETUP WIZARD** requests a machine restart, please confirm that request instantly and re-login with the same account. You also have to ensure to see the Windows Desktop after login. **SETUP WIZARD** will then resume the installation process automatically.

Tip:

If the restart request is declined, **SETUP WIZARD** stops the process. In the latter case, there will be no automatic resume at all. Anyway a new start of **SETUP WIZARD** is possible after a manual system reboot and it will skip all the already installed components.

4. At the successful completion of installing the packages, the '**Next**' () button guides to the second half of the whole process.
5. Next, automatically the initial configuration steps are processed with status shown as marker.
   a. Configuration of **VERIFY** with its profiles
   b. Initialization of the productive **X4D** database
   c. Initialization of service accounts as **WOM** workers in the **X4D** system
   d. Enabling the **X4D** system services
   e. Creation of file shares
   f. Deploy of possibly provided applications found in the distribution

   In case of running into an error situation such as insufficient user privileges, the respective message will be displayed and a link is offered to reply the step after correction. In a respective folder, logging information are stored that can be hand over in support cases.

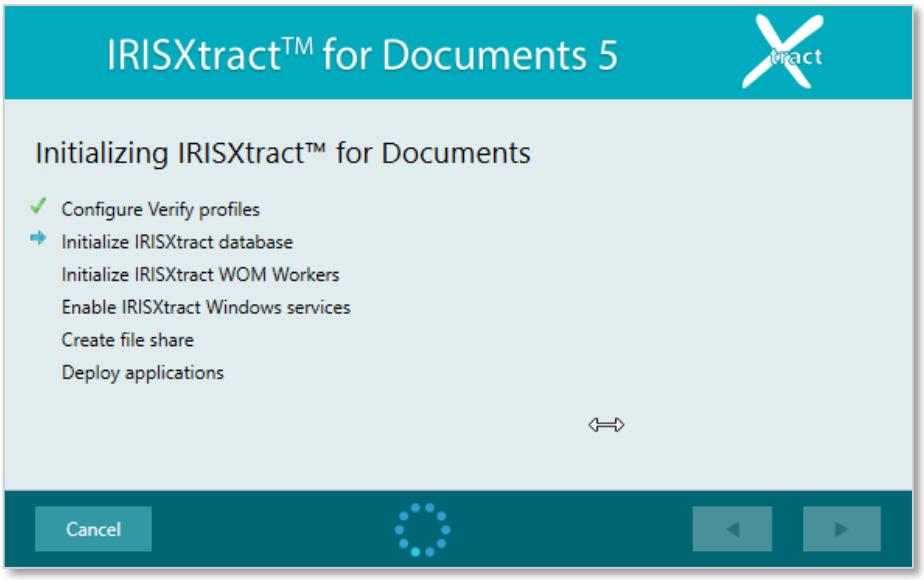

Figure 6: Setup Wizard – Initializing X4D in process

6. Click on the '**Next**' ( ) button to continue the setup with licensing the **X4D** System as described in the follow up *chapter 3.4 "System and Software Activation"*.

3.2 Installation Mode – Expert Installation

Information

For installing an **X4D** system with extended or advanced possibilities the "*expert installation*" mode is the adequate selection. Within this installation routine more interact is provided to make specific settings for the later use of the **X4D** server node within the planned environment. Especially if the **X4D** server installation is planned to be located in a domain with specific user accounts from an Active Directory that follow special rules.

The expert installation is giving the highest degree of adaptability while also essentially processing the same steps as in the "*automatic complete*" installation mode but with more user interaction. In this mode you can adjust the **X4D** server installation with advanced knowledge on the following steps:

- Override default names of the users and groups
- Configure the creation of a new Microsoft SQL Server instance
- Select the modules which should be installed
- Select the installation folder for **IRISXtract™ for Documents**

Procedure

1. After confirming the license, an additional dialog is shown for specifying the service accounts regarding to the stated service account definition in *Chapter 2.5 "User Administration"*.

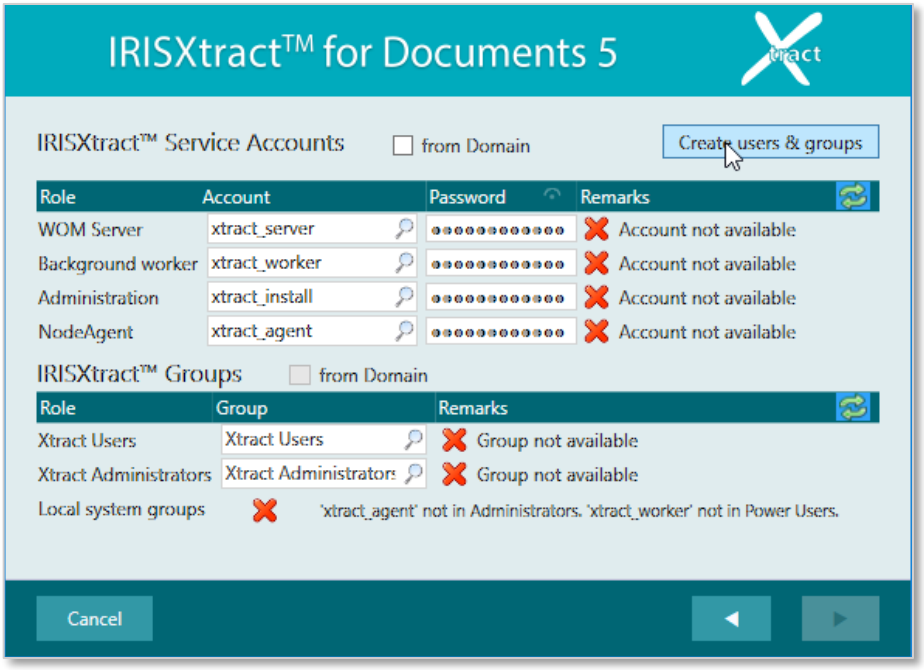

Figure 7: Setup Wizard – Expert Mode Setting up Service Accounts

2. Complete the form with your desired information as follows:
   a. The first part of this dialog shows the user account name and passwords

b. The second part is to define the groups for the respective users.

c. The default names for users and groups can be overwritten as well as the passwords for the users in the according text boxes.

d. The passwords can be made visible by clicking on the '**Show password**' ( ) button.

e. Instead of typing the names, a browser dialog can be used. Click on the '**search**' button ( ) to pick existing users and groups.

f. **SETUP WIZARD** displays

Helpful information about any problem are displayed in the "*Remarks*" column. The validity of the given names and passwords are checked in background and problems with the given configuration are displayed.

In doing so, **SETUP WIZARD** assumes that all the users and groups already exist as given.

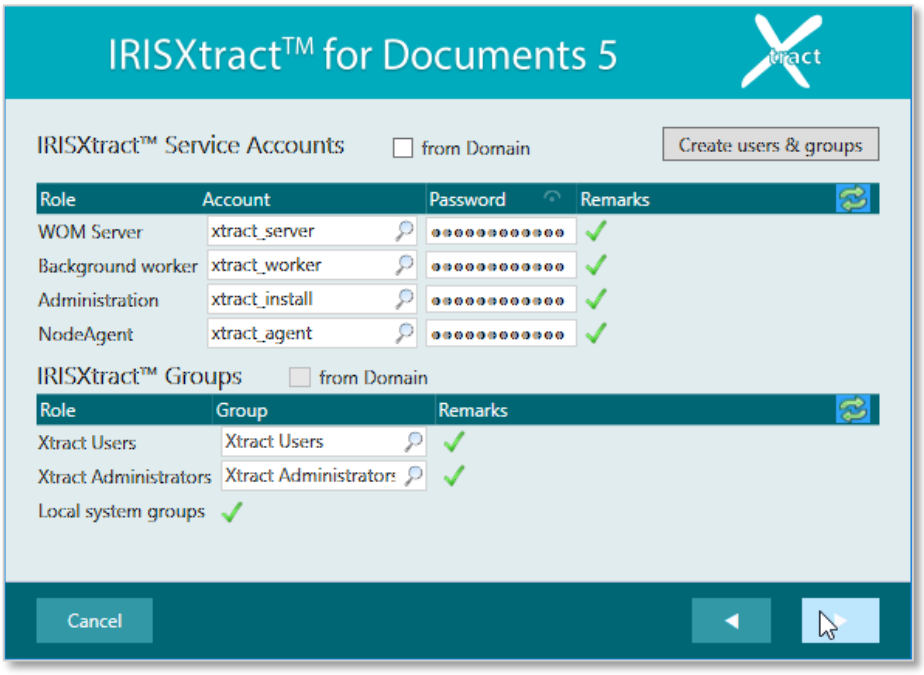

Figure 8: Setup Wizard – Expert Mode Setting up Service Accounts

3. The users and groups can automatically be created by click on "*Create and adjust those groups*", so that the assignment can be made by **SETUP WIZARD**.

4. To use users and/or even groups from your Windows domain, you can select the particular option "*from domain*". If at least one of them is checked, the field "**Domain Name**" becomes active and shows the nodes name as nominated Domain name. Please insert the name of the desired domain in here if it is not yet done automatically.

Important:

For users and groups which reside in a domain, **SETUP WIZARD** is restricted in the degree of automatism.

There is no background check for the given data. The checks have to be triggered by clicking the respective '**reload**' buttons ( ). If running these checks too often with wrong passwords, it may happen that the domain controller disables the affected users due to security measures.

Furthermore, the '**create and adjust those groups**' button will never create or modify stuff in a domain. Domain users and groups have to exist and to be properly assigned in advance.

Please get in contact with the responsible administrator in the designated and corporate network.

5. Click on the '**Next**' ( ) button to proceed with the configuration of the SQL Server instance as storage backend.
6. Now you can decide how to configure the storage backend. All founded existing local instances are listed here as well as a recommendation for a new local instance with installation of the provided Microsoft SQL Server Express Edition. Also another existing SQL Server instance that can be found remotely can be selected.

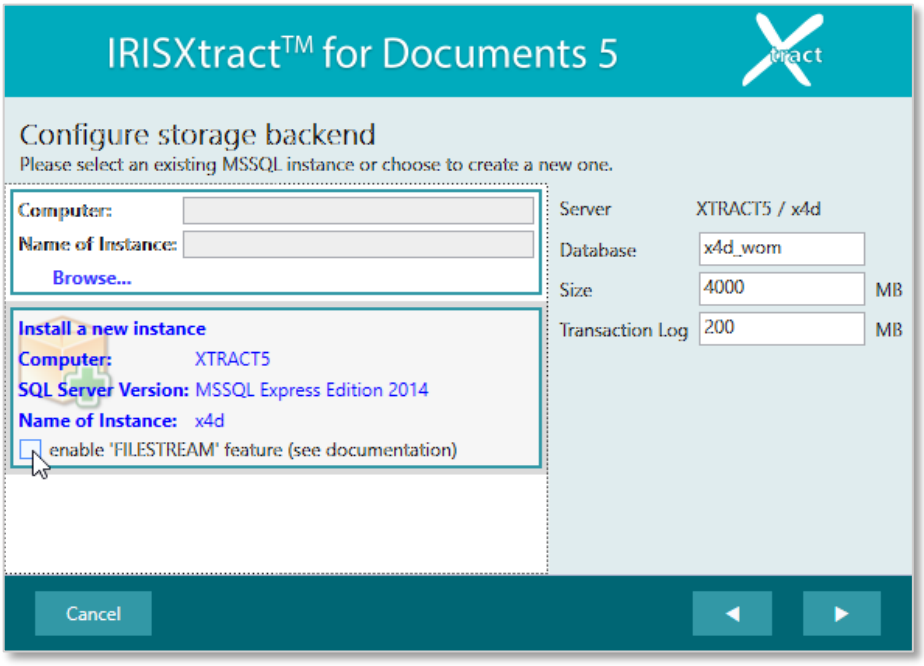

Figure 9: Setup Wizard – SQL Server installation

7. **Optional:**
When installing an SQL Express Edition you can use the feature "`FILESTREAM`" to relocate table rows with large data into the file system than the in database itself. This is a good

recommendation provided by Microsoft, if the expected data (concrete the binary large objects) will exceed 1 MB. The database growth of the Express Edition is limited to 10 GB.
The "`FILESTREAM`" feature can also be activated later on by the help of the **SQL Server Setup** (Step Database Engine Configuration) respectively **Configuration Manager** (Advanced page of the Server Properties) or the **SQL Management Studio**.

8. Adapt the certain parameters for the SQL database settings – the default values are already given:
   - *Database*: '*x4d_wom*'
   - *Size*: '*4000 MB*'
     (This indicates the size for the new database. This amount of storage will be taken from your drive "***C:*** \" during installation and is available for **X4D** to control information, image data and payload. The actual size should be calculated according to the business applications that are run in the system. In common there is consumption of 200 – 300 kB data per page which is to be multiply with the amount of documents during the complete process.)
   - *Transaction log*: '*200 MB*'
     (This is a nominated value, in common the size is about a ratio of one to eight of the data size. For more information on a recommended size for your application, please also read the Microsoft SQL Server documentation.)

Important:

Creating a new database in an SQL Server instance means involving the necessary administrative rights for the actual user as being a "*database owner*". Ask the responsible SQL Server administrator for a "*database owner*" account if restrictions are imposed.

Note:

The SQL Server and its database files will not be installed in the selected **X4D** target directory but in the default directory for program files on your system, usually "***C:\Program Files***".

9. In case of a remote instance click on "*Browse …*" so that the Windows dialog opens, for setting up the specific connection string to the SQL Server instance:

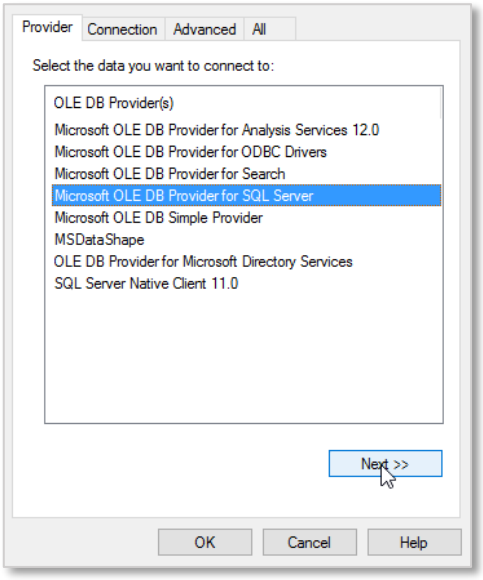

Figure 10: Data link properties dialog for the OLE DB Provider

a. In the tab view '**Provider'** choose "*Microsoft OLE DB Provider for SQL Server*" and click the '**Next'** button.

b. The view changes to the next tab called '**Connection'** for specification of the designated server (with instance) and database:

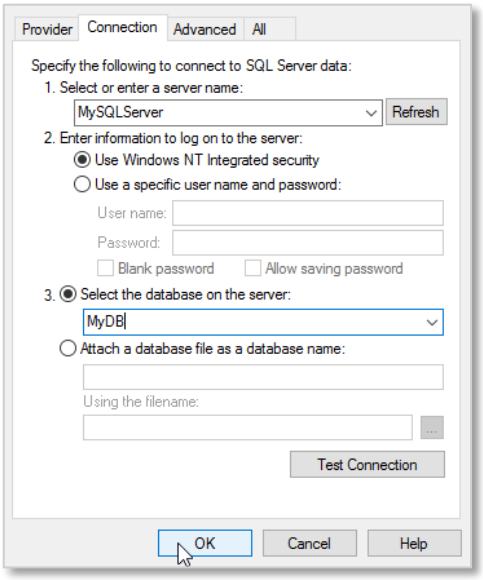

Figure 11: Data link properties dialog for the OLE DB Provider

c. In section 1:
Specify by selecting from the list the designated SQL Server name or enter the UNC server name and instance in that field.

d. In section 2:
Use Windows NT® integrated security for log on to that server.

e. In section 3:
Specify by selecting from the list the designated SQL database on the selected server.
Filling in this field with a new database name causes no direct apply of a new database but it possibly transfers this name back to **SETUP WIZARD** when completed.

f. Optionally test the connection by click on the button '**Test Connection**'.

g. Other settings specified in tab '**Advanced**' or in tab '**All**' are not needed.

h. Press the button '**OK**' to assign this information to **SETUP WIZARD**.

10. Please specify the parameter values for the database instance as actual needed.
If a declaration is missing, this field gets a red highlighting border. Click on the '**Next**' ( ) button to proceed with the component selection.

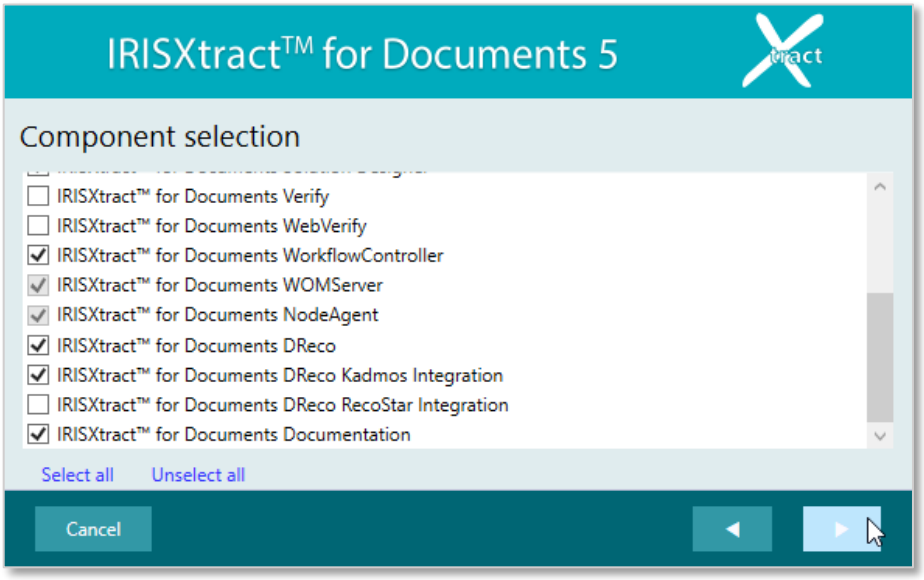

Figure 12: Setup Wizard –Expert installation – Component Selection

11. Select the components according to the actual utilization of the **X4D** server node. Some hooks of items are grayed-out, because they are not required or have to be installed anyhow. Click on the '**Next**' ( ) button to proceed.

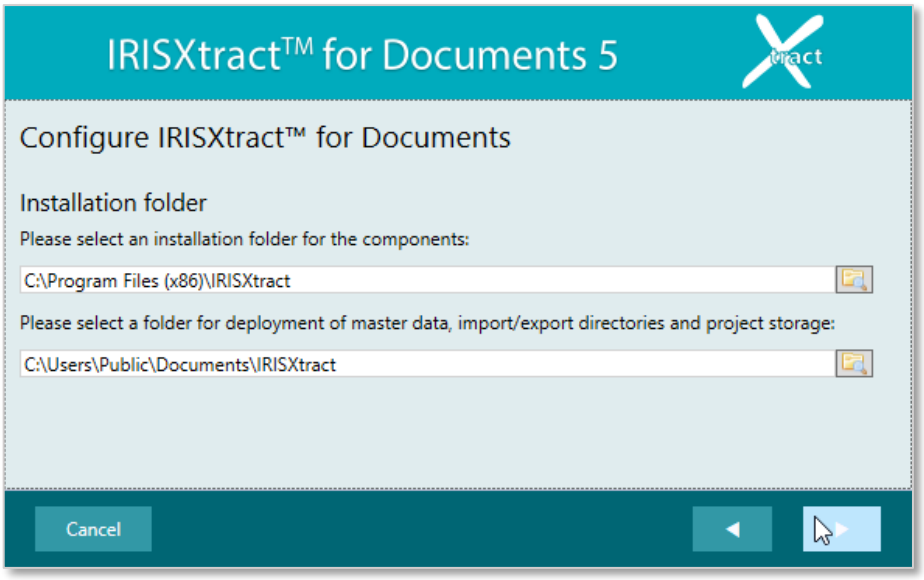

Figure 13: Setup Wizard –Expert installation –Destination folders

12. After selection of installable components it is possible to override the given installation directory by choosing another path. Please ensure that the containing drive has enough free capacity and that your privileges on this disk are sufficient.

Important:

Keep the regarding disk capacities in mind.

Not all program files will be installed in the selected installation directory. Some items have a fixed installation location in subject to your Windows settings.

Deviating Fixed Installation Paths:

- All third party components like those from Microsoft and WIBU will be installed in their own fixed location on the system drive (usually drive "***C:*** \").
- Some files of **X4D** will always be installed in your system's "***\Common Files***" folder.
- The new created Microsoft SQL Server instance with its program files, as well as the data storage, will be installed commonly into the programs folder path predefined in your Windows settings, usually "***C:\Program Files***".

Be aware that the files of your installation can potentially sum up to a significant amount of needed capacity. If your drive "***C:*** \" cannot provide that, you have to install a Microsoft SQL Server instance separately on another storage drive or even node on your own. You also need to select this instance afterwards in the "*Configure Storage Backend*" dialog (see "*step 6*" before) of a newly started **SETUP WIZARD** later on.

13. Click on the '**Next**' ( ) button to proceed with the component installation step.

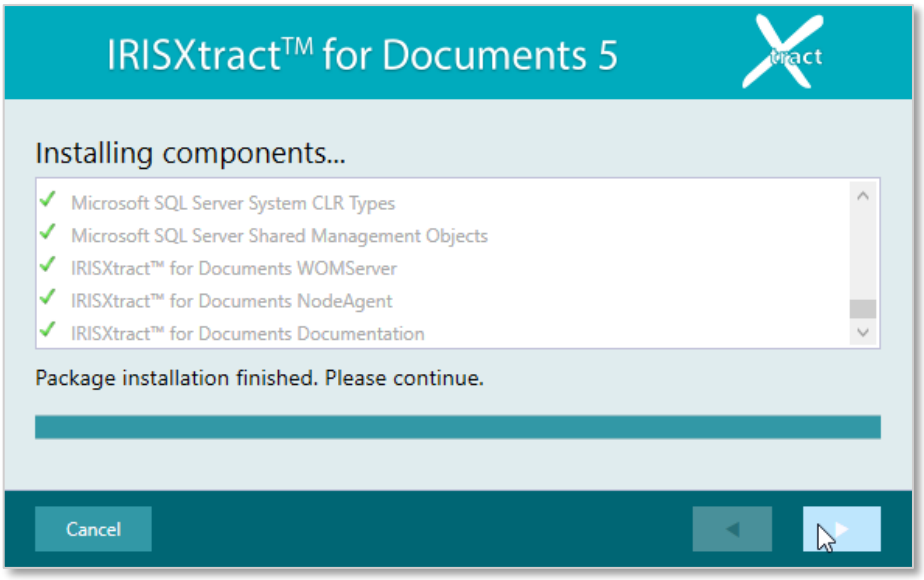

Figure 14: Setup Wizard –Expert installation – Installing components

14. After installing components is finished continue with click on the '**Next**' ( ) button.

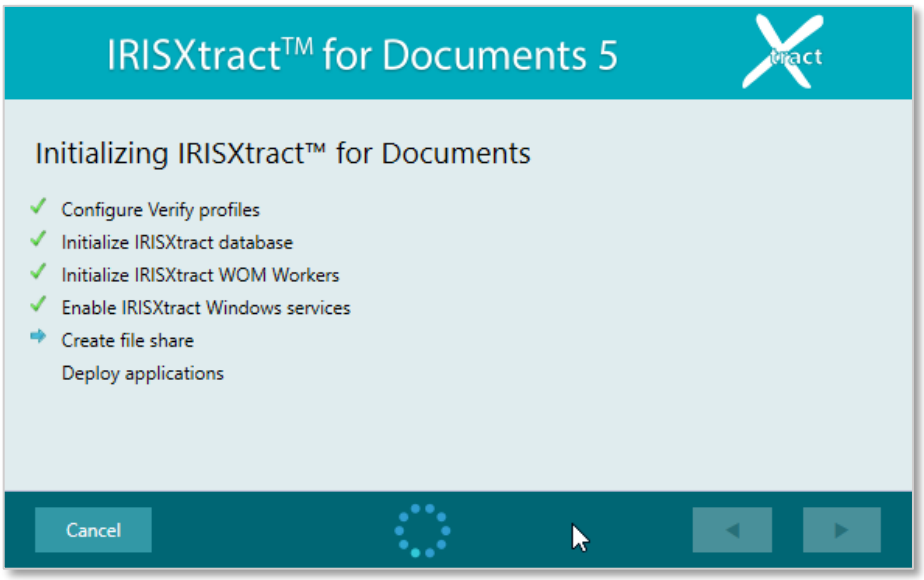

Figure 15: Setup Wizard –Expert installation –Destination folders

15. The initialization of the **X4D** server takes place. Proceed now with the last steps as described in *chapter 3.4 "System and Software Activation"* by click on the '**Next**' ( ) button.

Then the expert installation of IRISXtract for Documents is completed.

3.3 Installation Mode – Client installation

Information

This installation mode is the fastest way to install an **X4D** client machine in a distributed environment and to connect it to the **X4D SERVER**. Its process can be compared to the "*automatic complete installation*", but without installing the server application. Only the selection of the respective **X4D** components, which should be installed on that client PC machine, is offered. The requirements are automatically installed.

This is important for distributed installations of **X4D** along multiple machines, because typically each machine will run a subset of components.

Important:

The installation of a client node is a typical situation of a distributed environment, which has to be done with the same service accounts as for the server installation. To ensure a stable connection to the **X4D** server you have to use the same Active Directory user from your domain, no local accounts.

Procedure

1. Read the End User License Agreement (EULA) carefully and please accept these terms in case of agreement by activating the check box and click on the '**Next**' ( ) button.

Figure 16: Setup Wizard – EULA

Get informed about the used "*3rd party*" software or make a "*print*" out on your local default printer by click on the relevant link.

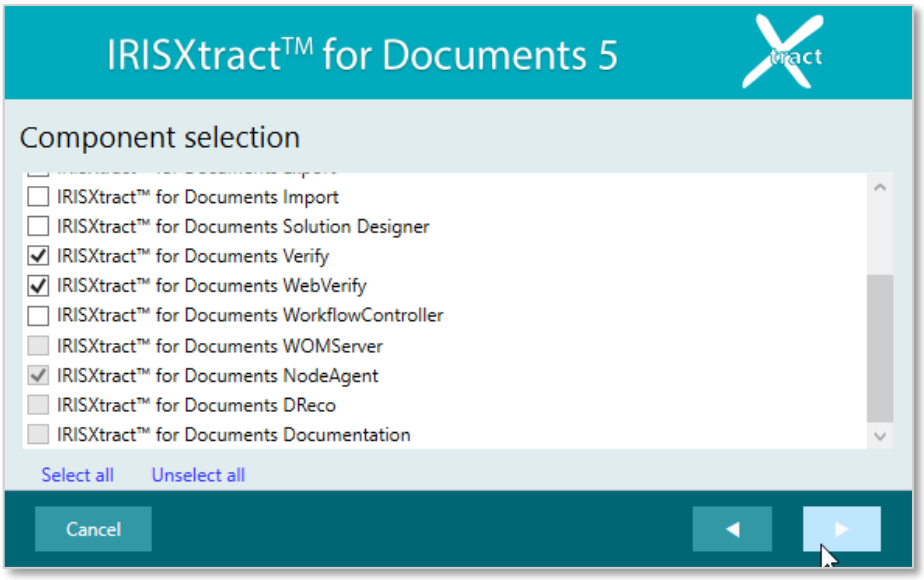

Figure 17: Setup Wizard –client installation – Component Selection

2. Afterwards, select the components according to the utilization of client node. Some hooks of items are grayed-out, because they are not required for a client or have to be installed anyhow. Click on the '**Next**' ( ) button to proceed with the configuration.

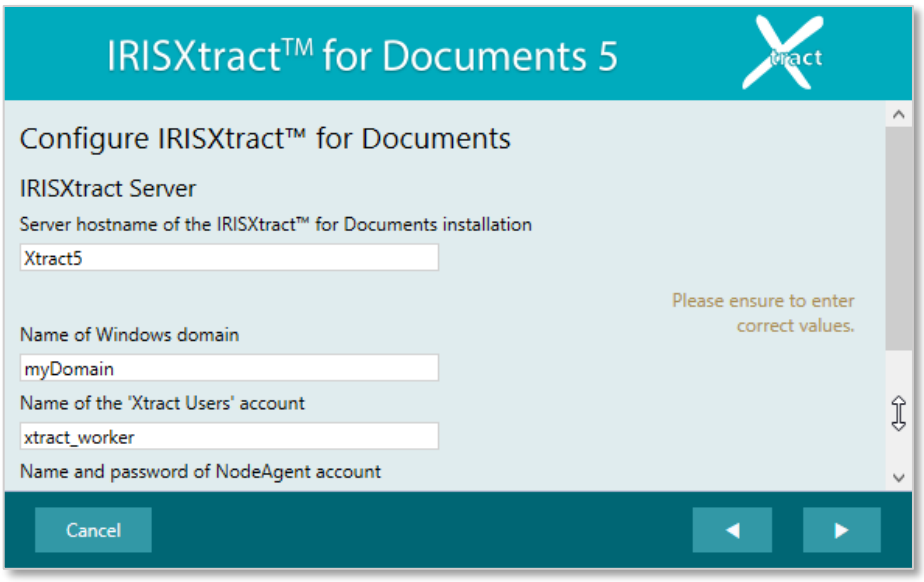

Figure 18: Setup Wizard –client installation – Component Selection

3. Now configure your connection to the **X4D** server by adding the following information:
   a. The network name of the **X4D** server which needs to be available for the client
   b. The windows domain name in which the **X4D** system is being located

c. The account name of the user role '**Components**', which is by default "`xtract_worker`".

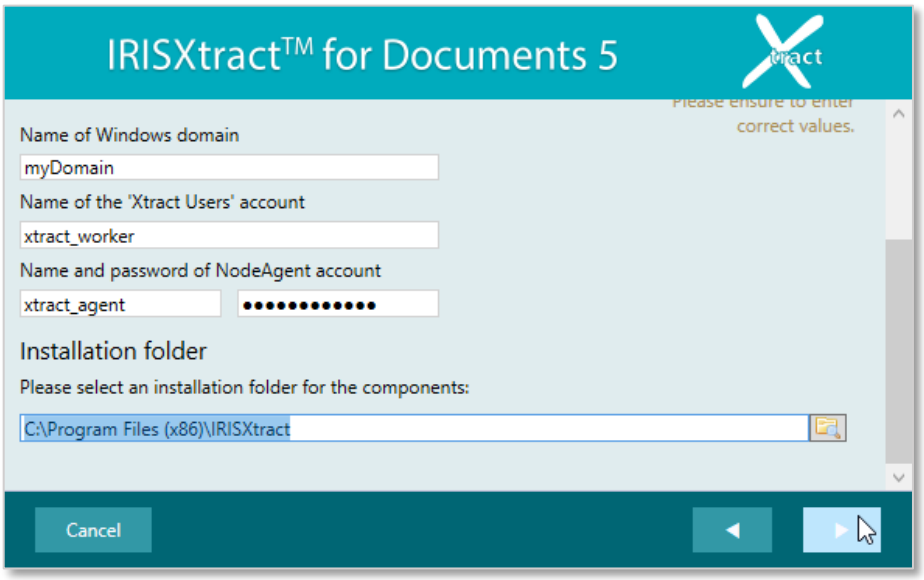

Figure 19: Setup Wizard –client installation – Component Selection

d. The account name and password of the user role '**NodeAgent**' are needed for **NODEAGENT** which runs in background by us of this account. The default user name "`xtract_agent`" and its default password are offered, as stated in *chapter 2.5 "User Administration"*.

4. Next define the "*Installation folder*" in this view. Instead of typing in, select it by clicking on the '**folder select**' ( ) button. Click on the '**Next**' ( ) button to start the installation process.

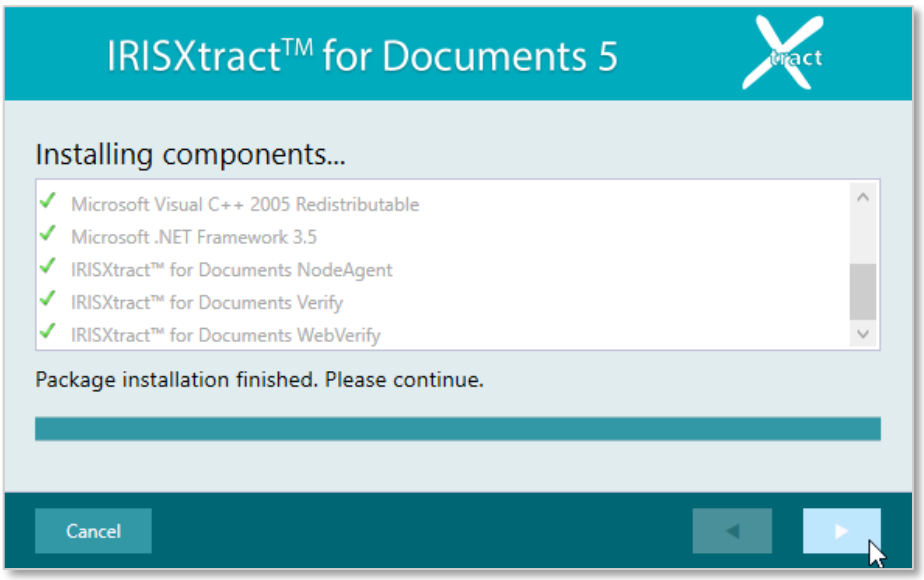

Figure 20: Setup Wizard –Client Installation – Component installed

5. After installing the client specific packages please continue by clicking on the '**Next**' ( ) button.
6. The necessary configuration steps for initializing the client node are processed. After a further more click on the '**Next**' ( ) button the installation gets finished

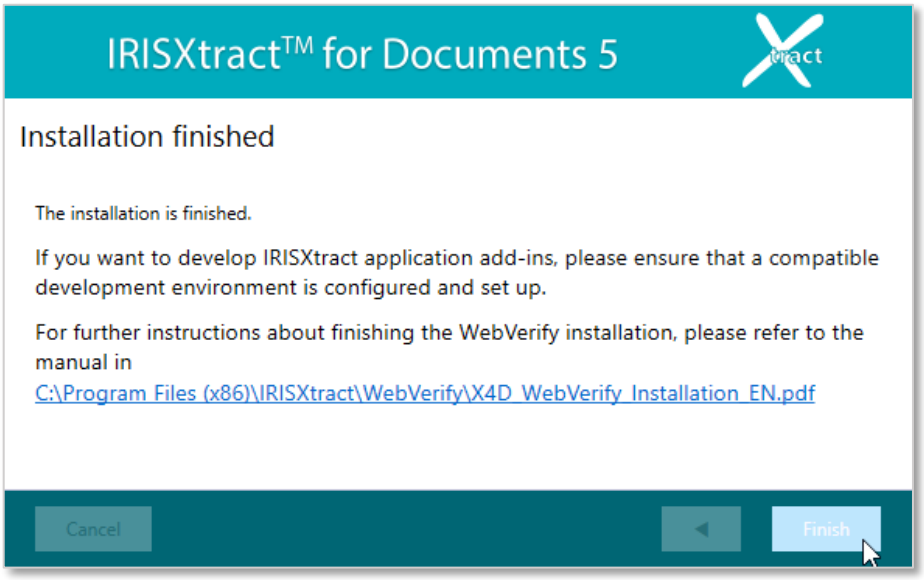

Figure 21: Setup Wizard –Client Installation – Initialized Client

16. The installation process and setup of an **X4D** client node has come to an end. Finish and close subsequently **SETUP WIZARD** by clicking on the '**Finish**' button. Be aware that there are further more preliminary steps needed at first us of the client, such in case of **WEBVERIFY** as stated.

3.4 System and Software Activation

Information

After installing the system and application license can directly be activated within **SETUP WIZARD** as a last Step before finishing the installation process.

In order to apply and activate the license in this stage, the following is required and has to be collected:

- The location of the license in the file system – This file should have a *".lic"* ending
- The designated activation mode for this system installation, which is one of the following:
  - "Software based" mode
  - "USB dongle based" mode;
    a locally plugged in USB dongle used by **X4D** all the time is needed
- For exchanging the activation and identity keys with I.R.I.S. AG, it is recommended to have (temporarily) a stable internet connection on that machine or else have the possibility to interact via mail or by phone call.

The system itself is automatically activated by the present dongle, if dongle mode is selected. Each license file has to be activated with a number key exchange, regardless of the activation mode.

Reference:

For more details about the **X4D** licensing model refer to the descriptions of “License Protection Options”, which are found in the **X4D** system “System Overview”.

Procedure

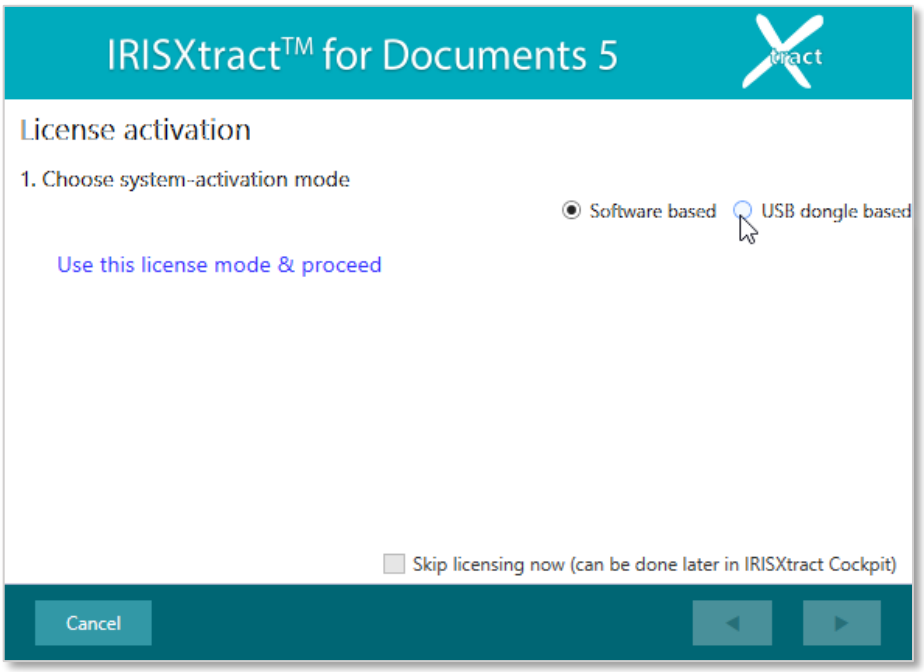

Figure 22: Setup Wizard – License Activation – Protection Option

1. Select a system activation mode (depending on the respective license protection option) and proceed with click on ‘**Use this license mode & proceed**’.

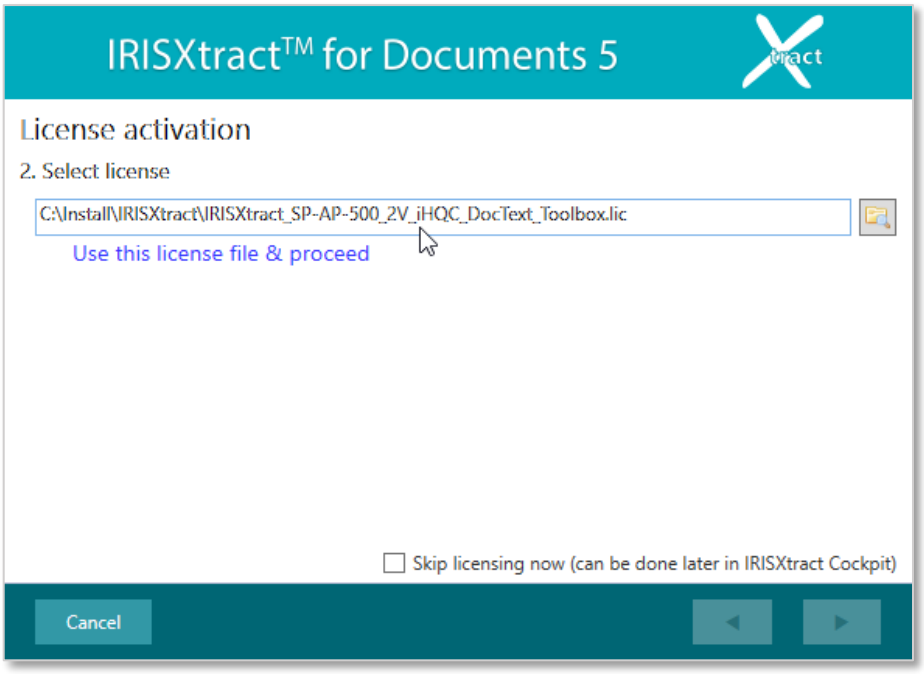

Figure 23: Setup Wizard – License Activation – License Selection

2. Complete the text box with file and path name of the license or select it by clicking on the '**folder select**' ( ) button. Be aware that **SETUP WIZARD** can only activate one single license file. You can activate more license files after setup within **X4D COCKPIT**. Proceed with a click on '**Use this license file & proceed**'.

Tip:

If the proceed link is disabled, check that the given information is correct.

3. In case the activation mode "Software-based" is used, additional to an applicable license the system has to be activated here (follow the following routine). This can also be done later on after setup by the help of **X4D COCKPIT**, if the checkbox stating "skip licensing now …" on the bottom is activated.

Activation of license(s)

1. Click on "*use this license file & proceed*" so that the identity keys are generated via the **WOM CONTROLLER SERVICE**.
2. Depending on the selected license mode there are identity keys displayed in the prepared fields for the key exchange:
   a. Only one key – in case of licensing the system via USB-Dongle
   b. Even two keys – in case of a software based licensing.
   One for the system (which is be covered by the dongle protection in dongle mode) and another for the license volume.

   Click on "*Copy identity keys to clipboard*".
3. Keep **SETUP WIZARD** alive and running while creating an email with your local email client to paste the keys from the clipboard into the mail. Send this mail to *register-de@iriscorporate.com* for activation.
4. After receiving the activation keys paste in the keys by using the "*Paste activation keys from Clipboard*" function.

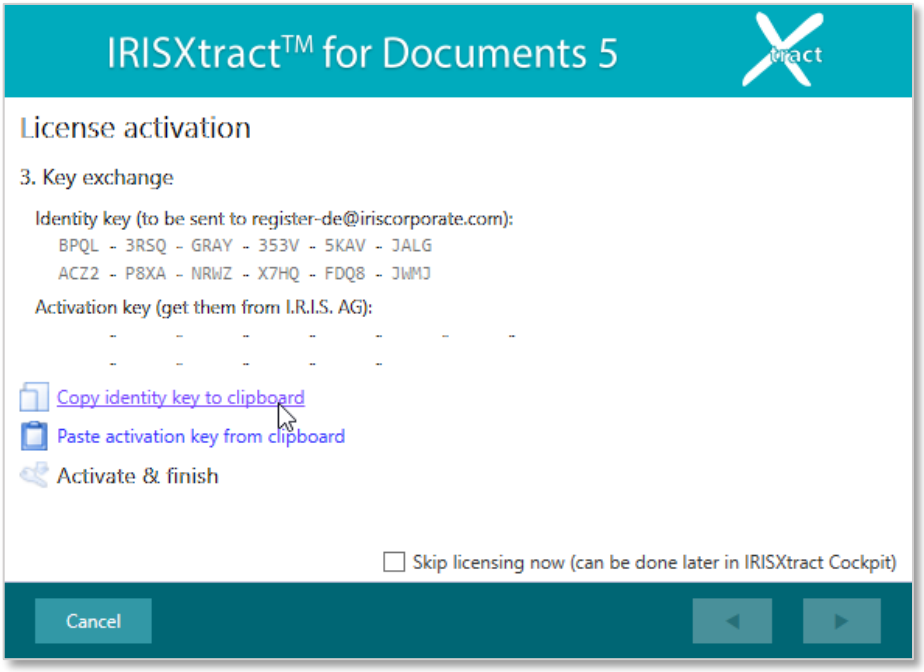

Figure 24: Setup Wizard – License Activation – Key Exchange

Tip:

The system activation is matching 30 characters in the eight boxes, the volume license is past in the other seven boxes.

You can paste in a bundle of activation keys as received by I.R.I.S. without the need of repeating that for each pair of key. X4D is matching the pairs automatically.

5. Click on "Activate & finish" or "Get new identity keys" in case of having any problems.
6. When licensing the **X4D** system is completed, the installation process has come to an end. Finish and close subsequently **SETUP WIZARD** by clicking on the '**Finish**' button.

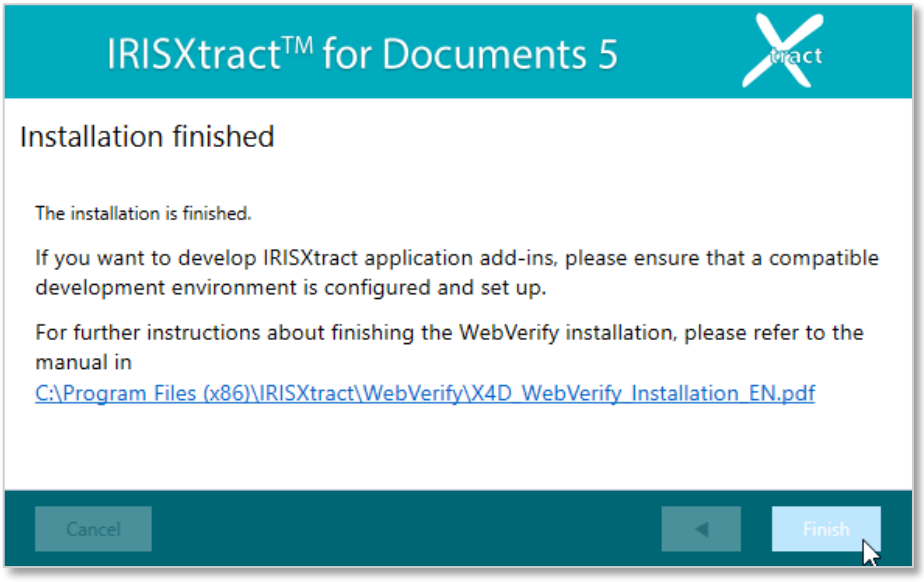

Figure 25: Setup Wizard – Completion Screen

3.5 After Installation

Congratulations! **IRISXtract™ for Documents** is now installed, all needed system services are registered and are running as well.

Now there are certain administrative steps needed according to your environmental focus which means the following:

- For getting the final production line running, you need to this on **X4D** server side:
  a. Open **COCKPIT** on your management node
  b. Install the respective **X4D** project there onto the **X4D** server , which needs to be well designed before within **SOLUTION DESIGNER**
  and
  c. Configure the respective business application by defining the **Master Data** handling as well as the channels for **IMPORT** and Export
  d. Map your right now installed client nodes to the **X4D** server and this application(s)
- If you have installed a client node for an already established **X4D** server with (perhaps also already running) business application this node needs to be mapped to the respective application within **COCKPIT**.
- In case of having installed a client node as designing machine this needs some further steps:
- Start the currently installed **SOLUTION DESIGNER** and **DESIGNER** initially to be licensed.
- For the customization of projects bay Add-ins, Microsoft Visual Studio needs to be installed and the special **X4D** Add-in extension is to be integrated by initial start of the '*customizing*' workspace in **SOLUTION DESIGNER**.

3.6 Updating, Adaption and Undoing an Installation

SETUP WIZARD allows to differ its behavior of proposition for the respective installation routine in case of an already established **X4D** environment. If any existing **X4D** component and especially a server installation will be found on the target system, the following installation modes are selectable:

- Updating all installed components to newer versions found in the installation distribution
- Add/Remove Components
- Uninstalling the complete **X4D** system

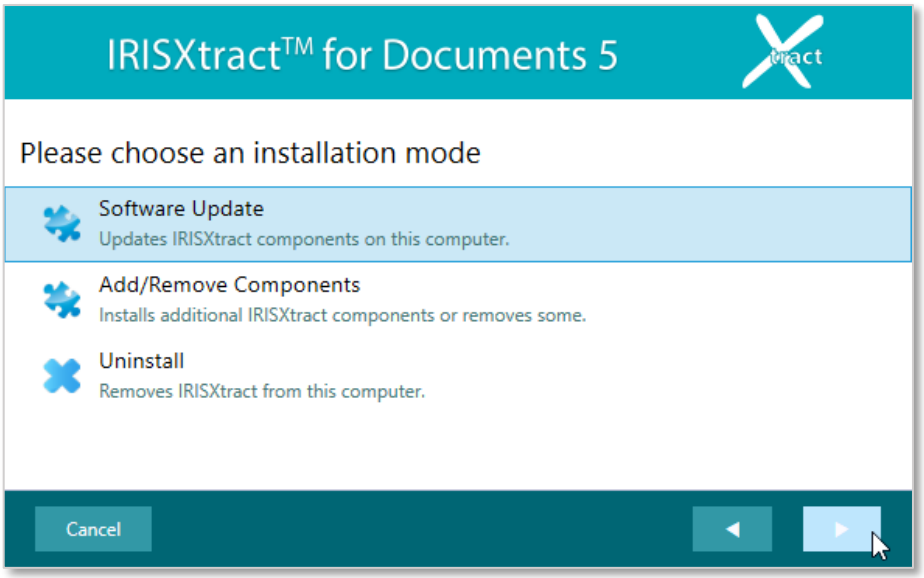

Figure 26: Setup Wizard –Installation Modes on already installed Systems

For the following scenarios, it is assumed that you have an **X4D** environment with the same major version (right now **version 5**) of installed **X4D** server, client or management node or perhaps developing environment as the used major version of **SETUP WIZARD**. In any other situation a system migration from the respective **X4D** version has to be considered and the relevant **SETUP WIZARD** or installer package has to be used for uninstalling this particular version.

3.6.1 Software update

Information

This mode allows updating components to the latest available version, which can be found on the installation medium, e.g. updates or a new minor version of the **X4D** components.

Important:

The components which should be updated must be stopped before doing so, otherwise **SETUP WIZARD** will generate an error message for still running components.

Procedure

1. After confirming the End User License Agreement (EULA), **SETUP WIZARD** will check the folder "***\install***" on the respective distribution medium and will start with a full software update.

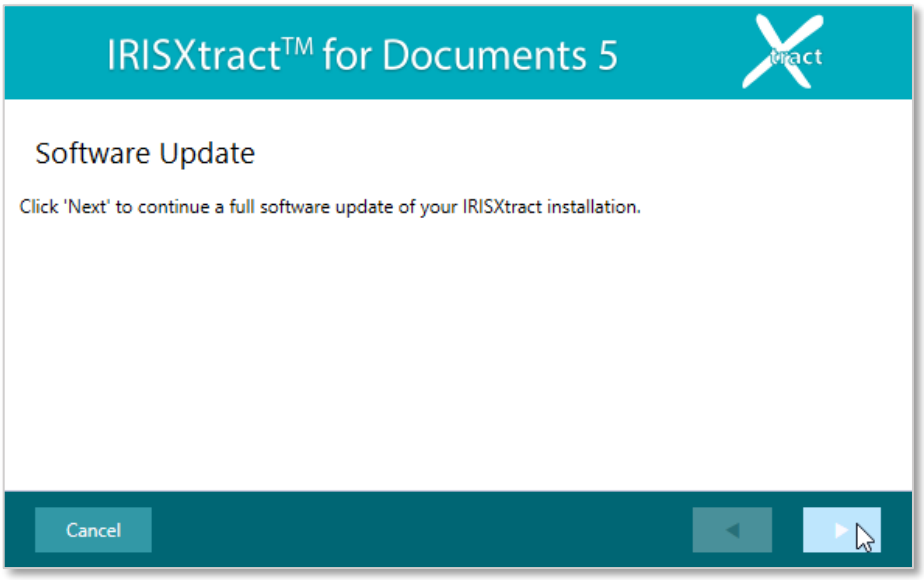

Figure 27: Setup Wizard –Software Update - Starting

2. All resident **X4D** components are checked to be updated.

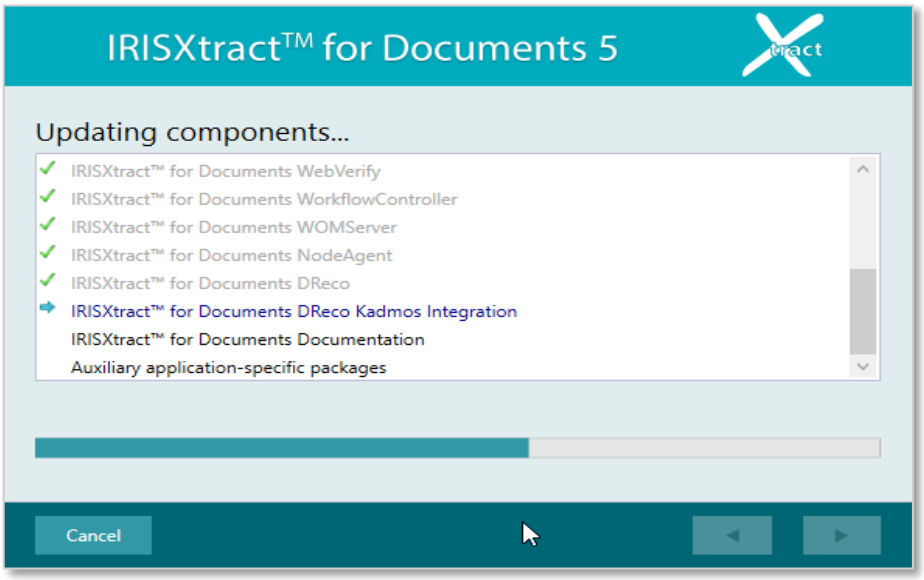

Figure 28: Setup Wizard –Software Update – Updating Components

3. If the update is finished click on the '**Next**' ( ) button.

4. The Update process has come to an end and you can finish and close subsequently **SETUP WIZARD** by clicking on the '**Finish**' button.

3.6.2 Add and remove components

Information

With this installation mode, **X4D** components or software tools can be added or removed from an already installed **X4D** node (client or server machines). A selection list of all **X4D** components is offered, which should be installed on that PC machine. The requirements for the respective component or tool will later on automatically be installed but in case of removing components these won't be uninstalled because there could be dependences to third party software.

Procedure

1. After choosing this mode a list of the all instable components is offered which can be selected or also deselect in case the utilization of client machine node should be changed.

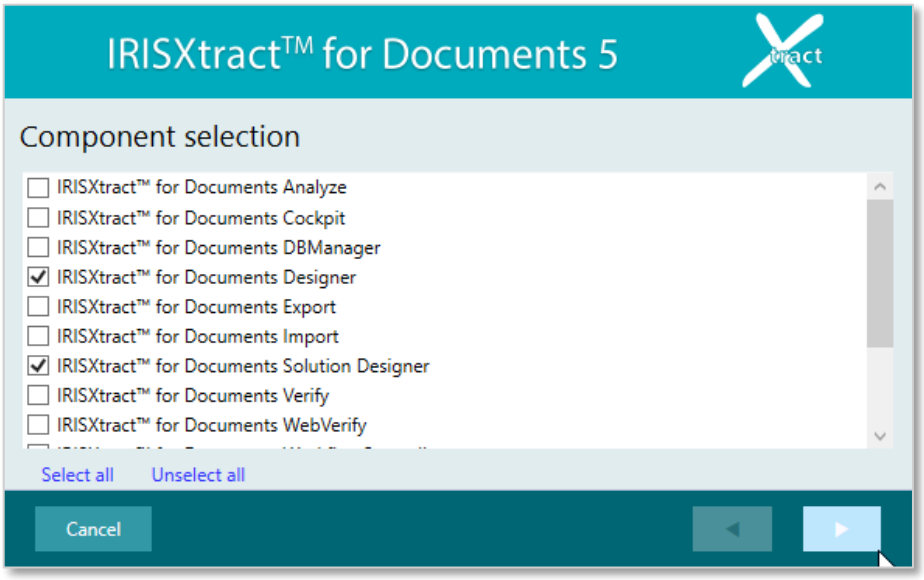

Figure 29: Setup Wizard –client installation – Component Selection

In case the components are necessary for the **X4D** node installation they are grayed out and cannot be selected/deselected.

2. Check for adding new or uncheck for removing the respective component/tool and apply your choice of installable components and click on the '**Next**' ( ) button for starting the process.
3. Setup Wizard is processing components installation or uninstallation. When this package installation is finished, please continue by click on the '**Next**' ( ) button for finishing.

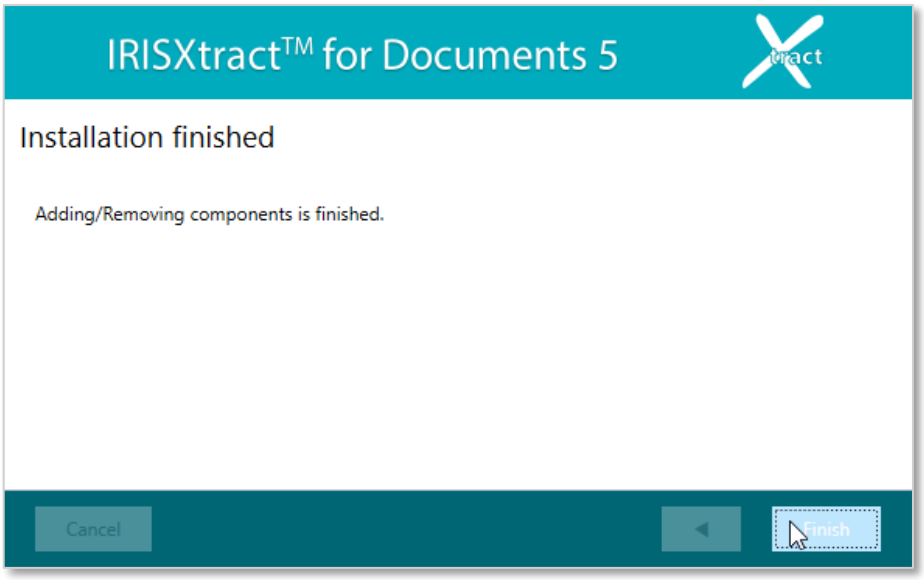

Figure 30: Setup Wizard – Add Remove Components Finished

4. Finish and close subsequently **SETUP WIZARD** by clicking on the '**Finish**' button.

3.6.3 Undoing an Installation

Information

This mode allows uninstalling the complete system.

Important:

Before uninstalling the desired **X4D** system has to cease processing and thus be stopped, otherwise errors could arise.
Perform a "*system shut down*" within **COCKPIT** for stopping the system and all its components.

But there is data und thus certain files which are **not** affected by this:

- The user data, like process data, in the SQL-Server as well as the database itself
- The locally stored application files (by means of the ***project*** with its structure)
- The stored own ***master data*** source files
- The stored source files used for importing by **X4D IMPORT**
- The result data created and stored by **X4D EXPORT**
- The **X4D** Server configuration files, so that perhaps later on a connection to (only) the actual **X4D** server can be established again.

Important:

SETUP WIZARD will not uninstall any third party components or even products, e.g. from Microsoft or Wibu Systems, because it is not able to determine them, if they are also used by other products.
To uninstall such products please refer to the manufacturer and use their preferred possibilities.

Procedure

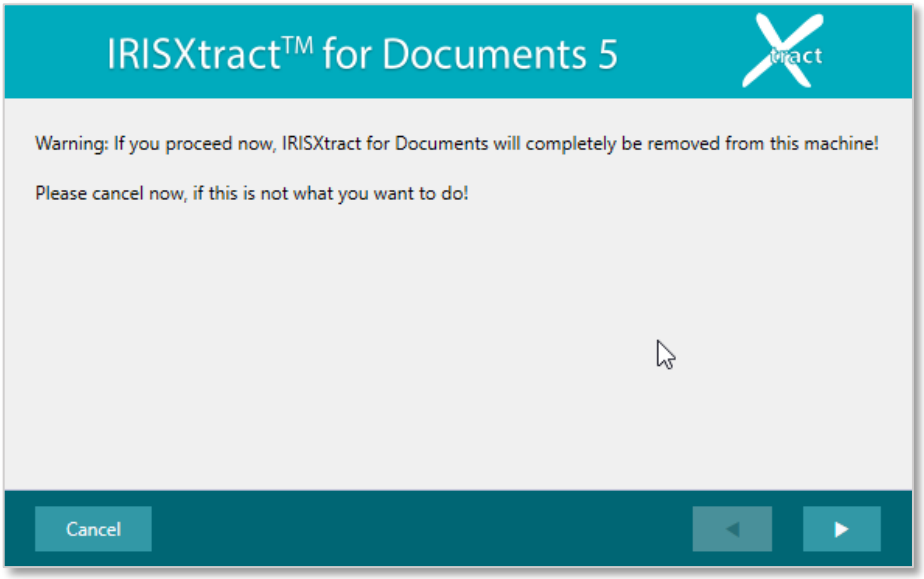

Figure 31: Setup Wizard – Undo a System Installation

1. After selecting the "*Uninstall*" mode to completely remove an **X4D** system from the computer a warning checks if you really want to proceed with uninstalling.
   Continue by clicking on the '**Next**' ( ) button.

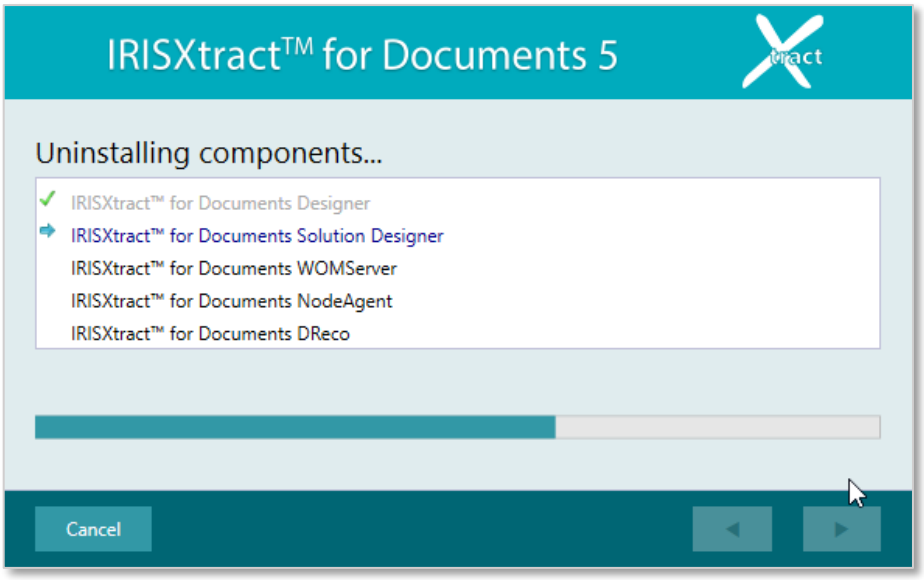

Figure 32: Setup Wizard – Undo a System Installation

2. **SETUP WIZARD** is uninstalling all components. When uninstalling the **X4D** system is completed, please continue by click on the '**Next**' ( ) button for finishing.

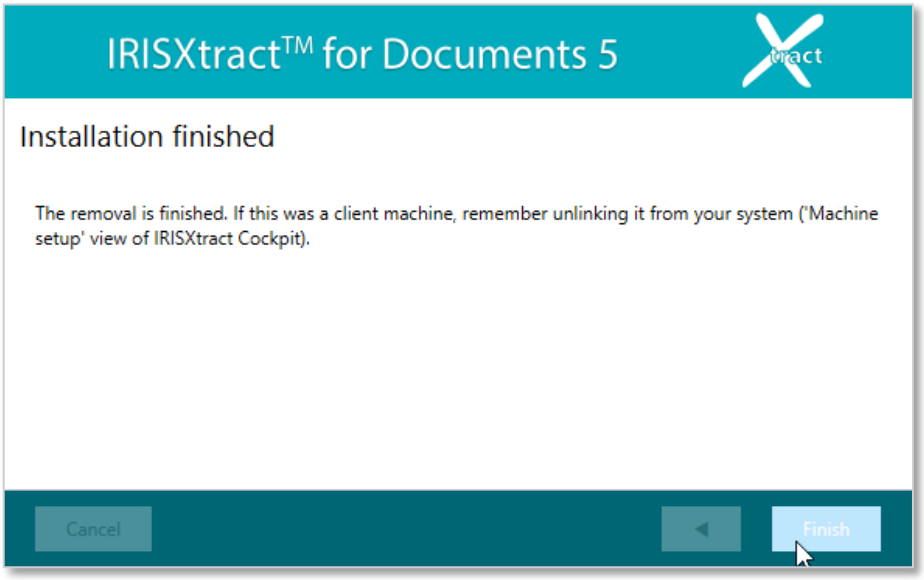

Figure 33: Setup Wizard – Complete Removal is finished

3. Finish and close subsequently **SETUP WIZARD** by clicking on the '**Finish**' button.

3.7 Troubleshooting

SETUP WIZARD writes valuable information about its steps in installing **X4D** as well as error information in a logging file on the disk. Error information in this log file often contains more details than the messages the user gets directly. On the other hand, the information is more technical and often provides error information with error code numbers. Those numbers are helpful in looking up in the corresponding Windows documentation provided by Microsoft for instance or via internet search.

The location of this log is the directory "***\X4DSetupWizard***" in the system's directory for temporary files. The effective path depends on the operating system's version. The path there even may be in hidden folders, but you can reach it by typing "%TEMP%\X4DSetupWizard" into the address bar in Windows File Explorer.

On each run **SETUP WIZARD** is logging information in a separate text file. The name of each log file contains the time of starting **SETUP WIZARD**. The format is "***YYYYMMDD-hhmmss_X4DSetupWizard.log***".

When the problem remains after carrying out the following hints and the log file does not give a helpful error message, please contact the *IRISXtract™ support*.

Dependent on the step in which an error arise, the effective troubleshooting strategy differs. In all cases, you should check whether all prerequisites (regarding too hardware, operating system, environment, etc.) are fulfilled.

3.7.1 Problems during Starting

When you encounter problems while starting **SETUP WIZARD**, you are likely using a corrupt installation medium. Check if it contains a "***setup.exe***" in its root and the directories "***\Install***" and "***\Setup***". The "***\Setup***" directory must contain some 'Application extensions' ("****.DLL***") and configuration files ("****.INI***", "****.XML***") beside the "***SetupWizard.exe***".

Try to start this executable alternatively. If it succeeds, check your installation medium again.

Note:

If **SETUP WIZARD** is started after system reboot manually - by executing "***SetupWizard.exe***" again, the automatic resume of the installation process will fail. Another start of **SETUP WIZARD** will be necessary, including a renewed fill out of all configuration-dialogs.

SETUP WIZARD will detect components that are already installed and will skip them in the installation step. This will avoid infinite reboot loops in such situations.

If your installation medium is actually faulty, you will probably run into further problems as a corrupt file system or something else entirely.

Like in all other error situations, the log files mentioned above should contain some information about the error cause.

3.7.2 Problems in Configuration Dialogs

Most configuration dialogs do some background validation. They lock the '**Next**' ( ) button if the given configuration is invalid. In the dialog then, you should see a bold red text, which explains the error situation. Otherwise when the configuration was valid but erroneous a separate Dialog opens like this:

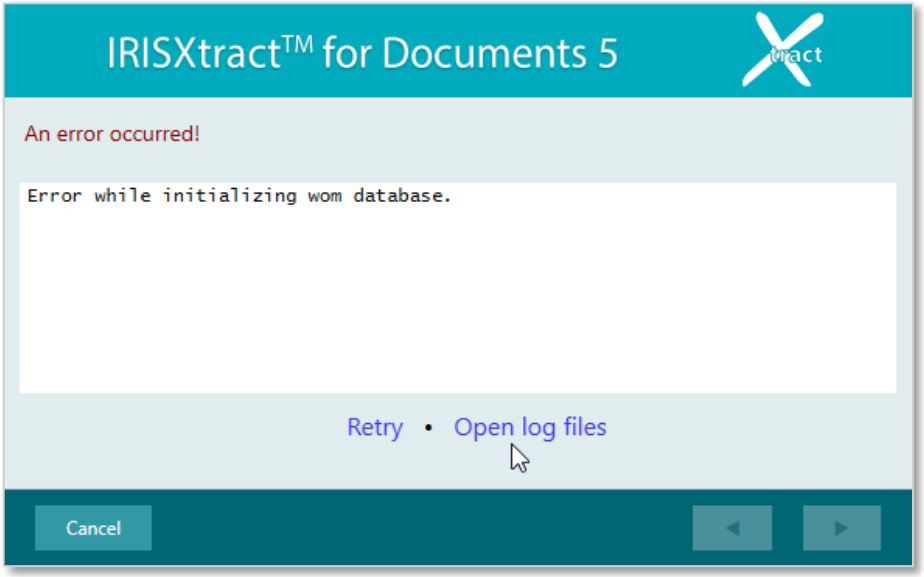

Figure 34: Setup Wizard – Erroneous Situation

Be aware that background validation in some places only is done each time the input cursor moves from one input field into another. After correcting a field, it is needed to go to another field in order to trigger the validation process, which is also responsible for reactivating the '**Next**' ( ) button.

User Accounts Configuration

The dialog for configuring user accounts is a complex one. Be sure that you understood the regulations of **X4D** user and group accounts requirements. Read the *section 3.2 "Installation Mode – Expert Installation"* if you are in doubt about how to use the dialog.

If the '**Next**' ( ) button is locked ( ), either there should be an error with your configuration or you have checked at least the users to be in the domain and you have not triggered a manual validation yet. In the former case, a descriptive message is displayed in the remarks column. In the latter case, please click on one of the both '**refresh**' ( ) buttons in the column headers.

Be aware that each click on the '**refresh**' ( ) button leads to one login attempt for each user. The Active Directory domain may be set up in a way it disables users after a certain number of failed login tries.

You can use the check box '**Ignore all errors and proceed**', if you are 100% sure that all given information is right but the '**Next**' ( ) button remains locked. You should not use it without a good reason.

License Configuration

The license configuration dialog asks for the license mode and a license file. If the '**Next**' () button is locked (), the path to the license path has to be checked for being valid and accessible and that it points to a valid license file (must end with file ending "`.lic`").

If the dongle mode is used, the USB Dongle must be reachable. You must plug in a USB-dongle into a local USB port.

Ensure to have a properly installed WibuKey driver. The USB-dongle must be listed in "*Windows Device Manager"* on that machine which is attached to. If it is not, a removal and reinstallation of the WibuKey driver is needed (installer in folder "`\Distribution\Install\Misc\Wibu`"). In addition, try another USB port if reinstallation did not help. If the driver is installed correctly but there is no entry for it in "*Windows Device Manager"*, maybe there is a hardware problem.

MSSQL Instance Configuration

Problems can arise here because the specified database already exists, or because you specified a combination of a remote server and instance name, which does not exist. A specification of an existing instance (remote or local) with a previously unassigned database name or a creation of a new instance is needed.

Note:

If you plan to create the **X4D** database on any other, perhaps existing Microsoft SQL Server instance, please consider carefully the respective user access rights (stated in *chapter 2.5 "User Administration"*) and follow the steps in *chapter 5 "Advanced Installation Aspects"* of installing the "*SQL Database*".

Under some circumstances, an error message instructs to choose another database name because of existing message queues. This can happen whenever a database name is specified, which already was used in a former **X4D** installation. The technical cause is that **SETUP WIZARD** creates so-called message queues during installation and assigns names to them, which only vary by the database name. However, the message queues are not reusable and **SETUP WIZARD** is not able to remove the old ones. If the designated system has orphaned message queues conflicting with the new database name, a manually deletion of them is required.

Component Selection

The component selection lists all components you are able to install. Some items are grayed out because they are already installed or changing selection does not make sense. You cannot install a component which is already installed. If you plan to reinstall or update the component, you have to uninstall it beforehand using the Software List in the "*Windows Control Panel*".

3.7.3 Problems while Installing the Components

The component installation step can potentially run into very different kinds of problems. This step handles many interactions with the operating system and with third-party software. Among other things, also operating system features can be enabled like "*Windows PowerShell*" and the full installation of a Microsoft SQL Server instance is be done if you decided this way beforehand.

As a matter, of course the log file can give valuable hints about the problem. At the bottom, you should find error information specific to the component. Maybe you have to locate an error code number and to query an internet search engine about it.

Another approach is to make the installation of the failing component by hand. Remember which component fails and discover the corresponding Windows installer package "***.msi***" file. You can start the installation of this component by directly double-clicking on it in the "*Windows Explorer*". Possibly the interactive window-based installation displays a more meaningful error message. After you have installed the previously failing component, please start **SETUP WIZARD** again and fill all the relevant configuration dialogs as before. **SETUP WIZARD** should detect your installed version of this component and skip it.

In rare cases, after a component installation ran into problems, the Windows installer service is in some unclean state. This can also be the case when the system demanded a reboot, which did never happen. In such cases, a system reboot can solve the issue.

3.7.4 Problems with Automatic Resume after System Reboot

During component installation, the demand for a system reboot can arise once or even several times. **SETUP WIZARD** stores its state in a file in the directory for temporary files. For this to work, the system must conserve this file in excess of the reboot. The user has to login with the same user account after reboot.

There are known problems with the automatic resume mechanism for installations over a RDP remote desktop connection. You have to manually restart **SETUP WIZARD** after reboot and fill all the configuration dialogs like before. In the component installation step, **SETUP WIZARD** will skip all components, which are already installed, so an infinite loop will not occur.

3.7.5 Problems during Other Configuration Tasks

Most other errors are minor ones. The error message should give a good hint. By clicking the '**Retry**' button, it is possible to repeat the configuration steps. If problems persisted and neither the error message in **SETUP WIZARD** window nor the log files could bear a helping hand, please contact IRIS for any further help.

Tip:

Some errors are explicitly marked as "not critical" and will not cause an abort. You can decide to fix the problems manually or to ignore them.

3.7.6 Post-Installation Problems

In case of problems with using components after installation of **IRISXtract™ for Documents**, please read the respective documentation file for this component itself. Mostly useful hints are also reported inside the components log files.

4. WebVerify Installation Steps

4.1 Scope of supply

Note:

The in here described process uses example files which are commonly found in a default **X4D** installation. All information is free-to-use and can be adapted to the respective needs. However, there is no other support for going beyond this description as provided.

The adaption itself lies in the responsibility of the provider and developer himself.

WEBVERIFY is the **X4D** verification web frontend used as alternative for **VERIFY** with its well-known functional concept and program workspace presented then by modern web browsers.

Thus the installation is done in two steps:

1. Using the installer package "***IRISXtract.WebVerify.exe***" on the installation medium by **SETUP WIZARD** or manually
2. Installing the required Microsoft Web Server and two IIS (Internet Information Services) web applications given by **WEBVERIFY** installer package, which is described in the following.

The web application package files will be created in the chosen **X4D** installation directory (e.g. "***C:\Program Files (x86)\IRISXtract***"). Later on, they are used for the integration process of the **WEBVERIFY Server** application:

```
.\WebVerify\WebVerifyIIS.zip
.\WebVerify\WebVerifyIIS_Auth.zip
```

In addition to the environmental requirements only the supported operating systems provide the required IIS server features which have to be activated before installing **WEBVERIFY** server.

Beside this you have to download the following additional and required tool and install it after the primer installation steps:

- **Microsoft Web Deploy**:
  This is an extension, which simplifies the deployment of web applications to the IIS server. Download and run its installer package with its instructions found on the Microsoft IIS homepage: *http://www.iis.net/downloads/microsoft/web-deploy.*

4.2 Supported Operating Systems

The **WEBVERIFY** server application supports the same operating systems as the X4D Server

So have a look at *chapter 2.3 "Platform Compatibility with Operating Systems and Database Servers"* for a list of those operating systems.

4.3 Browser Support

The end-user web application of **WEBVERIFY** (so the frontend part used as **X4D VERIFY** client node) is build and tested to work fine with the latest versions of the following internet browsers:

- Google Chrome
- Mozilla Firefox
- Microsoft Internet Explorer / Edge

In relation to the available browser versions, the current support of the respective product lifecycle is relevant.

4.4 Environmental Requirements

1. The **WEBVERIFY** and its IIS server application are additional licensed **X4D** features. Thus, install the license (perhaps also as new one in case of a recently former **X4D** installation) and map it to the respective **X4D** application.
2. If **SETUP WIZARD** is not used, you have to install all requirements of an **X4D** client node covering **X4D NODEAGENT** in its latest version on the same node as the installation target of **WEBVERIFY** server machine.
   For the administrative configuration purpose a classic **VERIFY** installation is further more needed so that for instance the user profiles (by means of starting **VERIFY** in admin mode at first time).
3. **WEBVERIFY** is well tested and is working with at least Microsoft **IIS 7** – older versions will possibly not work as desired. In case of a younger version than **IIS 7** check the backward compatibility first by looking into the respective release notes of such versions (*http://www.iis.net/learn*)
4. The installation assumes that there is **no enabled** or at least untouched version of the IIS Web-Server installed on the **WEBVERIFY** server machine. If there are already running IIS applications, the administrator is responsible for taking care of not interrupting the operation of these existing applications.
5. **WEBVERIFY** currently supports a large subset of **VERIFY** functionality (by means of features in the graphical user interface as well as **VERIFY** API support), but not the complete function set. The **X4D** applications must be adapted to be compatible with **WEBVERIFY** in some cases.

Important:

Outdated GUI components like the dialog windows which are specially created by former application scripting can cause erroneous situations. There are updates on the respective application project needed to achieve compatibility with the web functionality of **WEBVERIFY**.

Especially for projects based on a **Solution Package** the application's business logic must also be updated. For instance **SP AP 5.2** or higher is achieving this compatibility.

4.5 Installation Process

Here comes the procedural explanation to install and implement **WEBVERIFY** into an **X4D** system. The installation process has three major parts:

- Running the distributed **WEBVERIFY** installer on the target server machine
- Installation of the Microsoft IIS server with also additional features
  (Normally a server role and feature part of a default Microsoft Windows Server®)
- Configuration of the web server, concerning the settings and functions of the IIS Application "*WebVerify*"

Before installing **WEBVERIFY**, ensure that the target system fulfills all requirements and that all necessary additional tools are available as stated before.

4.5.1 Installing the WebVerify Package

1. To install the **WEBVERIFY** package you can choose one of these options:
   Option 1:
   a. Start the **SETUPWIZARD**.
   b. Select the function "Add and remove component"
   Option 2:
   a. Go to the **X4D WEBVERIFY** installation folder of the respective installation medium.
   b. Run the "***WebVerify.msi***" installer.
2. Follow the instructions and possibly change the settings according to the recent **X4D** server installation.

Now the web application with its IIS configuration is available for the next integration steps.

4.5.2 Installing the Web Server

To establish the functionality of the "**Microsoft Web Server (IIS)**", it is highly recommended to enable the server feature of the operating system first. It is scope of supply of any Microsoft Windows Server since Windows NT 4.0 and client operating systems since Windows 7.

There are different kinds of IIS versions applying to the corresponding operating system.

Reference:

For more information about the Microsoft Web Server in general, the IIS versions and the possible server roles corresponding to the operating system, please refer to the webpage *http://www.iis.net*.

1. Open the system dialog for enabling Windows features. In workstation versions of Windows, this option is accessible from the Control Panel, where server versions contain it as part of the Server Manager.
   a. Go to **Start > Control Panel > Programs and Features**
   (in Microsoft Windows 8.1/ Windows Server 2012:
   Start > Control Panel > Programs > Programs and Features)
   b. Click on "**Turn Windows features on or off**".
   c. Apply the UAC message with respective administrative login to allow the *Computer Management Snap in Launcher* to start.
2. In this Snap in or dialog add the following:
   a. Server role "Application Server / Web Server (IIS) Support" in case of a Windows Server or
   b. Windows feature "Internet Information Service" in case of a simple Windows OS
3. In the respective tree, activate at least the following features:
   a. Web Management Tools (complete)
   b. World Wide Web Services > Application Development Features > ASP.NET 4.5

Note:

X4D WEBVERIFY uses the .NET Framework 4.0 at least, which might not be a selectable feature with this version in the "IIS Server".

Use the available version of ASP.NET (also typically "3.5") at first and update this later on, after the installation of the .NET Framework. But before installing the **WEBVERIFY** package itself.

For such an update, the **X4D** release distribution provides the installer package of the .NET 4.0 Framework "***\Install\DotNet4.0\dotNetFx40_Full_x86_x64.exe***".

4. Apply those and all other (default) settings and follow the instructions to select the role services next up. Perhaps (in case of Windows 7 for instance) a system reboot is necessary.
   After restart (of Windows 7), go on with *section 4.5.3 "Integrating WebVerify – The Prepared IIS Configuration"*.
5. In case of an Windows Server® the following "Role Services" should be installed at least:
   c. **Web Server (IIS) Support** - with all its default given features
   (Especially on a Server 2012 or later install the feature "ASP .Net 4.5" to the role services.)
   d. **Management Tools** - with all its default given features
   e. Check the confirmation of installable features and click on "**Install**" to start the installation of the IIS Server.
6. In case of Windows Server® 2008 and Windows 7 or earlier run the needed ASP.Net registration within a "Windows PowerShell" (with administrative rights):
   "***C:\Windows\Microsoft.NET\Framework\v4.0.*\aspnet_regiis.exe -i***"

Now the operating system gets an extension with the web server functionality. Proceed installing the Microsoft Web Deploy as well.

Attach Web Deploy to the Installation

Follow the Link stated in *chapter 4.1 "Scope of supply"* to install the IIS Extension "MS Web Deploy" on the newly installed IIS. Otherwise, it is impossible to deploy the ZIP-files the IIS and to integrate the **WEBVERIFY** application into the web server.

Note:

Web Deploy **version 3.6** prerequisites for "*Import/Export Web Application*" in an IIS 7.5 or IIS 8.5 have slightly changed. You must give more access rights to the web management to enable needed options.

To allow importing and exporting web applications in IIS (again, if it is already installed) do this:

- **In Windows Server 2012 R2 (and Windows Server 2016):**
  a. Use **Server Manager** to get "*Add Roles and Features*".
  b. Pick "*Management Service*" under "Roles/ Web Server/ Management Tools"
  c. Either uninstall and reinstall WebDeploy 3.6 or use the "Change" option and make sure to install the "*IIS Deployment Handler*" for Web Deploy. This will bring back the Import / Export Web Application option again.
- **In Windows 7 and Windows 10:**
  a. Go to Turn Windows features on or off
  b. Under **Web Management Tools** -> enable "*IIS Management Service*".
  c. Same as above for Windows 2012 (for Windows 10 you will likely need to run a repair installation on WebDeploy before this solution works)

4.5.3 Integrating WebVerify – The Prepared IIS Configuration

After the before mentioned preparation and installation of the IIS server the **X4D WEBVERIFY** application can now be integrated as follows:

1. Open the "Computer Management Console" with subject to "Services and Applications" by going to the Windows start menu and run
   Start > Programs > Administrative Tools > Internet Information Services (IIS) Manager
   or in Windows 7 (as non-server OS for instance) via the context menu of "**Computer"/ "Manage**" and inside open the tree "Services and Applications"/
   "Internet Information Services (IIS) Manager"
2. Expand the "***Connections***" tree view on the left side and navigate to "*Application Pools*".
   a. Select the "*DefaultAppPool*" from the list and from the "**Actions**" side bar on the right choose the "**Edit Application Pool > Advanced Settings...**" action.
   b. In the new dialog wade to the line "*(General)/.NET Framework Version*" and select "*v4.0"* from the pull down menu if this is not already selected.
   c. Set the option "enable 32-Bit Applications" to "True".
   d. In line "*Recycling*" change the default value of the option "*Regular Time Interval (min.)*" to "*0*" so that the application pool does not recycle regularly every "*1740*" minute (= 29 Hour).
   e. Apply all changes with click on "**OK**".

3. Back in the "**Connections**" tree view on the left side, navigate to the node "*Sites/ Default Web Site*"

Note:

For a correct working **WEBVERIFY** web page, the management view must show "ASP.Net" settings. If this "area" (as shown in *Figure 35*) is not feasible, the installation of the web server feature "Web Server (IIS) Support" was incorrect. Then please follow this:

1. Stop the configuration here.
2. Close the management console.
3. Repeat the web server installation with its "ASP.Net 4.7/ ASP.Net 3.5" features (as named in Windows 10 e.g.)
4. Proceed with the integration later on at this step.

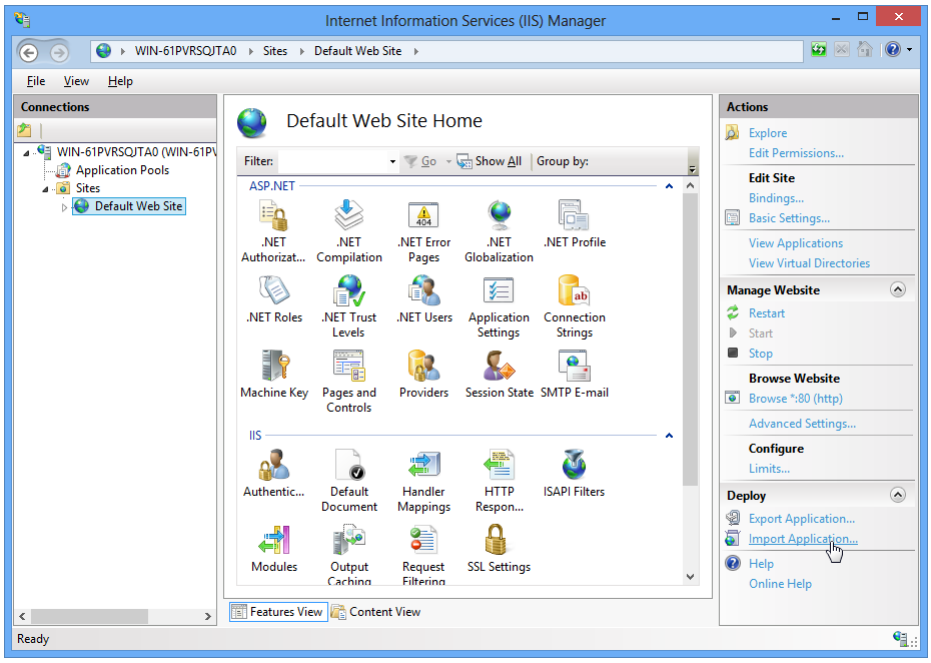

Figure 35: IIS Manager – Default Web Site / Import Application

a. From the "**Actions**" side bar on the right choose the "**Deploy > Import Application…**" action.

b. Select as installation target the file "***WebVerifyIIS.zip***" (default folder: "***C:\Program Files (x86)\IRISXtract\WebVerify***"); leave all further settings as suggested.

c. Make sure your selected node is still "*Sites/Default Web Site*".

d. Again from the **"Actions**" side bar on the right choose the "**Deploy > Import Application…**".

e. Select as installation target the "***WebVerifyIIS_Auth.zip***"; leave all further settings as suggested.

4. In the "Connections" tree view on the left side, now navigate to the node "*Sites/Default Web Site/Login*".
5. In case the default Login URL doesn't fit your needs or doesn't work properly you can adapt this from the main view in the middle, choose the "*Application settings*" (in area "*ASP.NET*") and edit the setting of "*LoginInfoUrl*" (default value: "`../WebVerify/Logininfo`").

Note:

Changing the default settings to custom values is surely possible. But in case of updating an already installed and custom configured WebVerify this settings get lost.

Ensure to have all real settings information at hand in an update situation to reconfigure this again or follow the preparation hint within the update procedure than.

6. There are two optional ways for the authentication corresponding to the connection:
   a. Connection to an Active Directory – go on with next steps 7 and 8
   b. Connection with usage of a local user account – jump to the step 9
7. From the main view in the middle, choose the "*Configuration Editor*" (in area "*Management*").

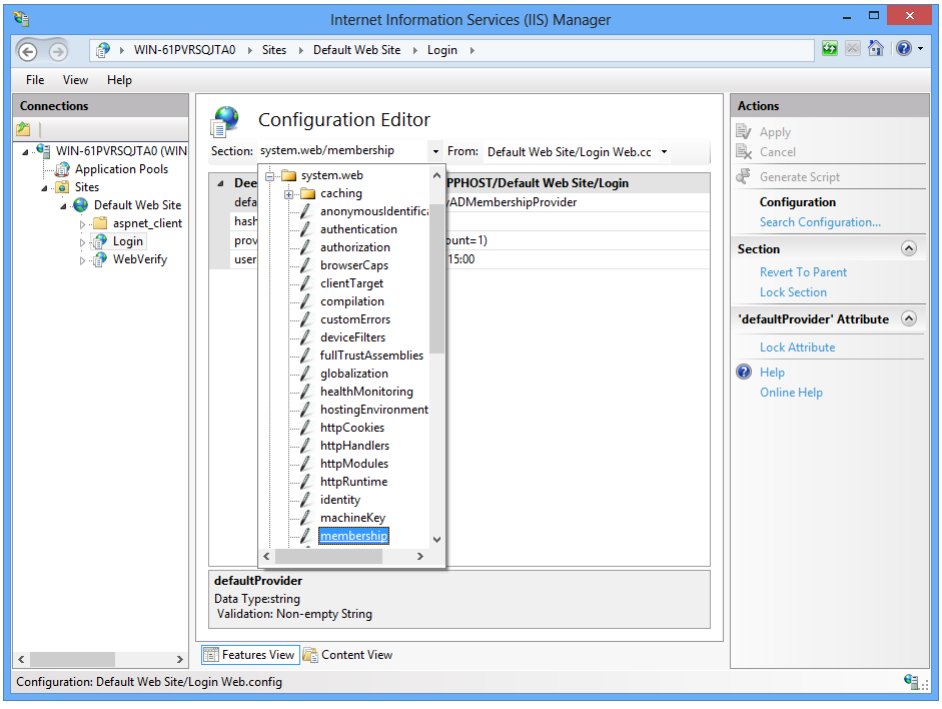

Figure 36: IIS Manager – Default Web Site / Login Settings

8. Configuration steps in case of an AD authentication are required to do here:
   a. From the "*Section*" tree in the header of the main "**Configuration Editor**" view, select the section "*system.web/membership*".

b. Select the item "*providers*" in the main view and click on the '**...**' button at the right of this row.
A new dialog connection "**Collection Editor**" opens.

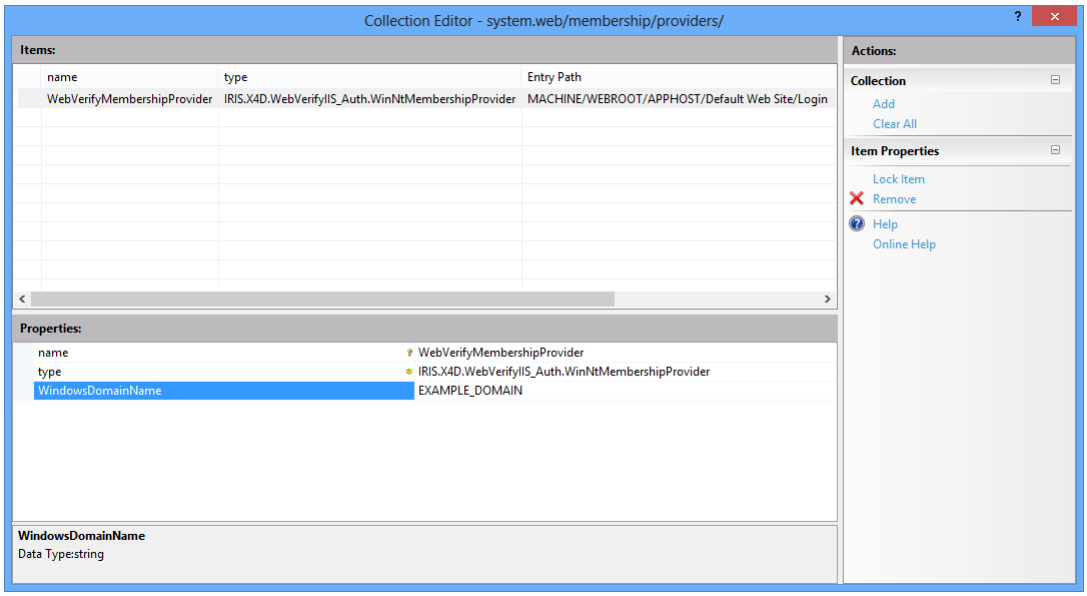

Figure 37: Collection Editor – Connection Property

c. Select the item "*WebVerifyMembershipProvider*" and fill in the property "*WindowsDomainName"* for the respective Active Directory (here "EXAMPLE_DOMAIN" for instance).

d. Close the "**Collection Editor**".

9. Make sure that only permitted users are able to access **WEBVERIFY** and that **WOM CONTROLLER** is running.
If in doubt, start the classic **VERIFY** as desktop version on the same machine with the same user account as you plan to use in the login of **WEBVERIFY** and open a batch.

10. Assign the "Log on as a batch job" policy to all **X4D** users in the Active Directory domain, which will login to **WEBVERIFY**.

11. Start a web browser and navigate to *http://localhost/WebVerify*.

Now the **WEBVERIFY** application is ready for using. In case of a desired protection of data-transfer and communication please consider *chapter 4.7 "Advanced Aspects"* in the following.

4.6 Updating WebVerify - The IIS Application(s)

In case of updating the current version of **WEBVERIFY** with a newer one, follow these steps:

1. Check for the new version on *ftp://ftp.irisxtract.com* and download the new **WEBVERIFY** package.
2. Update/Install the new **WEBVERIFY** package by two options:
   a. By the help of **X4D SETUPWIZARD**, using the "update" option or "add and remove" in case of an uninstalled package
   b. Or by manual process:
   Uninstall the old recent **WEBVERIFY** package from within "Windows Program list".
   (**Start > Control Panel > Programs and Features** within Windows 8.1/ Windows Server 2012)
   Install the actually downloaded installer package and follow the instructions.

Important:

Custom configuration settings are overwritten during update. In the next step the WebVerify application will be installed into your IIS with all default settings.

Copies of your "***web.config***" files (for both Applications "Login" and "WebVerify") can preserve your own configuration when updating. This copies can be used to recover the settings after the update.

3. Import the new WebVerify application:
   a. In case of own custom configuration settings others then the default settings:
      i. Open the IIS manager pane and in the "**Connections**" tree view on the left side, navigate to the node "*Sites/ Default Web Site*" and select "*Login*" first and "*WebVerify*" later on.
      ii. For each application choose from the "**Actions**" side bar on the right the action "**Explore**" to open the folder in the Windows file explorer.
      iii. Copy the file "***Web.config***" to a temporary destination of your choice (e.g. the own desktop folder, but rename it if both files are stored in one folder).
   b. Repeat step three of the before mentioned *section 4.5.3 "Integrating WebVerify – The Prepared IIS Configuration"*, so the IIS application is upgraded.

Note:

On the **WEBVERIFY** server machine the IIS installer can complain about files, which are already in use. Thus, kill all running "***Multiplexer.exe***" processes (this kills all open **WEBVERIFY** sessions brutally).

Tip:

If you are asked to delete all the files on the destination there are two options:

- "No, just append the files in the application package to the destination" (preferred way) or to
- "Yes, delete all extra files and folders on the destination that are not in the application package", which will cause a reconfiguration of the web pages.
  For instance, the "WindowsDomainName" has to be set up again.

4. In case of recovering own configuration settings you have to open both of the "newly" updated "***Web.config***" files from within the applications folder and compare the raw XML content within an Editor (e.g. Microsoft Notepad) to adapt the settings by use of your before mentioned copies.

4.7 Advanced Aspects

4.7.1 Security considerations

- Plain "**HTTP**" uses unencrypted plain-text communication between peers for all data.
  This also includes the communication of usernames and passwords.
  For an encrypted communication, we recommend configuring **WEBVERIFY** to use the secure protocol via "HTTP**S**". An explanation how to do that in detail is beyond the scope of this guide, but can be found in the Microsoft IIS documentation.

Reference:

Please read the IIS documentation (integrated help and online help) with focus on the respective ports for the usage of the secure sockets layer within the hypertext transfer protocol.

- The **WEBVERIFY** and the "login" application share a common key chain (decryption and validation) for internal communication. Those keys are long hexadecimal numbers, which must be equal in both applications. They should be secret, so it is highly recommend changing the default values to some custom ones. For doing this follow this instruction:
  a) Inside the IIS Manager console, wade to each application/site "WebVerify" and "Login" and open the "Configuration Editor".
  b) Select the section "system.web/machineKey" from each application site.
  c) Customize the properties "decryptionKey" and "validationKey" with the same new value as you please and ensure to keep them in synchronized.

4.7.2 Custom authentication

WEBVERIFY is bundled with a Login application, which authenticates users against a Microsoft Active Directory user directory. Users authenticated with this application will be named correctly in the statistics and history data structures of **IRISXtract™ for Documents**. However, the web techniques allow implementing other authentication strategies as well. For any other possibility is beyond the scope of this tutorial and there is no support given to neither this nor the resulting consequences.

5. Advanced Installation Aspects

Beside the common way of installing an **X4D** server or client node by using **SETUP WIZARD**, there are some configuration limits that call for some advanced configuration or even installation steps. In the following there are some aspects to be considered for this, with respect to the special situation why these steps are needed. Keep the following in mind:

1. The use of **SETUP WIZARD** for any kind of **X4D** node in your desired environment is the essential first choice and way.
2. The prerequisites are the same as **SETUP WIZARD** needs but additionally some parts are needed to have them at hand for your own installation way.
3. For installing client or designing nodes **SETUP WIZARD** remains as the preferred tool to do so. the following aspects are concerning the Server installation aspects
4. **SETUP WIZARD** does not support the access to the database using SQL Server login for authentication. But the **X4D** server can later on handle a remote access to this database, when it is already established in such an SQL Server instances. Before initializing the **X4D** database into a remote SQL Server, the firewall settings (see *chapter 5.1 "Firewall Configuration"*) for this SQL Server have to be ensured.

Reference:

For more information on authentication in Microsoft SQL server and the Microsoft recommendation on using Windows authentication please refer to the following Microsoft web page:

https://docs.microsoft.com/en-us/dotnet/framework/data/adonet/sql/authentication-in-sql-server

5.1 Firewall Configuration

Firewall Settings for the X4D Server

For the correct communication within a distributed environment of a multi-machine installation, so also within a simple Client-Server installation the firewall on the **X4D** server node must have an `open` **`inbound TCP`** `port` **`58802`** for all **X4D** component programs. So at its best, open that port for "**`any`**" program.

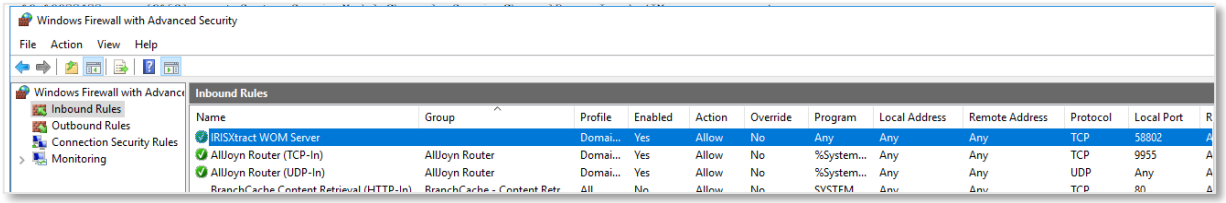

Figure 38: Firewall settings X4D server

Firewall Settings for the Client Nodes

For the correct communication in a distributed environment from the client nodes (**IMPORT**, **ANALYZE**, **DBMANAGER**, **VERIFY**, **COCKPIT** and **EXPORT**, as well as for the nodes with **SOLUTION DESIGNER**) to the server, specific firewall **inbound rules** on each client node need to be **enabled** with Microsoft default settings:

- "`Remote Service Management (NP-In)`"
  allowed for the **Domain** *profile*, using **TCP** *protocol*, on *local port* number **445**
- "`Remote Service Management (RPC)`"
  allowed for the **Domain** profile, using **TCP** *protocol*, on *local port* by **RPC Dynamic Ports**
- "`Remote Service Management (RPC-EPMAP)`"
  allowed for the **Domain** profile, using **TCP** *protocol*, on *local port* by **RPC Endpoint**

Firewall Settings for the DB Server

Only in the case of the **X4D** server is accessing a **remote named** SQL instance hosting the **X4D** database on such remote SQL Server machine, an `open UDP port 1434` is required.

Reference:

For more information on firewall settings and ports of a Microsoft SQL Server please refer to the following Microsoft web page:

https://docs.microsoft.com/en-us/sql/sql-server/install/configure-the-windows-firewall-to-allow-sql-server-access

5.2 Server Installation Sequence

Within the following installation steps the default settings (if applicable by **SETUP WIZARD**) are used as sample information:

- Database name: "*X4D_wom*" (the default X4D database name)
- User name: "*xtract_server*" (service account as stated in chapter 2.5)
- X4D server name: "*Xtract5*" (this is your own computer nodes name)
- SQL Server -name: "*X4D5-SQL*" (this is your remote SQL Server nodes name)
- sample domain: "*AD-IRISX4D*" (this is your own active directory domain name)

Note:

In the most common way **SETUPWIZARD** is the adequate tool to install the **X4D** system and also the **X4D** server machine.

The manual installation in the following is intended to use if the SQL database as storage backend is located on a remote SQL Server instance, which is either provided in Azure or perhaps configured with SQL authentication.

Now follow these steps for installing the **X4D** server:

Begin

1. Prepare your operating system for the use as **X4D** server machine by checking the aspects within *chapter 2 "Installation Preparation"* especially the suitable SQL Server version and edition .
2. Make a local copy of the installation resources to have them at hand.
3. Install your SQL Server instance perhaps on a dedicated remote machine or locally on that machine running as **X4D** server. You can also use the provided Express edition if desired.
4. Install at least the following requirements for the **X4D WOM SERVER** package as needed:
   a. The C++ Runtime (Version 2008 Redistributable 9.0.30729.6161)
   b. On Windows 7 / Windows Server 2008 the MS PowerShell (update **KB2819745**), which can be found in folder "***.\Requirements\Windows PowerShell***"
   c. Both installer package of SQL Server Management Objects (SMO)
5. Install now the **X4D** server by using the package "***.\IRISXtract.WOMServer.exe***".

SQL Database

6. Create a new fresh database in the SQL Server instance and connect this to the **X4D** server as **WOM** database. In case of a local SQL Server installation you can do the following. Else check the SQL Server access rights and the appropriate connection string for the remote connection.

Note:

In case of a remote connection, especially to an MS Azure SQL instance, we recommend to create the database via Azure and its service or by the SQL Server management tool, so that this database only needs to be connected to the **X4D** server. This avoids authentication problems during installation.

   a. Open the "**X4D** PowerShell" console from **Start menu > IRISXtract for Documents > Expert**
   b. In case of a remote SQL Server connection keep the relevant aspects on the **X4D** PowerShell commands in mind (see *chapter 5.3 "Remote SQL Server Connection"*)

c. Type in the command for creating a new database in the **X4D** server.
For example:
"New-WomDatabase -ConnectionString 'data source=.;integrated security=True' -DBName x4d_wom -DBSize 4000 -LogSize 200 -DbLoginName AD-IRISX4D\xtract_server -DbUserName xtract"

Be aware of the parameter options of this command:

- `-ConnectionString`
  In case of a local "Express Edition" (as available from the **X4D** distribution) use the connection string "`'data source=xtract5\sqlexpress;`". Hereby "`\sqlexpress`" is the instance name used during a default SQL Server installation. For a distributed connection to a remote SQL Server instance use the network name of the pc/server, instead of the dot "`.\`" and assure to have the adequate access rights in creating the database. If only an SQL administrator can create the database, the parameter "`Persist SecurtiyInfo=True`" and the "`ID`" and "`password`" is to be set within the connection string.
- `DBName`
  The specific name of the database as used in the SQL Server instance. The **X4D** default name used by **SETUP WIZARD** is "`x4d_wom`".
- `DBSize`
  Consider the actual needed amount according to the expected data throughput if a single page for instance consumes about 200 – 300 kB of data, for the image, freetext, fingerprint and recognition data (so a trail will show this amount as Export results)
- `DBLogInName`
  This is the authorized user, accessing the database and in common (within Windows authentication) the name of the **X4D** server service account, which is by default "`AD-IRISX4D\xtract_server`".
  The SQL Server can also manage own user accounts (by SQL authentication) which then differ to the Windows login user accounts and certain access rights. Then this relevant user name has to be used here.
- `DBUserName`
  Specifies the database internal user name, e.g. '`xtract`'.
  Within the default installation by **SETUP WIZARD** the SQL Server Express edition uses the local windows login accounts and access rights.

Additional options:

- `-v -UseFileStream -FileStreamMaxSize 30000`
  When installing an SQL Express Edition you can use the feature "`FILESTREAM`" to relocate table rows with large data into the file system than the in database itself. This is a good recommendation provided by Microsoft if the expected data (concrete the binary large objects) will exceed 1 MB. The database growth of the Express Edition is limited to 10 GB.
  The "`FILESTREAM`" feature can also be activated later on by the help of the **SQL Server Setup** (Step Database Engine Configuration) respectively **Configuration Manager** (Advanced page of the Server Properties) or the **SQL Management Studio**.

7. In case of a remote connection and/or to an already existing SQL database, the following parameter aspects should be considered:
   a. The user account running the **X4D** server machine needs to have access rights on the database as "*dbowner*" known to the SQL Server. The easier and best way is when the logon authorization is handled by Windows than by the SQL Server and the database already exists. Other ways are described in the following *chapter 5.3 "Remote SQL Server Connection"*
   b. Use the **X4D** PowerShell command as above for **initialize** the data base.
   For example:
   "`New-WomDatabase -ConnectionString 'data source=.\<your_SQL_Server_name>;integrated security=True' -DBName x4d_wom -DbLoginName AD-IRISX4D\xtract_server -DbUserName xtract -InitIfExists`"
   c. In case of an Azure SQL integration you must use the following complete string as parameter "`-ConnectionString`" with the ID, Catalog and password as provided by Azure.
   For example:
   "`Server=tcp:<your_azure_sql_name>.database.windows.net,1433; Initial Catalog=x4d5_db1;User ID=app@<your_azure_sql_name>; Password=<your_azure_sql_db_password>;Trusted_Connection=False; Encrypt=True`"

8. Check/Set the Database connection within **X4D** PowerShell:
   a. Within the "**X4D** PowerShell" console, opened from
   Start menu > IRISXtract for Documents > Expert
   b. Open the usual DB connection dialog with the command:
   "`Edit-WomDbConnection -UI`"
   c. Ensure that the correct DB connection is configured, use the "**Test Connection**" button to check the availability
   d. Click "**OK**" if the connection was changed, or Cancel to keep the existing one

Server Services

9. Register the **X4D** server service "***WOM Service***":
   a. Open a "**Command Shell**" console with administrative access rights from
   Start menu > System Tools > Command shell
   b. Type in the command for installing the server service:
   "`C:\Program Files (x86)\IRISXtract\WOM\WOMServer\WOMServer.exe" -install -user xtract5\xtract_server -password IRIS_X4D_srv`"
   "*User*" and "password" refer to the local windows user credentials which have to be changed in the domain accounts are used e.g. "`AD-IRISX4D/xtract_server`".
   c. Start the service:
   "`net start irisxtractserver`"
   d. Keep the command shell open for the next step.

10. Register the **X4D** controller service "***WOM Controller***":
    a. Type in the command for installing the controller service:
    "C:\Program Files (x86)\IRISXtract\WOM\Controller\WOMController.exe" -install -user *xtract5\xtract_server* -password *IRIS_X4D_srv*"
    "*User*" and "password" refer to the local windows user credentials which have to be changed in the domain accounts are used e.g. "*AD-IRISX4D/xtract_server*".
    b. Start the service:
    "net start irisxtractcontroller"

Kerberos Settings

Within a distributed environment the active directory needs an SPN record which has to be defined.

11. The domain administrator (special access rights needed) has to set this via shell command:
    "setspn -a HOST/*<WomServer>:58802 <WomServerAccount>*"
    For example:
    "setspn -a HOST/*xtract5.AD-IRISX4D.dom:58802 AD-IRISX4D/xtract_server*"

Now your **X4D** Server is ready for use in the favored **X4D** architecture when the remaining optional packages of desired components are also installed.

Use **X4D COCKPIT** on perhaps another node to integrate your application(s) and check the workflow as well as the document processing through all other components (perhaps all on separate nodes).

5.3 Remote SQL Server Connection

The following aspects have to be considered in using a remote SQL Server connection instead of a local database instance installed on the **X4D** server:

- The respective Microsoft SQL Server instance (Supported version as mentioned in *chapter 2.3 "Platform Compatibility with Operating Systems and Database Servers"*) has to be installed on the remote server
- The empty database has to be installed in this instance and the user access right to this database have to be set up (see *chapter 2.5 "User Administration"*):
  - The user "*xtract_install*" must be "*sysadmin*" of the instance if no database exists.
  - the user "*xtract_server*" or better to say the "DBLoginName" must be "*dbowner*" of the created (empty) database
- Equally to the **X4D** server the Kerberos settings on the SQL Server have to be considered as mentioned in the *section* before.

Relevant PowerShell commands

- Command on the **X4D** server for creating a new **X4D** database in the remote SQL Server with windows authentication (the preferred and common way).
  For example:
  "New-WomDatabase -ConnectionString
  'data source=.IRIS\SQLServer;integrated security=True'
  -DBName *x4d_wom* -DBSize *4000* -LogSize *200*
  -DbLoginName *<X4D_Domain>\xtract_Server* -DbUserName *xtract*"

- Command on the **X4D** server for creating a new **X4D** database in the remote SQL Server with SQL Authentication (the connection string covers the credentials).
  For example:
  "`New-WomDatabase -ConnectionString 'data source=.IRIS\SQLServer; Persist SecurtiyInfo=True;ID=SqlAdmin;Password=<AdminPassword>' -DBName x4d_wom -DBSize 4000 -LogSize 200 -DbLoginName <X4D_Domain>\xtract_Server -DbUserName xtract`"
- The **X4D** PowerShell command on the **X4D** server for installing the **X4D** layout into the existing database with Windows authentication (hereby the login is "`xtract_server`").
  For example:
  "`New-WomDatabase -ConnectionString 'data source=.IRIS\SQLServer;integrated security=True' -DBName x4d_wom -InitIfExists`"
- The **X4D** PowerShell command on the **X4D** server for installing the **X4D** layout into the existing database with SQL Authentication (the connection string covers the credentials).
  For example:
  "`New-WomDatabase -ConnectionString 'data source=.IRIS\SQLServer; Persist SecurtiyInfo=True;ID=SqlAdmin;Password=<AdminPassword>' -DBName x4d_wom -DbLoginName <X4D_Domain>\xtract_server -DbUserName xtract -InitIfExists`"
- Check the connection from the **X4D** server to the remote SQL database by use of the **X4D** PowerShell command:"`Edit-WomDbConnection -UI`"

5.4 Specific PowerShell Commands

Within the "**X4D** PowerShell" console, opened from **Start menu > IRISXtract for Documents > Expert** specific server commands can be used. For more information on all **X4D** PowerShell Cmdlets please also use "`help X4D`" and for the respective command "`get-help <CmdLetName> -full`".

Important:

Changing environmental settings in the **X4D** server by use of **X4D PowerShell** Cmdlets do have direct effect on the running production system.

We recommend to stop the production and its services (by system shutdown within **Cockpit**) before changing **X4D** server settings by the **X4D PowerShell** Cmdlets.

5.4.1 Changing the Worker Account

In case of a manual change of the worker account the **X4D** PowerShell has to be used.

- Type in the command for the registration of the "Xtract _worker":
  `Set-WomWorkerPassword -Domain AD-IRISX4D -password IRIS-X4D-wor -UserName xtract_worker`
  "`Domain`", "`UserName`" and "`Password`" refer to the windows user credentials, used for the background worker process, which can be changed by this. On a single node installation the machine name or just even "`.`" is used for the domain.

5.4.2 Application Management

- Adding the system project:
  `Import-WomSysConfig -ProjectPath '\\<X4D-server-name>\<X4D-Shared-Folder>\project\Systemproject'`
  Change the name of the **X4D** server and the application folder to your needs.
- Setup the XMasterData root path by changing the global parameter value:
  `Set-WomGlobalParameter –ParameterName 'DBMgr-Share' –Value '\\<X4D-server-name>\<X4D-Shared-Folder>\MasterData'`
  Change the name of the **X4D** server and the application folder to your needs.
- Installing the new application '*Invoices*':
  a. Creating a new application in the server
  `New-WomApplication -Name Invoices -MasterDataPath '\\<X4D-server-name>\<X4D-Shared-Folder>\MasterData/' -MasterDataUpdateInterval 30`
  Change the name of the **X4D** server and the application folder to your needs
  b. Importing the project:
  `Import-WomAppConfig -ProjectPath '\\<X4D-server-name>\<X4D-Shared-Folder>\project\Invoices' -Application Invoices`
  Change the name of the **X4D** server and the application folder to your needs
  c. Activating the application :
  `Enable-WomApplication Invoices`
  wildcards are not allowed

5.4.3 Mapping of Nodes

In case the PowerShell cmdlets should be used instead of the convenient **COCKPIT**:

1. Generate a new node into the server list e.g. “verify-training”:
   `New-WomNode -Name Verify-training`
1. Creating a mapping “” to the node “”
   `New-WomMapping -Node Verify-training -Module Verify -Role GVerify1`

5.5 Client Node Settings

For coordinating the communication between the **X4D** Server and the respective client node(s) the **X4D** component **DCORE** creates a default configuration file on the server node, which is adapted during the server installation. Later on **SETUP WIZARD** detects the specific version in case of installing a client node.

This configuration file „***WomClientSettings.xml***“, can be found on the server within the folder as named before in *chapter 2.8 “Special Destination Folders in Different Systems”*:

The default content of the file looks like this:

```
<?xml Version==”1.0”?>
<configuration>
   <appSettings>
          <add value="net.tcp://localhost:58802/" key="Uri" />
          <add value="net.tcp" key="BindingName" />
          <add value="true" key="MeasureWomSvcOperationns" />
          <add value="true" key="MeasureLocalOperations" />
          <add value="true" key="SecureBinding" />
   </appSettings>
</configuration>
```

During server installation the “URI” setting is changed from “localhost” to the network name of the X4D server. Thus on the client node this can also manually be adapted in case of any problems during client installations.

6. Solution Packages and Process Add-ons

Within the new **X4D** release **version 5** the concept of integrating **Solution Packages** in general is adapted to be more flexible at one hand and more specific for the actual relevant process. This means that all possible solutions can generally now be integrated the same way. Even if provided as I.R.I.S. **Solution Package** for **IRISXtract™ for Documents** or as your own developed and customized business application.

The following explains this approach for the installation and administration. In case of any concrete sample there are references to the prominent **Solution Package Accounts Payable** (afterwards **SP AP**) used. All other provided **Solution Packages** of the **X4D** platform for the respective business application follow also this structure and equal installation process.

As a part of any **SOLUTION PACKAGE** the following explains the general scope of supply, as well as additional requirements for integrating the parts of any **SOLUTION PACKAGE** into the developing and production environments. Furthermore, the installation issues and first initial steps for the use of the solutions are pointed out.

Additional to the following aspects there is a separate **Solution Package** description document, with explanation on the specific document processing in **X4D** with its capturing workflow, the document analysis and the application configuration. This can be found as well as the release notes and the online help for **VERIFY** within the solution documentation.

6.1 Prerequisites and System Requirements

Note:

Because the **Solution Package** are based on the **X4D** system and are only intended for the use with this, the requirements depend on the **X4D** system itself.

Software

- For integrating the specific application of a **Solution Package** in an **X4D 5.0** environment you have to use the **COCKPIT** function of installing an application by the help of the application wizard
- For adjusting the application project of any **Solution Package** or **Process Add-ons** to your custom needs, the following **X4D** tools with latest version are needed, so check for updates and install them at first:
  - **SOLUTION DESIGNER**
  - **SP CONFIG PLUGIN**
- For also adapting the projects functions inside the solution package specific Add-ins, the customizing workspace needs fully support of Visual Studio and the **X4D** Add-in extension in there, which is checked on initial start of this workspace in **SOLUTION DESIGNER**

For employing a **SOLUTION PACKAGE** in a productive environment, the developing tools are not required, as the document capture and process do not require the ad hoc generation of specific templates.

First choice for installing a **Solution Package** in parallel to an **X4D** system as integrated solution is the use of the **X4D SETUP WIZARD**. Besides this, the deployment of the specific project can be used if an X4D system already exists.

License

Any **Solution Package** is licensed by the application license which includes a respective flag. Check the availability and fulfill the requirements before using the package especially with the additional document volume or other extensions needed for your desired solution.

6.2 Scope of Supply

Each **Solution Package** for **X4D 5.0** will now consist of the following:

1. The folder "***\Sample***" with the sample application(s), covering the following:
   a. The sample project with
      > its prepared configuration of document settings, an scripted Add-In and perhaps already prepared internal Master Data
      > Demonstrative sample files of external Master Data
   b. Some demonstrative sample images for the use by **IMPORT** using the default channel type
2. The folder "***\Docu***" with the **Solution Package** specific documentation
3. The folder "***\Assembly***" with the solution specific dynamic link library as assembly for the use in the customization of Add-ins

Beside this provided files, all **Solution Packages** are adjustable in general for the custom needs by the extension of the developing tool **SOLUTION DESIGNER** with **SP CONFIG PLUGIN**. This is required for adapting the sample project and its parameter sets to the costume needs. This can be found on the FTP side in parallel to the **X4D** release and the **Solution Package**.

6.3 Integration of the Solution Package

There are certain distinctions in integrating the solution and therefore different ways to do so:

1. The sample application is used as is, without any primary adaption for testing purposes or as basis for a new, customized (SP specific) application, which means adapting the project within Solution Designer before deployment
2. The assembly of the business logic is used for updating former application (with similar major version number)

6.3.1 Prepare the Development Environment

In case of **not** having configured a specific processing application and running the respective **SP** sample application or a similar one (on the same basis) yet. Anyway, it is recommended to store the sample application files locally to get access within **SOLUTION DESIGNER**, adapt it there if required and integrate/install this later on by the use of the "*application wizard*" within **COCKPIT**.

The sample application items can additionally be stored on the target **X4D** system in the local folder for backup or also later adaption, for instance in "***C:\Users\Public\Documents\IRISXtract***".

The following subfolder of the specific application project should be used (and even created):

- Sample applications project `\Applications\<Application name>\Project\`
- Sample projects Master Data `\Applications\<Application name>\Project\db`
- Demonstrative **IMPORT** batches `\Applications\<Application name>\Import\`
- Application specific **EXPORT** folder `\Applications\<Application name>\Export\`

Important:

In **COCKPIT**, in the Applications view, do not choose an existing *application profile* ("Client") from the listing on the right side, if you are not sure enough to change this application's configuration!

Changes on the properties and loading the new configuration file will overwrite the original settings and configurations. Take the behavior of project versioning into account!

6.3.2 Installation of SP Config PlugIn

For the integration of the **SP CONFIG PLUGIN** in the **SOLUTION DESIGNER**, both are needed with same major version which is right now version **5**, do the following:

1. Get your local copy of the specific installation package "*IRISXtract.SPConfigPlugin.msi*" from the **Solution Package** distribution folder (suitable for the adequate **X4D** version).
2. Run this installer on the node having already installed **SOLUTION DESIGNER** in its latest version (major **5**) as stated above.
3. The installation wizard starts.
   Follow the entire steps by clicking on the '**Next**' button for installing the configuration extension.
4. Complete the installation by clicking on the '**Finish**' button on the last dialog.

Note:

Within an already prepared developing environment with a former **SP CONFIG PLUGIN** of equal major versioning you need to uninstall this package before new installation.

6.3.3 Installing the Application in Cockpit

For the use of the solution package specific project and its settings in an **X4D** installation, you need to create a new "*application profile*" which uses the (perhaps already adapted) sample project and its configuration.

Reference:

For further more information on configuring applications in general, please refer to the **X4D COCKPIT** manual and the documentation of the **X4D** "System Overview".

Do the following:

1. Open the **X4D COCKPIT** and inside **Applications** choose (the menu **Tools** >) **Create new application** (in the action list).
2. In the selection dialog for creating an application, choose the setup "Wizard-guided".
3. Wade through the steps for setting up the **SP** specific application and enter the actual properties as located in the current installation. Ideally use the before locally stored application.
   a. *Project selection*:
      Load the locally stored sample application project form folder "Xtract".
   b. *Master data location*:
      Name the directory for accessing the master data sources, which are synchronized with the **X4D** system later on.
   c. *Import folder location*:
      Select the **IMPORT** channel type "*default import structure*" and name the directory for accessing scanned documents from the demonstrative sample.
4. Apply those global configuration settings for the *application profile* by pressing the '**OK**' button. The dialog will then close.
5. After creation of the new application the **EXPORT** channels have to be defined if these system settings are not done already.

The new application is ready to get a final configuration check and start of a first run.

6.4 Integrating only the Assembly for Updating Reasons

Perhaps an update version of the business process application is available. So an already installed **SP** application can benefit of the new released features or functional fixes within this. There is the possibility to update the project specific assembly of the business library by considering the following aspects:

- The sample project of the Solution Package specific application use a DLLL that is also available within the folder "**\assembly**"of the distribution in parallel to the folder "**\sample**"
- It's only possible to update the actual project to the available version in case both use the same major version of the basic application
- Updates of the Add-ins are essential to get access to the new functionalities
- All Add-ins, e.g. for **VERIFY** and/or **EXPORT**, of your version of the **SP** application must use the same library version as your *DataScript* within the references.

Important:

X4D will run into a faulty situation in case of mixing the versioning of **Solution Package** DLL called by the Add-Ins ("*DataScript*" and "*GVerify*"). The Add-Ins must use references to the same DLL version.

6.5 Configuring the Application Settings and First Check Up Run

1. Configure Master Data within **SOLUTION DESIGNER** especially to the custom needs:
   a. If the sample is adapted, customize master data tables by the use of the **SOLUTION DESIGNER**,.
   b. Customize master data settings by configuring the **XMASTERDATA** settings within **COCKPIT**.
2. Within **COCKPIT** check all settings in the **Applications** view as well as the license mapping of the just newly created solutions application and enable its operation state.
3. Start importing a test batch, for instance use the provided sample batches. This can be done and controlled by the **COCKPIT** detailed import control view reached from inside the connections view.
4. Check your results in **VERIFY**/**WEBVERIFY** and if necessary change the parameter settings in the project by using the **SP CONFIG PLUGIN**. Afterwards retry the document workflow by importing the recent batch.

Normally the **COCKPIT** should not alert any messages or warnings.

7. Online Help Customization

Please find in here the information to adapt personal or custom help, which can be used in **X4D VERIFY** beside the documentation that should be hand out as well. Help within software means "*online help*" for specific situations and functions that are obviously offered in daily work. Therefore, within an **X4D** system, we name it **X4D ONLINE HELP**.

The need of getting those information within the **X4D** components and tools are influenced by typical business processes that an **X4D** system represents. So this inform could concern the specific change on the document workflow, the specific variety of software components and the functions implemented by the solution projects (with their scripting). As a consequence, there are three categories of online help available within **VERIFY**:

- The basic **VERIFY** documentation and online help:
  This is scope of supply of an ordinary **X4D** system installation on the respective nodes.
  X4D ONLINE HELP provides **VERIFY** with links to the documentation and the components online help. Within a common installation by **SETUP WIZARD** this is automatically installed on the **WOM SERVER**. By the **X4D ONLINE HELP** technology the **VERIFY** nodes get access to these links and files as menu item.
- The additional documentation parts of an installed **Solution Package:**
  The solution packages offer additional **X4D ONLINE HELP** content that comes within the installation procedure and is also placed within the systems documentation and help folders.
- The custom help:
  This explains that kind of information on any customized function being added by script or specific configuration issues which influence the default behavior of **VERIFY** for instance and is no topic of the before mentioned documentation or help.
  So this is specific and the help has to be created in responsibility to the customer's needs.

All of these parts of the helping documentation are ready for the needed localization by links in the respective menu items. Thus **VERIFY** can present the online help language specific within the menu items because of certain configuration files used in combination of the respective help files.

7.1 Configuration Specification

- The documentation parts (also include your own custom help documentation) used as **X4D ONLINE HELP** are files, are stored locally on the **WOM SERVER** within the specific path that is configured in **X4D COCKPIT** as global parameter "*.OnlineHelp-Path*".
  The "**.**" as needed as this global parameter is later on a hidden (not direct visible) one.
- **X4D VERIFY** then fetches the respective help topics feasible by menu item links, according to the configuration stored within XML-file "***.x4dhlp.xml***" as kind of configuration and Meta-data to the respective help file link.
- There is no possibility for recognizing changes within the software that lead into documentation and respectively Online Help changes. This needs to be done manually.

Given File Structure

The **X4D** component controls **X4D ONLINE HELP** by a specific DLL that uses a certain file structure and specific XML configuration files. These files are stored on the **WOM SERVER** and are later on fetched by the components (as **VERIFY** in particular) within their initial start. Within the component the respective help file links are feasible when needed.

- **X4D** client node side

  Every node (using a component with OnlineHelp function) uses a local storage of the help files within this path: "***C:\ProgramData\IRISXtract\DocumentationCache***"

- **WOM SERVER** side

  X4D uses the path "OnlineHelp-Path", defined within **COCKPIT**, as storage for synchronization with the **X4D** client node. For instance, **VERIFY** can later on use the founded files as entry point for help menu items. The decision, what kind of help documents will be used, is made by the respective configuration files. They are named "***<name of your help>.x4dhlp.xml***" in the respective folder. The documentation file and folder structure can freely be used as the documentation folder itself for example.

Folder path name	Description
\\X4D-WOM-Server\IRISXtract\Documentation	Root path that is hosting the subfolder for online help files and the configuration
OnlineHelp\Verify	Folder for the **X4D** component **VERIFY** specific help files
Verify\1033	Folder for the language specific files (here: 1033=*English*)
1033\index.html	Help content file "***index.html***" for the menu item used in the link as help menu item
Verify\X4D-Verify-Help.x4dhlp.xml	Configuration file for the respective online help file used in **VERIFY**
OnlineHelp\SP AP	Folder for the **Solution Package SP AP** specific online help files used in **VERIFY**
SP AP\SPAP_Verify-OnlineHelp_EN.pdf	Help content file "***SPAP_Verify-OnlineHelp_EN.pdf***" that is linked as menu item
SP AP\SPAP_Verify-OnlineHelp.x4dhlp.xml	Configuration file for the "***SP AP Verify OnlineHelp***"
\config.xml	Optional XML configuration file for sorting the help menu

Configuration of Help Menu Items

The content within the "*.***x4dhlp.xml**" describes the later on presented help menu Item(s) in **VERIFY** or any other possible **X4D** component. Due to the fact that these are XML files, they have to be created according to formal specifications as the following example shows:

XML code	Description
`<?xml version='1.0' encoding='UTF-8'?>`	XML declaration; an **UTF-8** encoded XML file must be used.
`<HelpFile xmlns="urn:irisxtract:onlinehelp">`	Starting tag for the help file definition. This namespace is needed, so the xml can be parsed.
`<Name>Verify</Name>`	Internal name that can be used by "***config.xml***" for the optional sorting
`<MenuText>Verify – Online Hilfe</MenuText>`	The display name of the online help link for the specific language
`<IncludeLanguage Code="de" />` `<IncludeLanguage Code="nl" />`	Specifies expressly in witch language(s) the link is presented **exclusively**. Use ISO-639 token with Alpha-2 code. If none is specified (empty tag; default) the menu item is available in every language with this configuration
`<ExcludeLanguage Code="en" />`	Specifies expressly in witch language(s) the link is **not** presented. Use ISO-639 token with Alpha-2 code. This is useful if a translated version exists. If none is specified (empty tag; default) there is no restriction.
`<AvailableInComponent Name="Verify"/>` `<AvailableInComponent Name="WebVerify"/>`	The available **X4D** component name(s) using this "*.***x4dhlp.xml**" configuration
`<File>1031/main.html</File>`	The linked "entry point" for the online help content that gets feasible in the help menu
`<SortIndex>100</SortIndex>`	Optional tag with a numbering (Int32 value) used for ordering the menu links (highest no. above)
`</HelpFile>`	End tag for the help file definition

Optional Sorting of Help Menu Items

Without a specific configuration, the help menu items are sorted in alphanumerical order of the file and folder names in the online help folder. A desired specific order depends on two definitions:

- Sorted by the optional Tag "SortIndex" within the respective "*.***x4dhlp.xml**" files.
- Sorted by the specification in the optional file "***config.xml***" that is also stored into the **X4D ONLINE HELP** root folder. The content describes the sorting order of menu items of the corresponding help documents.

Anyway, the specific language packages or menu item configurations are relevant. You can customize this sorting by editing the XML configuration in the file "***config.xml***", for instance like this:

XML code	Description
`<?xml version='1.0' encoding='UTF-8'?>`	XML declaration; an **UTF-8** encoded XML file must be used.
`<HelpFiles xmlns="urn:irisxtract:onlinehelpconfig">`	Start tag for the help file sorting configuration
`<Component Name="Verify">`	Starting tag for the respective component
`<HelpDocument Name="Verify" />`	Internal name, the same as in the corresponding "*.***x4dhlp.xml**"
`<HelpDocument Name="SPAP_6" />`	Internal name, the same as in the corresponding "*.***x4dhlp.xml**"
`<HelpDocument Name="Custom" />`	Internal name, the same as in the corresponding "*.***x4dhlp.xml**"
`</Component>`	End tag for the respective component
`</HelpFiles>`	End tag for the help file sorting configuration

Tip:

This If both methods for sorting are used in combination, the respective "SortIndex" number ('1': highest and N: lowest) is relevant but with dependency to the "***config.xml***" structure, which is major.

Example:

The above used sample code is used for the "config.xml" but in combination with the following:

a) "`SortIndex`" of *SPAP_6* is "**100**": "1 - *SPAP_6*, 2 – *Verify*, 3- *Custom*"

b) "`SortIndex`" of *New-item* is "**100**": "1 – *New-item*, 2 – *Verify*, 3 - *SPAP_6*, 4- *Custom*"

c) No "`SortIndex`" for *New-item:* "1 - *SPAP_6*, 2 – *Verify*, 3- *Custom*, 4- *New-item*"

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