



IMiS®/Storage Connector Manual

Version 10.4.2310

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1 INTRODUCTION

1.1 About this guide

The manual IMiS®/Storage Connector describes the application programming interface (API) of the software IMiS®/Storage Connector in development environments .NET and Java, its objects, installation and implementation, and provides possible solutions for some common problems with the interface use.

1.2 Target audience

This IMiS®/Storage Connector guide is intended for administrators and application developers with adequate prior knowledge who require information about installing, configuring and administering the IMiS®/Storage Connector interface. It is also intended for integrating applications with IMiS®/ARChive Server.

To better understand how the software works, and to achieve a more in-depth overview of archive server functionalities, administrators, application developers and users can also consult our guides for IMiS®/Client and IMiS®/ARChive Server.

Application developers have at their disposal development documentation with a detailed description of the IMiS®/Storage Connector interface, which is a part of the *Developer Edition* installation package.

1.3 Abbreviations

The table below describes abbreviations used in the texts and illustrations:

Abbreviation	Description
ACL	Access Control List (a list of access rights)
AES	Advanced Encryption Standard (an advanced encryption algorithm)
AIP	Archival Information Package (A content and metadata “summary” of an entity merged into an XML document)

Abbreviation	Description
API	Application Programming Interface (set of subroutine definitions, protocols and tools for building application software)
BPM	Business Process Management (improving business performance outcomes and operational agility)
CRM	Customer Relationship Management (a system for customer relationship management)
DLL	Dynamic-Link Library (program library in Windows environment)
DMS	Document Management System (a system for document management)
ERP	Enterprise Resource Planning (a business information system)
GAC	Global Assembly Cache (global cache for .NET library)
IPv4	Internet Protocol version 4 (communication protocol version 4)
IPv6	Internet Protocol version 6 (communication protocol version 6)
J2EE	Java 2 platform, Enterprise Edition (computing platform for enterprise software)
JAR	Java ARChive file (.jar file to distribute application software or libraries on the Java platform)
Java	JAVA programming language (object-oriented computer programming language)
KRB5TGS	Kerberos 5 Ticket Granting Service (computer network authentication protocol)
LDAP	Lightweight Directory Access Protocol (internet protocol for accessing and maintaining distributed directory information services)
MIME	Multipurpose Internet Mail Extensions
.NET	Microsoft .NET Framework (computer programming environment)
RAM	Random Access Memory (dynamic memory)

Abbreviation	Description
SOAP	Simple Object Access Protocol (an XML-based protocol for web services)
SRP-6a	Secure Remote Password revision 6a (an encryption protocol for secure user authentication)
TCP/IP	Transmission Control Protocol / Internet Protocol (a family of network protocols)
XML	Extensible Markup Language (a markup language for hierarchically structuring data in the form of text files)
ZIP	ZIP file format (standard compression format – “.zip” extension)

Table 1: Abbreviation usage in the documentation

2 GENERAL

IMiS®/Storage Connector is an application program interface (API) for transferring objects (scanned documents and other files) between application servers and IMiS®/ARChive Server. Objects are delivered at the request of the application for saving and viewing archived objects to/from the archive server. The interface facilitates fast response times and high throughput even when large numbers of objects are interchanged simultaneously.

2.1 Integration with Java and .NET applications

IMiS®/Storage Connector is built around the widely-used .NET and Java software environments.

It contains a wealth of programming objects with an easy-to-use interface (API).

This makes it possible to quickly design functionally advanced applications for accessing IMiS®/ARChive Server.

A binary protocol is used for communication with the archive server, which essentially speeds up communication and ensures high responsiveness and throughput. Users of applications (DMS, ERP, CRM, BPM ...) view the delivered objects in these applications' integrated browsers.

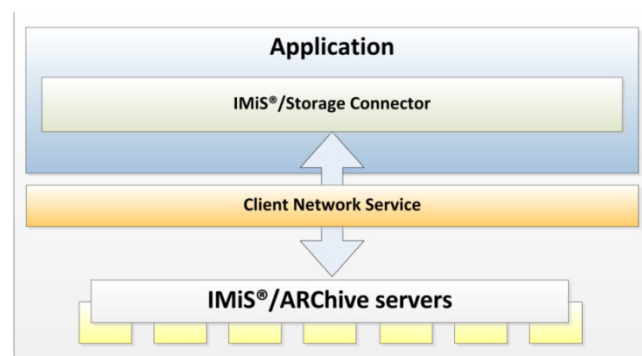


Image 1: IMiS®/Storage Connector architecture

IMiS®/Storage Connector .NET version is intended for integration with applications on .NET Framework 2.0, which can be used on .NET Framework 4.6.1, 4.6.2, 4.7, 4.7.2, 4.8, .NET Core 2.0, 2.1, 2.2, 3.0, 3.1 and .NET 5.0, 6.0, 7.0.

IMiS®/Storage Connector Java version is intended for integration with applications on J2EE 1.5.0_22 (or newer).

2.2 Objects on different archive servers

If a configuration with multiple IMiS®/ARChive Servers located at different locations is being used, users can access objects saved on multiple archive servers through a single application.

2.3 Security and high availability

IMiS®/Storage Connector uses an encrypted communications protocol and algorithms to communicate with different information systems. This prevents potential eavesdroppers without proper authorizations from accessing the information. It can also function in highly restrictive application environments which prevent access to the file system and which exclusively use executable memory (RAM) for their operations.

The use of automatic toggling between nodes provides IMiS®/ARChive Server with high availability in the event that problems occur. This ensures the 100% accessibility of archived content.

2.4 Advanced features

IMiS®/Storage Connector uses advanced algorithms for session pooling to ensure responsiveness and throughput for application servers with large workloads.

For application solutions that require content streaming, the object model ensures all necessary components for these processes.

By using advanced caching algorithms, it reduces the need for communication between application servers and the archive server and therefore provides the system with greater throughput.

2.5 Use in SOA architecture

IMiS®/Storage Connector can also be used with IMiS®/Storage Connector SOAP Service. This enables access to objects on IMiS®/ARChive Server through an online server as a web service. Communications between the interface and the archive server take place using a binary protocol, while communications with the application use a standardized service-oriented architecture (SOAP) protocol.

IMiS®/Storage Connector SOAP Service is used when support for an SOA communications protocol is needed (in terms of architecture or technology) to save and read objects on the archive server or to read object properties (time of creation, last edited, and other metadata about an object). It is currently only available for the Java environment and enables a web service to be set up on systems with J2EE 1.5.0_22 (or newer).

2.6 Product versions

Product version labeling is based on a scheme that includes the following:

- An identifier of the installation platform (PLATFORM).
- Four separate numerical identifiers (MAJOR, MINOR, RELEASE, BUILD).
- An identifier for the installation package edition (EDITION).
- An installation package extension (EXTENSION) that changes based on the installation platform.

This is what the scheme looks like:

IMiS.StorageConnector.PLATFORM.MAJOR.MINOR.RELEASE.BUILD.EDITION.EXTENSION

The examples of installation package names for the .NET and Java platforms:

IMiS.StorageConnector.NET.10.4.2310.zip

IMiS.StorageConnector.NET.10.4.2310.Developer.Edition.zip

IMiS.StorageConnector.Java.10.4.2310.zip

IMiS.StorageConnector.Java.10.4.2310.Developer.Edition.zip

The scheme consists of the name of the IMiS®/Storage Connector module and the following elements:

- **PLATFORM:** This identifier represents the type of platform for which the installation package is intended. The possible values are *NET* and *Java*. *NET* represents an installation package intended for installation on the .NET platform, and *Java* represents an installation package intended for installation on the Java platform.
- **MAJOR:** This identifier represents the major product version or product generation. It rarely changes in terms of changes in the system and features. A change indicates a considerable difference in the product compared to the previously released version. This identifier has a range of values from 1 to n; it is continuous and the values can only increase.
- **MINOR:** This identifier indicates a minor version of the product. It changes more frequently than the main version in terms of changes to the system, features and fixes. A change in the minor version represents smaller changes and fixes in the framework of the same product generation (indicated by the main or major version). The range of values is from 1 to n. This number is not continuous. It resets to its base value (1) with each new MAJOR version.
- **RELEASE:** This identifier represents the time component of the product release in accordance with the YYMM scheme. MM indicates the month of the release (range of values from 01 to 12), and YY indicates the last two digits of the year.

Example: The RELEASE identifier for a product released in October of 2023 will read 2310.

- **BUILD:** The identifier in this position indicates the unique serial number of the product build; this number never repeats. If smaller changes are made to the product within a single month, this identifier may change. In this case, all other identifiers remain the same. The range of values is from 1 to n. This number is not continuous and can only increase.

- **EDITION:** This identifier represents the type of installation package based on the target users.

Developer.Edition represents an installation package intended for developers.

Besides libraries, this package also contains everything needed to develop applications that use the interface (development documentation, examples, etc.)

Runtime indicates the installation package installed by an administrator. It contains the product libraries needed to run applications that use the product.

2.7 Functionality

The basic functionalities of the IMiS®/Storage Connector are the following:

- Communication of the application (DMS, ERP, CRM, BPM, ...) with IMiS®/ARChive Server via a private binary protocol.
- Access to objects on one or multiple archive servers.
- Simultaneous exchange of larger quantities of objects.
- Use of advanced caching algorithms for faster response times and high system throughput.
- Versions for the Java and .NET programming environment.

2.8 New functionalities in this version

Since the last certified version 10.3.2210 of the IMiS®/Storage Connector module, we have implemented the following new functionalities and improvements to the .NET in Java versions:

2.8.1 .NET version

New functionalities:

- Enables using an external cache in the Iarchive interface.
- Added the “Id” property in the IBinaryValue, IStringMaxValue interfaces.
- Added the “Timestamped” property in the IEntity, IEntityStub interfaces.

Improvements:

- Reconnecting with IMiS/ARChive Server when the connection is interrupted, when reading and saving an object from unstructured storage, and when reading the audit trail.

2.8.2 Java version

New functionalities:

- Enables using an external cache in the IArchive interface.
- Added the “getId()” property in the IBinaryValue, IStringMaxValue interfaces.
- Added the “timestamped()” property in the IEntity, IEntityStub interfaces.

Improvements:

- Reconnecting with IMiS®/ARChive Server when the connection is interrupted, when reading and saving an object from unstructured storage, and when reading the audit trail.

3 SYSTEM REQUIREMENTS

For successful installation and execution, the IMiS®/Storage Connector interface has the following hardware and software requirements.

3.1 Hardware

Practically all computers currently available on the market meet the hardware requirements for running IMiS®/Storage Connector.

Minimum and recommended requirements are listed below.

3.1.1 Minimum requirements

Minimum requirements for IMiS®/Storage Connector .NET:

- 1 GHz (.NET 4) Intel Pentium 32-bitni (x86) ali 64-bitni (x64) processor or another compatible processor. *
- 1 GB RAM (.NET 4) of RAM. *
- 10 MB of unused hard disk space.
- Network access using the TCP/IP protocol (IPv4 or IPv6).

Notes:

** This is a brief summary of the minimum hardware requirements for .NET as listed on Microsoft's website:*

<https://support.microsoft.com/en-us/windows/windows-10-system-requirements-6d4e9a79-66bf-7950-467c-795cf0386715>

Minimum requirements for IMiS®/Storage Connector Java:

- Intel Pentium 166 MHz processor. *
- 32 MB RAM. *
- 5 MB (Runtime) / 650 MB (Developer Edition) of unused hard disk space. **
- Network access using the TCP/IP protocol (IPv4 or IPv6).

Notes:

* This is a brief summary of the minimum hardware requirements for Java 8 Runtime Environment as listed on Oracle's website:

<https://www.java.com/en/download/help/sysreq.xml>

** The amount of unused space listed here is the space required for installation. Following installation, some of the space is freed up.

3.1.2 Recommended requirements

Recommended requirements for IMiS®/Storage Connector .NET:

- 2 GHz Intel Pentium 64-bit (x64) processor or another compatible processor (or faster). *
- 2 GB of RAM or more. *
- 10 MB of unused hard disk space.
- Network access using the TCP/IP protocol (IPv4 or IPv6).

Notes:

* This is a brief summary of the minimum hardware requirements for .NET as listed on Microsoft's website: <https://support.microsoft.com/en-us/windows/windows-10-system-requirements-6d4e9a79-66bf-7950-467c-795cf0386715>

Recommended requirements for IMiS®/Storage Connector Java:

- 166 MHz Intel Pentium processor or faster. *
- 48 MB or more of RAM. *
- 5 MB of unused hard disk space. **
- Network access using the TCP/IP protocol (IPv4 or IPv6).

Notes:

** This is a brief summary of the minimum hardware requirements for Java 8 Runtime Environment as listed on the website of the Oracle company:*

<https://www.java.com/en/download/help/sysreq.xml>

3.2 Software

Software requirements for IMiS®/Storage Connector differ depending on the platform being used - .NET or Java.

Requirements for IMiS®/Storage Connector .NET: *

- Microsoft Windows 10 (32/64-bit) 22H2, Windows Server 2019 version 1809 (32/64-bit) or later;
- Microsoft .NET Framework 4.6.2. ali .NET 6.0 or later.

Notes:

** This is a summary of the operation systems supported for .NET Framework as listed on Microsoft's website: <https://learn.microsoft.com/en-us/dotnet/framework/get-started/system-requirements>*

Requirements for IMiS®/Storage Connector Java:

- Oracle Solaris 10, 11 (32/64 bit) or later;
- Microsoft Windows 10 (32/64-bit) 22H2, Windows Server 2019 version 1809 (32/64-bit) or later;
- Oracle Enterprise Linux 7, 8, 9; Red Hat Enterprise Linux 8, 9; SUSE Linux Enterprise Server 12, 15 other distributions that support the Java 8 runtime or later are untested but should work;
- Java SE 8 version, Java 8 update 351 or later.

Notes:

** This is a summary of the operating systems supported for Java 8 as listed on Oracle's website:*

<https://www.oracle.com/java/technologies/javase/jdk-jre-8-cs-config.html>

4 ADMINISTRATION

The IMiS®/Storage Connector interface can be administered by administrators and/or application developers. Administration encompasses installation, start up, shut down, upgrading and removal of the software.

4.1 Installation

Installation can be performed by an administrator in an environment that meets the minimum installation requirements. The minimum requirements can be upgraded if the need to do so is foreseen.

IMiS®/Storage Connector .NET is available in two different zip installation packages:

- IMiS®/Storage Connector .NET Runtime contains .dll libraries that are installed manually to the appropriate location.
- IMiS®/Storage Connector .NET Developer Edition contains everything needed for the development, distribution and execution of applications that use the interface: libraries, examples for developers and tools for application distribution and the option of installing libraries to the Global Assembly Cache (GAC).

IMiS®/Storage Connector Java is available in two different ZIP packages:

- IMiS®/Storage Connector Java Runtime: contains jar libraries, which are installed manually to the appropriate location.
- IMiS®/Storage Connector Java Developer Edition: besides jar libraries, it also contains development documentation and examples.

4.1.1 Installation process for the .NET version

The interface IMiS®/Storage Connector .NET is installed manually.

To install IMiS®/Storage Connector .NET you must copy all the libraries (see chapter [Components](#)) either to the folder containing the application that is using the libraries or to a folder contained in the Windows system PATH.

To use IMiS®/Storage Connector .NET in a development environment it is enough to copy all the libraries (see chapter [Components](#)) to the selected folder and create a reference to *storageconnector.net.dll* and *imisbase.net.dll* libraries in the development project.

The installation package IMiS®/Storage Connector .NET Developer Edition also includes helpful reference documentation that contains technical information on the programming interface and examples of use of the IMiS®/Storage Connector .NET programming interface.

IMiS/Storage Connector .NET requires an appropriate preinstalled version of the software development framework compliant with the .NET Standard 2.0 version; for more information see:

<https://learn.microsoft.com/en-us/dotnet/standard/net-standard?tabs=net-standard-2-0>

4.1.2 Installation process for the Java version

Installation of the IMiS®/Storage Connector Java interface is performed manually.

To install IMiS®/Storage Connector Java Runtime, all libraries need to be copied to a special location in Java 2 Runtime Environment (J2RE) or Java 2 SDK (J2SDK) through which the Java Extension Mechanism will be able to locate the suitable JAR library.

For more information see chapter [Components](#).

This location is:

```
<java-home>/lib/ext           [in Java 2 Runtime Environment]
<java-home>/jre/lib/ext       [in Java 2 SDK]
```

Here *<java-home>* represents the folder where J2RE or J2SDK is installed.

Additional information about *Java Extension Mechanism* and installing JAR libraries is available on Oracle's website: <http://docs.oracle.com/javase/1.5.0/docs/>

To use IMiS®/Storage Connector Java in a development environment, it is sufficient to copy all the libraries (chapter [Components](#)) to the selected folder and to add a reference to the folder through JAR-class-path. Additional information about how Java locates the suitable libraries is available on Oracle's website: <http://docs.oracle.com/javase/1.5.0/docs/>

4.2 Start up and shut down

IMiS®/Storage Connector does not have a user interface. It is started through an application that uses the IMiS®/Storage Connector .NET or IMiS®/Storage Connector Java interface.

The administrator also shuts down the program through the application.

4.3 Upgrading

If an administrator would like to upgrade a past version of the IMiS®/Storage Connector interface to a newer version, they follow the steps described below.

4.3.1 Upgrading process for the .NET version

Before starting the upgrade, the administrator must make sure that the applications using IMiS®/Storage Connector .NET are not being used. If they are, the administrator must shut them down. The administrator then simply overwrites the old versions of libraries, which were installed in the selected folder during the installation process or in the development environment, with new libraries.

For more information see chapter [Installation process for the .NET version](#).

4.3.2 Upgrading process for the Java version

Before starting upgrading the administrator must make sure that any applications that use IMiS®/Storage Connector Java are not being used. If any such applications are in use, they first need to be shut down.

In the upgrading process, old versions of the libraries installed in the Java Extension directory or the development environment are simply overwritten with the new libraries. For more information see chapter [Installation process for the Java version](#).

4.4 Removal

4.4.1 Removal process for the .NET version

Before the removal, the administrator must make sure that the IMiS®/Storage Connector .NET libraries are not being used. The administrator does so by making sure that the applications using these libraries are not running.

To remove IMiS®/Storage Connector .NET you must delete the libraries that were installed during the installation process (see chapter [Installation process for the .NET version](#)).

To remove IMiS®/Storage Connector .NET in the development environment you must delete the libraries that were installed during the installation process and remove the references to the *storageconnector.net.dll* and *imisbase.net.dll* libraries in the development project.

4.4.2 Removal process for the Java version

To remove IMiS®/Storage Connector Java Runtime, all libraries installed to the special location in Java 2 Runtime Environment (J2RE) or Java 2 SDK (J2SDK) where the *Java Extension Mechanism* finds the suitable JAR library (chapter [Installation process for the Java version](#)) need to be deleted.

This location is:

```
<java-home>/lib/ext           [in Java 2 Runtime Environment]
<java-home>/jre/lib/ext       [in Java 2 SDK]
```

Here *<java-home>* represents the directory where J2RE or J2SDK is installed.

Removing IMiS®/Storage Connector Java in a development environment is equivalent to deleting all the libraries (chapter [Components](#)) from the selected folder in the development project (chapter [Installation process for the Java version](#)).

5 RUNNING THE PRODUCT

IMiS®/Storage Connector is used in applications or application servers to access IMiS®/ARChive Server. It runs on the .NET and Java platforms using an API.

The API is similar in both cases, as development was coordinated.

This chapter describes the basic components of the IMiS®/Storage Connector interface for the .NET and Java platforms and the most common examples of use of the API.

A more detailed description of the interface is available in the development documentation that forms a part of the Developer Edition installation package for the .NET and Java environments.

5.1 Components

The basic components of IMiS®/Storage Connector are libraries used by applications to access IMiS®/ARChive Server. With IMiS®/Storage Connector .NET version, these are assembly libraries in the form of .dll files.

With the IMiS®/Storage Connector Java version, they are equivalent to JAR libraries.

The main library which contains the storageconnector.net.dll interface in .NET or the storageconnector.jar interface in Java is described below.

All IMiS®/Storage Connector libraries are described in the table below:

.NET : Library	Description
imibase.net.dll	IMiS Base Assembly: contains the basic components used in other IMiS .NET libraries and applications.
iacxapi.net.dll	IMiS/ARC Compression API Assembly: contains components that form the basis for all compression libraries for IMiS®/ARChive Server.
iarcli.net.dll	IMiS/ARC Client Assembly: contains components that enable work with sessions and objects in IMiS®/ARChive Server.
storageconnector.net.dll	IMiS/Storage Connector Assembly: contains components that enable work with archives and documents on IMiS®/ARChive Server and other archive servers.

.NET : Library	Description
sl-SI\iarcli.net.resources.dll	IMiS/ARC Client Resources Assembly: contains translations of IMiS/ARC Client Assembly in the language specified by the folder where the library is located. *
sl-SI\storageconnector.net.resources.dll	IMiS/Storage Connector Assembly: contains translations of IMiS/Storage Connector Assembly in the language specified by the folder where the library is located. *

* Library not required to run IMiS®/Storage Connector .NET.

Java : Library	Description
imibase.jar	IMiS Base JAR: contains basic components that implement frequently used objects and features in IMiS® Java libraries and applications.
iacxapi.jar	IMiS/ARC Compression API JAR: contains components that form the basis for all compression libraries for IMiS®/ARChive Server.
iarcli.jar	IMiS/ARC Client JAR: contains components that enable work with sessions and objects in IMiS®/ARChive Server.
storageconnector.jar	IMiS/Storage Connector JAR: contains components that enable work with archives and documents in IMiS®/ARChive Server and other archive servers.

5.2 Interface for IMiS®/ARChive Server 7

The application program interface (API) for legacy archival on IMiS®/ARChive Server version 7 consists of enumerators, classes and interfaces in the IMiS.StorageConnector address space, of which the following should be pointed out:

- **StorageConnector**: the main object of the IMiS®/Storage Connector application program interface.
- **Storage** : an archive on the client side linked to a specific archive server.
- **Document**: document on the client side linked to a specific object on the archive server.

Besides logging, the StorageConnector object enables the opening of archives in the form of Storage objects. These objects in turn enable the opening of documents (files) in the archive represented by the Document objects. Besides these objects, the AuditLog object may be pointed out, which is used for logging the audit trail for the documents in the archive.

The IMiS.StorageConnector address space contains the following elements:

.NET : Delegate	Description
AuthenticatingEventHandler	Defines callback method type for an Authenticating event.
ConnectingEventHandler	Defines callback method type for a Connecting event.

.NET : Enumerator	Description
ArchiveType	Values represent the type of archive.
AuditQuery.ObjectParamsScope	Values represent different types of limitations of the scope of parameters for objects when searching in the audit trail.
AuditQuery.QueryParamsType	Values represent different types of grouping parameters when searching in the audit trail.
AuditQuery.ResultFilter	Values represent different result filters when searching in the audit trail.
AuditQuery.ResultSortOrder	Values represent different sorting types of search results in the audit trail.
AuditQuery.SessionParamsScope	Values represent different types of limitations of the scope of parameters for sessions when searching in the audit trail.
AuthCryptoAlgorithm	Values represent a type of cryptographic algorithm used to connect to the archive.
AuthCryptoCipherMode	Values represent a type of block encryption used to connect to the archive.
AuthCryptoKeySize	Values represent the size of a cryptographic key used to connect to the archive.
AuthType	Values represent the type of authentication with the archive, namely: <ul style="list-style-type: none"> - PreSharedKey: shared key authentication. - LocalCredentials: authentication of local archive users. - LDAPCredentials: authentication via the LDAP protocol. - Kerberos5ServiceTicket: authentication via the KRB5TGS service.
ConnectingStage	Values represent various stages of connecting to the archive.
ConnectionProtocol	Values represent connection protocols to the archive.
LocalCertificatesStore	These values represent locations of local certificates when connecting to the archive.
DocumentAccess	Values represent different modes of accessing documents.
ObjectIdEncoding	Values represent different encodings of object identifiers.
ObjectIdKind	Values represent different kinds of object identifiers.
ObjectIdType	Values represent different types of object identifiers.

.NET : Class	Description
AuditLog	Enables a message to be set for the audit trail.
AuditQuery	Enables parameters to be set for the audit trail.
AuthenticatingEventArgs	Defines parameters of Authenticating event
ConnectingEventArgs	Defines parameters of Connecting event.
Document	Enables editing a document on the archive.
Storage	Enables managing documents on the archive.
StorageConnector	Enables archives to be opened and logging to be configured.
StorageConnectorException	Error running IMiS®/Storage Connector.

.NET : Interface	Description
IContentTypeResolver	Defines operations for obtaining an extension from the content type (MIME) and vice versa.

Java : Enumerator	Description
ArchiveType	Values represent the type of archive.
AuditQuery.ObjectParamsScope	Values represent different types of limitations of the scope of parameters for objects when searching in the audit trail.
AuditQuery.QueryParamsType	Values represent different types of grouping parameters when searching in the audit trail.
AuditQuery.ResultFilter	Values represent different result filters when searching in the audit trail.
AuditQuery.ResultSortOrder	Values represent different sorting types of search results in the audit trail.
AuditQuery.SessionParamsScope	Values represent different types of limitations of the scope of parameters for sessions when searching in the audit trail.
AuthCryptoAlgorithm	Values represent a type of cryptographic algorithm used to connect to the archive.
AuthCryptoCipherMode	Values represent a type of block encryption used to connect to the archive.
AuthCryptoKeySize	Values represent the size of a cryptographic key used to connect to the archive.
AuthType	Values represent the type of authentication with the archive.
ConnectingStage	Values represent various stages of connecting to the archive.
ConnectionProtocol	Values represent connection protocols to the archive.
DocumentAccess	Values represent different modes of accessing documents.
ObjectIdEncoding	Values represent different encodings of object identifiers.
ObjectIdKind	Values represent different kinds of object identifiers.
ObjectIdType	Values represent different types of object identifiers.

Java : Class	Description
AuditLog	Enables a message to be set for the audit trail.
AuditQuery	Enables parameters to be set for the audit trail.
AuthenticatingEvent	Defines parameters of Authenticating event
ConnectingEvent	Defines parameters of Connecting event.
Document	Enables editing a document on the archive.
Storage	Enables managing documents on the archive.
StorageConnector	Enables archives to be opened and logging to be configured.
StorageConnectorException	Error running IMiS®/Storage Connector.

Java : Interface	Description
IAuthenticatingListener	Defines callback methods for an Authenticating event.
IConnectingListener	Defines type of callback method for a Connecting event.
IContentTypeResolver	Defines operations to obtain extensions from the content type (MIME) and vice versa.

A detailed description of interface highlighted objects for IMiS®/ARChive Server version 7 is presented below.

5.2.1 StorageConnector object

StorageConnector is the primary object of the IMiS®/Storage Connector program interface. Access to the singleton object instance is managed through the Instance property, which is only valid until the FreeInstance method is called up. It contains OpenIMiSARCStorage methods for opening archives of the IMiS®/ARChive Server.

It enables logging settings and contains constants of the names of different options which are delivered together with the suitable values when opening an archive.

The StorageConnector object contains the following elements:

.NET : Constant	Description
MAX_OPTION_NAME_LENGTH	The maximum length of names for the audit trail.
OptionApplicationName	Option for the archive that determines the name of the application for the audit trail.
OptionAuthCryptoAlgorithm	Option for the archive that determines the type of cryptographic algorithm used in authentication.

.NET : Constant	Description
OptionAuthCryptoCipherMode	Option for the archive that determines the type of operation with block ciphers in authentication.
OptionAuthCryptoKeySize	Option for the archive that determines the size of the authentication key.
OptionAuthKey	Option for the archive object that specifies the authentication key.
OptionAuthType	Option for the archive that determines the type of authentication.
OptionComputerName	Option for the archive that determines the name of the computer for the audit trail.
OptionMaxSessionsPerUser	Option for the archive that determines the maximum number of sessions per user.
OptionNodes	Option for the archive that specifies any additional archive servers that make up the cluster.
OptionObjectIdEncoding	Option for the archive that determines how an object identifier is encoded.
OptionObjectIdKind	Option for the archive object that specifies what kind of (internal/external) object identifiers the program is dealing with.
OptionObjectIdKind	Option for the archive object that specifies what kind of (short/long) object identifiers the program is dealing with.
OptionOutboundAddress	The name of the option for the archive that determines the outbound IPv4 network address.
OptionOutboundAddressV6	The name of the option for the archive that determines the outbound IPv6 network address.
OptionPersistentSessions	Option for the archive which specifies whether sessions should remain active or should close after each use.
OptionUserName	Option for the archive that determines the name of the user for the audit trail.
OptionMaxConnectionsPerArchive	The name of the archive option that defines the maximum number of open connections to the server.
OptionSessionId	The name of the option that defines the session identifier.

.NET : Property	Description
ContentTypeResolver	Enables obtaining an extension from the content type (MIME) and vice versa.
CustomContentTypeResolver	Enables adding a user-defined mode of obtaining an extension from the content type (MIME) and vice versa.
Instance	Returns a singleton instance of the <i>StorageConnector</i> object. The first time the program is used an instance is created. This instance is returned until the <i>FreeInstance</i> method is called up, at which point the singleton instance is no longer valid.
LogHandlers	Returns a list of external logging handlers.
LogInternal	Returns or sets a value that tells the user whether internal logging is performed or not.
LogLevel	Returns or sets the current level of logging.
LogLocale	Returns or sets regional settings for logging.
VersionInfo	Returns the IMiS®/Storage Connector version.

.NET : Method	Description
FreeInstance	Terminates the singleton instance of the <i>StorageConnector</i> object. Once this method is used, calling up the Instance property will not return a valid instance, as this instance no longer exists.
LogAddHandler	Adds a login target to the external login target list.
LogClearHandlers	Empties the external login target list.
LogRemoveHandler	Removes a login target from the external login target list.
OpenIMiSARCStorage	Opens an archive for IMiS®/ARChive Server 7 (the <i>IMiSARC</i> archive) through the provided network address (host name or IP address) and port.

* IMiS®/Storage Connector .NET does not currently support these features.

Java : Field	Description
MAX_OPTION_NAME_LENGTH	The maximum length of names for the audit trail.
OPTION_APPLICATION_NAME	Option for the archive that determines the name of the application for the audit trail.
OPTION_AUTH_CRYPTO_ALGORITHM	Option for the archive that determines the type of cryptographic algorithm used in authentication.
OPTION_AUTH_CRYPTO_CIPHERMODE	Option for the archive that determines the type of operation with block ciphers in authentication.
OPTION_AUTH_CRYPTO_KEYSIZE	Option for the archive that determines the size of the authentication key.

Java : Field	Description
OPTION_AUTH_KEY	Option for the archive that specifies the authentication key.
OPTION_AUTH_TYPE	Option for the archive that determines the type of authentication.
OPTION_COMPUTER_NAME	Option for the archive that determines the name of the computer for the audit trail.
OPTION_MAX_SESSIONS_PER_USER	Option for the archive that determines the maximum number of sessions per user.
OPTION_NODES	Option for the archive that specifies any additional archive servers that make up the cluster.
OPTION_OBJECT_IDENCODING	Option for the archive that determines how an object identifier should be encoded.
OPTION_OBJECT_IDKIND	Option for the IMIS_ARC archive that specifies what kind of (internal/external) object identifiers the program is dealing with.
OPTION_OBJECT_IDTYPE	Option for the IMIS_ARC archive that specifies what type of (short/long) object identifiers the program is dealing with.
OPTION_OUTBOUND_ADDRESS	The name of the option for the archive that determines the outbound IPv4 network address.
OPTION_OUTBOUND_ADDRESS_V6	The name of the option for the archive that determines the outbound IPv6 network address.
OPTION_PERSISTENT_SESSIONS	The option name for the IMiS®/ARChive archive, which determines whether the sessions should remain active after use or closed after each use.
OPTION_USER_NAME	Option for the IMIS_ARC archive that determines the name of the application for the audit trail.
OPTION_MAX_CONNECTIONS_PER_ARCHIVE	The name of the archive option that defines the maximum number of open connections to the server.
OPTION_SESSION_ID	The name of the option that defines the session identifier.

Java : Method	Description
freeInstance	Terminates the singleton instance of the StorageConnector object. Once this method is used, calling up the getInstance property will not return a valid instance, as this instance no longer exists.
getContentTypeResolver	Enables obtaining an extension from the content type (MIME) and vice versa.
getCustomContentTypeResolver	Enables adding a user-defined mode of obtaining an extension from the content type (MIME) and vice versa.

Java : Method	Description
getInstance	Returns a singleton instance of the StorageConnector object. The first time the program is used an instance is created. This instance is returned until the freeInstance method is called up, at which point the singleton instance is longer valid.
getVersionInfo	Returns the IMiS®/Storage Connector version.
logAddHandler	Returns a list of external handlers for logging.
logGetLevel	Returns the current level of logging.
logInternal	Enables or disables internal logging.
logIsInternal	Indicates whether internal logging is carried out or not.
logRemoveHandler	Returns a value that tells the user whether internal logging is performed or not.
logSetLevel	Sets the level of logging.
openIMiSARCStorage	Opens the archive for IMiS®/ARChive Server through the provided network address (host name or IP address) and port.
setCustomContentTypeResolver	Enables setting a user-defined mode of obtaining an extension from the content type (MIME) and vice versa.

5.2.2 Storage object

The Storage object represents an archive on the client side linked to a specific archive server. It contains operations such as creating, opening, saving, handing off and deleting documents. A message for the audit trail report can also be set for certain objects using the AuditLog object (chapter [Auditlog object](#)). Note that a message must be separately set for each operation.

The Storage object contains the following elements:

.NET : Event	Description
Authenticating	Triggers when authenticating on the archive.
Connecting	Triggers when connecting to the archive.

.NET : Property	Description
AuditLog	Returns the AuditLog object for setting a message for the audit trail.
IsClosed	Returns a value that tells the user whether the archive is closed or not.
StoreInfo	Returns information about the archive.
SessionId	Returns the session identifier.

.NET : Method	Description
AuditLogQuery	Performs an action that gets the audit trail.
Close	Closes the archive
CreateObject	Creates a document in the selected profile.
DeleteObject	Deletes a document listed with an identifier from the archive.
OpenObject	Opens a document in the archive.
ResolveExternalObjectId	Returns the identifier of a document in the archive associated with an external identifier.
RetrieveObject	Retrieves a document from the archive to a file on the local disk or to the data stream.
SetExternalObjectId	Sets the association between an external identifier and the selected document in the archive.
StoreObject	Saves a document to the archive in the selected profile with the provided MIME type.

Java : Method	Description
addAuthenticatingListener	Adds a callback method to an Authenticating even.
addConnectingListener	Adds a callback method to a Connecting event.
auditLogQuery	Performs an action that gets the audit trail.
close	Closes the archive.
createObject	Creates a document in the selected profile.
deleteObject	Deletes a document listed with an identifier from the archive.
getAuditLog	Returns the AuditLog object for setting a message for the audit trail.
getStoreInfo	Returns information about the archive.
isClosed	Returns a value that tells the user whether the archive is closed or not.
openObject	Opens a document in the archive.
removeAuthenticatingListener	Removes the callback method of an Authenticating event.
removeConnectingListener	Removes the callback method of a Connecting event.
resolveExternalObjectId	Returns the identifier of a document in the archive associated with an external identifier.
retrieveObject	Retrieves a document from the archive to a file on the local disk or to the data stream.
setExternalObjectId	Sets the association between an external identifier and the selected document in the archive.
storeObject	Saves a document to the archive in the selected profile with the provided MIME type.
getSessionId	Returns the session identifier.

5.2.3 Document object

The Document object represents an open document in the archive. It contains methods for saving, deleting and closing. Access to the server is enabled through the data stream.

These objects also contain metadata about the document such as an identifier and the size of the document, whether the document was newly created, edited, saved, etc.

The Document object contains the following elements:

.NET : Property	Description
AutoSave	Returns or sets a value that tells the user whether the document is automatically saved upon closing or not.
DataStream	Returns the document's data stream.
DefaultExtension	Returns the default document extension.
DefaultMime	Returns the document's default MIME type.
Extensions	Returns a list of extensions for the document's MIME type.
Id	Returns the object identifier of the document.
IsClosed	Returns a value that tells the user whether the document is closed or not.
IsModified	Returns a value that tells the user whether the document has been modified or not.
IsNew	Returns a value that tells the user whether the document is newly created or not.
Mimes	Returns a list of MIME types for the document's extension.
Mode	Returns a value that specifies the mode in which the document is open.
Size	Returns the size of the document in bytes. *
Store	Returns the archive where the document is located.

.NET : Method	Description
Close	Closes the document.
Delete	Deletes the document in the archive.
Save	Saves the document.

Java : Method	Description
close	Closes the document.
delete	Deletes the document in the archive.
getAccessMode	Returns a value that specifies the mode in which the document is open.
getAutoSave	Returns a value that tells the user whether the document is automatically saved upon closing or not.
getDefaultExtension	Returns the document's default extension.
getDefaultMime	Returns the document's default MIME type.
getExtensions	Returns a list of extensions for the document's MIME type.
getId	Returns the object identifier of the document.
getInputStream	Returns the document's incoming data stream.
getMimes	Returns a list of MIME types for the document's extension.
getOutputStream	Returns the document's outgoing data stream.
getSize	Returns the size of the document in bytes.
getStore	Returns the archive where the document is located.
isClosed	Returns a value that tells the user whether the document is closed or not.
isModified	Returns a value that tells the user whether the document has been modified or not.
isNew	Returns a value that tells the user whether the document is newly created or not.
save	Saves the document.
getAutoSave	Returns or sets a value that tells the user whether the document is automatically saved upon closing or not.

* IMiS®/Storage Connector Java does not currently support these features.

5.2.4 AuditLog object

The AuditLog object represents a message that can be used in the audit trail for certain operations with documents, including creating, opening, saving, moving and deleting.

The message must be delivered in the form of a C-style string.

The AuditLog object contains the following elements:

.NET : Property	Description
Arguments	Returns or sets arguments for the audit trail message.
Message	Returns or sets the audit trail message.
Clear	Clears the message and arguments for the audit trail.

Java : Method	Description
clear	Clears the message and arguments for the audit trail.
getArguments	Returns arguments for the audit trail message.
getMessage	Returns the audit trail message.
setArguments	Sets arguments for the audit trail message.
setMessage	Sets the audit trail message.

5.3 Interface for IMiS®/ARChive Server 9

IMiS®/ARChive Server 9 introduces a new approach to archiving content using the so-called entity model.

The IMiS®/Storage Connector application program interface (API) for IMiS®/ARChive Server version 9 enables the user to easily connect to and work with archive servers.

It encompasses work with entities, metadata and content through registered archive users. API is available in .NET and Java versions.

The interface for accessing IMiS®/ARChive Server version 9 is divided into three address spaces:

IMiS.StorageConnector

Contains enumerators, classes and interfaces, of which the StorageConnector class and the IArchive interface should be pointed out.

The StorageConnector class represents the primary object of the IMiS®/Storage Connector interface. The IArchive interface represents an archive on the client side that is linked to a specific archive server.

The IMiS.StorageConnector address space contains the following elements:

.NET : Delegate	Description
AuthenticatingEventHandler	Defines callback method type for an Authenticating event.
ConnectingEventHandler	Defines callback method type for a Connecting event.

.NET : Enumerator	Description
ArchiveCapabilities	Values representing the capabilities of the archive.
ArchiveType	Values representing the archive type.
AuditQuery.ObjectParamsScope	These values represent different types of restrictions on the range of object parameters when searching the audit trail.
AuditQuery.QueryParamsType	These values represent different types of groupings of parameters when searching the audit trail.
AuditQuery.ResultFilter	These values represent different types of filters for audit trail search results.
AuditQueryResultSortOrder	These values represent different types of sorting orders for audit trail search results.
AuditQuery.SessionParamsScope	These values represent different types of restrictions on the range of session parameters when searching the audit trail.
AuthCryptoAlgorithm	These values represent the type of cryptographic algorithm used when connecting to the archive.
AuthCryptoCipherMode	These values represent the type of block cipher used when connecting to the archive.
AuthCryptoKeySize	These values represent the size of the cryptographic key used when connecting to the archive.
AuthType	These values represent the type of authentication with the archive.
ConnectingStage	These values represent different stages when connecting to the archive.
ConnectionProtocol	These values represent protocols when connecting to the archive.
LocalCertificatesStore	These values represent locations of local certificates when connecting to the archive.

.NET : Class	Description
AuditLog	Enables a message to be set for the audit trail.
AuditQuery	Enables parameters to be set for the audit trail.
AuthenticatingEventArgs	Defines parameters of Authenticating event
ConnectingEventArgs	Defines parameters of Connecting event.
StorageConnector	Enables archives to be opened and logging to be configured.
StorageConnectorException	Error running IMiS®/Storage Connector.

.NET : Interface	Description
IArchive	Defines operations on the archive.
IContentTypeResolver	Defines operations for getting an extension from the content type (MIME) and vice versa.

Java : Enumerator	Description
ArchiveCapabilities	Values represent the archive capabilities.
ArchiveType	Values represent the type of archive.
AuditQuery.ObjectParamsScope	Values represent different types of limitations of the scope of parameters for objects when searching in the audit trail.
AuditQuery.QueryParamsType	Values represent different types of grouping parameters when searching in the audit trail.
AuditQuery.ResultFilter	Values represent different result filters when searching in the audit trail.
AuditQuery.ResultSortOrder	Values represent different sorting types of search results in the audit trail.
AuditQuery.SessionParamsScope	Values represent different types of limitations of the scope of parameters for sessions when searching in the audit trail.
AuthCryptoAlgorithm	Values represent a type of cryptographic algorithm used to connect to the archive.
AuthCryptoCipherMode	Values represent a type of block encryption used to connect to the archive.
AuthCryptoKeySize	Values represent the size of a cryptographic key used to connect to the archive.
AuthType	Values represent the type of authentication with the archive.
ConnectingStage	Values represent various stages of connecting to the archive.
ConnectionProtocol	Values represent connection protocols to the archive.

Java : Class	Description
AuditLog	Enables specifying a message for the audit trail.
AuditQuery	Enables specifying parameters of the audit trail.
AuthenticatingEvent	Specifies parameters of an Authenticating event.
ConnectingEvent	Specifies parameters of a Connecting event.
StorageConnector	Enables opening of archives and login setup.
StorageConnectorException	Error during execution of IMiS®/Storage Connector interface.

Java : Interface	Description
IArchive	Defines archive operations.
IAuthenticatingListener	Defines callback methods for an Authenticating event.
IConnectingListener	Defines type of callback method for a Connecting event.
IContentTypeResolver	Defines operations to obtain extensions from the content type (MIME) and vice versa.

IMiS.StorageConnector.EntityModel

Contains enumerators, classes and interfaces for the entity model used in IMiS®/ARChive Server version 9. IClass, IFolder and IDocument represent the different types of entities in the archive (class, folder and document).

The IEntityStub interface represents publicly available metadata for an individual entity.

The IProperty interface represents an individual piece of entity metadata.

The IContent interface represents the content of a document in the form of a file available through the IContentPart interface.

The IMiS.StorageConnector.EntityModel address space contains the following elements:

.NET : Enumerator	Description
AccessMode	These values represent types of archive access.
ACLEntrySubjectType	These values represent different types of ACL entry subjects.
ChildClassificationCodeMode	These values represent different modes of generating the classification codes of child entities.
ContentPartIdEncoding	These values represent different encodings of the entity's content identifiers.
ContentPartIdType	These values represent different types of the entity's content identifiers.
DeletionKind	These values represent a type of deletion.
EntityAccess	These values represent types of access to the archive.
EntityIdEncoding	These values represent various encodings of entity identifiers.
EntityIdKind	These values represent various kinds of entity identifiers.
EntityIdType	These values represent various types of entity identifiers.
EntityQueryScope	These values represent the various types of data about an entity the user would like to obtain.
EntityRightsFilter	These values represent filters for rights to entities.

.NET : Enumerator	Description
EntitySortKeyDirection	These values represent the direction in which entities are sorted by keys.
EntityType	These values represent the entity types (class, folder or document).
EntityTypeFilter	These values represent various filters for entity types.
LogType	These values represent various system directories for exported, imported and transferred entities.
PropertyType	These values represent various property types for a piece metadata.
ReportType	These values represent various types of reports.
RetentionEntryFilter	These values represent various retention filters based on the type of entity.
RetentionEntryScope	These values represent various retention scopes based on the type of entity
SearchOptions	These values represent various options for searching.
SignatureDisposition	These values represent various types of content signature.
SystemProperty	These values represent various system metadata.

.NET : Class	Description
ACLFilterItem	A filter for user rights.
EntityFilter	Enables filtration parameters to be set.
EntityFilterItem	Represents the basis for individual filters.
EntitySortKey	Represents a key for sorting entity collections.

.NET : Structure	Description
Int128Value	Represents a signed 128-bit integer numeric type.
Int128Value	Represents an unsigned 128-bit integer numeric type.

.NET : Interface	Description
IACL	Represents the ACL (Access Control List), a collection of user rights for a specific entity.
IBinaryValue	Represents binary content for metadata.
IClass	Represents a class in the classification scheme in the archive.
IContent	Enables the reading and editing of entity file content.
IContentPart	Represents the content of an entity in the form of a file.
IDeletionStub	Represents the metadata of a deleted entity.
IDispositionHold	Represents the definition of disposition hold.

.NET : Interface	Description
IDispositionHoldEntry	Represents an entry for entity disposition hold.
IDocument	Represents a document in a class or folder in the archive.
IDraft	Represents a document draft on the archive.
IDraftStub	Represents a document draft public information on the archive.
IEmailEntity	Enables access to email metadata.
IEntity	Represents an entity in the classification scheme in the archive.
IEntityACLEntry	Represents user rights for an entity.
IEntityCollection<T>	Represents a generic entity collection.
IEntityReference	Enables the viewing and editing of the entity references.
IEntityRights	Enables the viewing and editing of user rights for an entity.
IEntityStub	Represents publicly available metadata about an entity.
IFolder	Represents a folder in a class or folder in the archive.
IMoveDetails	Enables access to the metadata of a moved entity.
IPhysicalEntity	Enables access to physical entity metadata.
IPickListValue	Represents a value for metadata with predefined valid values.
IProperty	Enables the reading and editing of metadata.
IPropertyACLEntry	Represents user rights for metadata.
IPropertyRights	Enables the viewing and editing of user rights for metadata.
IReadOnlyContent	Enables the reading of entity file content.
IReadOnlyEntityReference	Enables the viewing of the references to the entities.
IReadOnlyEntityRights	Enables the viewing of user rights for an entity.
IReadOnlyProperty	Represents read-only metadata.
IReadOnlyPropertyRights	Enables the viewing of user rights for metadata.
IReadOnlyRetentionPolicyContext	Represents the entry context for read only entity retention policy.
IRetention	Represents entry collections for retention policy and entity disposition hold.
IRetentionPolicy	Represents the definition of retention policy.
IRetentionPolicyContext	Represents retention policy context for entity retention policy.
IRetentionPolicyEntry	Represents the entry for entity retention policy.
IRetentionPolicySnapshot	Represents a retention policy setting at the exact time of review preparation of disposition actions.
IReview	Represents the review process of disposition actions.
IReviewStub	Represents publicly available metadata for review process of disposition actions.

.NET : Interface	Description
ISearchedContentPart	Represents metadata of a searched entity.
ISearchedEntityStub	Represents metadata of a searched entity.
ISecurityClassChangeDetails	Enables access to data on changes made to the security class of an entity.
IStringMaxValue	Represents text content for metadata.
ITemplate	Represents a template for entity creation.
ITransferDetails	Enables access to the metadata of a transferred entity.

Java : Enumerator	Description
AccessMode	Values represent the means of access to the archive.
ACLEntrySubjectType	These values represent different types of ACL entry subjects.
ChildClassificationCodeMode	These values represent different modes of generating the classification codes of child entities.
ContentPartIdEncoding	These values represent different encodings of the entity's content identifiers.
ContentPartIdType	These values represent different types of the entity's content identifiers.
DeletionKind	Values represent the kind of deletion.
EntityIdEncoding	Values represent different entity identifier coding.
EntityIdKind	Values represent different kinds of entity identifiers.
EntityIdType	Values represent different types of entity identifiers.
EntityQueryScope	Values represent different types of entity data that we wish to obtain.
EntitySortKeyDirection	Values represent the sorting direction of entity collections by keys.
EntityType	Values represent different types of entities (class, folder or document).
EntityTypeFilter	Values represent different entity type filters.
LogType	Values represent different system folders for exported, imported and transferred entities.
PropertyType	Values represent different types of metadata values.
ReportType	Values represent different types of reports.
RetentionEntryFilter	Values represent different selection filters for entity types.
RetentionEntryScope	Values represent different selection scopes for entity types.
SearchOptions	Values represent different search options.
SignatureDisposition	These values represent various types of content signature.
SystemProperty	Values represent different system metadata.

Java : Class	Description
ACLFilterItem	Represents a filter for user rights.
EntityFilter	Enables the setting of filter parameters.
EntityFilterItem	Represents the basis for individual filters.
EntitySortKey	Represents the key for sorting entity collections.

Java : Interface	Description
IACL	Represents ACL (Access Control List), a collection of user rights over the entity.
IBinaryValue	Represents the binary content of metadata.
IClass	Represents a class in the classification tree in the archive.
IContent	Enables reading and editing file contents of the entity.
IContentPart	Represents the contents of the entity in the form of a file.
IDeletionStub	Represents the metadata of a deleted entity.
IDispositionHold	Represents the definition of a disposition hold.
IDispositionHoldEntry	Represents an entry for an entity disposition hold.
IDocument	Represents a document in a class or folder in the archive.
IDraft	Represents a document draft on the archive.
IDraftStub	Represents a document draft public information on the archive.
IEmailEntity	Enables access to e-mail metadata.
IEntity	Represents an entity in the classification tree in the archive.
IEntityACLEntry	Represents user rights over the entity.
IEntityCollection<T>	Represents a generic entity collection.
IEntityReference	Enables the viewing and editing of the entity references.
IEntityRights	Enables reading and modifying entity rights.
IEntityStub	Represents publicly accessible entity metadata.
IFolder	Represents a folder in a class or folder in the archive.
IMoveDetails	Enables access to the metadata of a moved entity.
IPhysicalEntity	Enables access to the metadata of physical materials.
IPickListValue	Represents the value for metadata with specified valid values.
IProperty	Enables reading and editing of metadata.
IPropertyACLEntry	Represents user rights over metadata.
IPropertyRights	Enables reading and modifying user metadata rights.
IReadOnlyContent	Enables reading of entity file content.
IReadOnlyEntityReference	Enables the viewing of the entity reference.
IReadOnlyEntityRights	Enables reading of rights over the entity.

Java : Interface	Description
IReadOnlyProperty	Represents read-only metadata.
IReadOnlyPropertyRights	Enables reading of user rights over metadata.
IReadOnlyRetentionPolicyContext	Represents the entry context for the retention policy of read-only entity.
IRetention	Represents an entry collection for the retention policy and disposition hold of the entity.
IRetentionPolicy	Represents the definition of the retention policy.
IRetentionPolicyContext	Represents the entry context for the entity retention policy.
IRetentionPolicyEntry	Represents the entry for the entity retention policy.
IRetentionPolicySnapshot	Represents the retention policy setting at the time of preparation of the review process.
IReview	Represents a review in the review process.
IReviewStub	Represents a review of publicly accessible metadata in the review process.
ISearchedContentPart	Represents the metadata of the searched entity.
ISearchedEntityStub	Represents the metadata of the searched entity.
ISecurityClassChangeDetails	Enables access to data on entity security class change.
IStringMaxValue	Represents textual content for metadata.
ITemplate	Represents a template for entity creation.
ITransferDetails	Enables access to the transferred metadata of the entity.

IMiS.StorageConnector.Services

Contain enumerators, classes and interfaces for services enabled by IMiS®/ARCHIVE Server version 9. The IDirectory interface makes it possible to obtain information on registered archive users. The IDirectoryEntity represents an archive “user”. The user can be a group or an individual user.

The IMiS.StorageConnector.Services address space contains the following elements:

.NET : Enumerator	Description
DirectoryEntityType	Values that represent the archive user type (user group or individual user).

.NET : Class	Description
Discovery	Enables searching in archives above the archive server.

.NET : Interface	Description
IArchiveDescriptor	Represents a description of the archive above the archive server.
IDirectory	Makes it possible to obtain information on registered archive users.
IDirectoryEntity	Represents a registered archive user.
Icon	Represents a registered user's avatar.
IUserDataPart	Enables storing user-definable data in the IUserProfile.
IUserProfile	Enables editing the data of an authenticated archive user.

Java : Enumerator	Description
DirectoryEntityType	Values represent the user type of the archive (user group or individual user).

Java : Class	Description
Discovery	Enables to search for archives on the archive server.

Java : Interface	Description
IArchiveDescriptor	Represents an archive description of the archive server.
IDirectory	Enables the obtainment of information on registered users of the archive.
IDirectoryEntity	Represents a registered user of the archive.
Icon	Represents a registered user's avatar.
IUserDataPart	Enables storing user-definable data in the IUserProfile.
IUserProfile	Enables editing the data of an authenticated archive user.

A detailed description of the IMiS®/ARChive Server version 9 components outlined above is presented below.

5.3.1 StorageConnector object

StorageConnector is the primary object of the IMiS®/Storage Connector application program interface (API). Access to the singleton object instance is managed through the Instance property, which is only valid until the FreeInstance method is called up. This object contains the OpenArchive method for opening the archive on the client side (chapter [Archive interface](#)) for different archive servers.

At the time of writing, only IMiS®/ARCHive Server is supported. This object also supports logging settings and contains constants representing either the names of different options which are delivered together with the suitable values when opening an archive, or the names of different archive properties, which can be retrieved via the *Properties* property on the IArchive interface.

The StorageConnector object contains the following elements:

.NET : Constant	Description
DEFAULT_PAGE_COUNT	Represents the default number of elements per page in the collection.
DEFAULT_PAGE_SIZE	Represents the default number of pages in the collection.
MAX_OPTION_NAME_LENGTH	The maximum length of names for the audit trail.
OptionApplicationName	The name of the option for the archive that determines the name of the application for the audit trail.
OptionAuthCryptoAlgorithm	The name of the option for the archive that determines the type of cryptographic algorithm used in authentication.
OptionAuthCryptoCipherMode	The name of the option for the archive that determines the type of operation with block ciphers in authentication.
OptionAuthCryptoKeySize	The name of the option for the archive that determines the size of the authentication key.
OptionAuthKey	The name of the option for the archive object that determines the authentication key.
OptionAuthType	The name of the option for the archive that determines the type of authentication.
OptionAuthTypeDisposition	The name of the option for the archive that determines the preference by selecting the type of authentication.
OptionComputerName	The name of the option for the archive that determines the name of the computer for the audit trail.
OptionContentPartIdEncoding	The name of the option for the archive that specifies how the entity's content identifier should be encoded.
OptionContentPartIdType	The name of the option for the archive that specifies with which type (short/long) of entity's content identifier we are dealing with.
OptionDeferredCollectionFiltering	The name of the option for the archive that specifies whether the collections should be filtered when reading or when creating the collection.

.NET : Constant	Description
OptionDiscoveryArchiveTypes	The name of the option to search for archives of a particular type.
OptionDiscoveryHint	The name of the option to search for an archive via a network address.
OptionEntityCollectionPageCount	The name of the option for the archive that determines the number of pages in entity collections.
OptionEntityCollectionPageSize	The name of the option for the archive that determines the number of entities per page in entity collections.
OptionEntityIdEncoding	The name of the option for the archive that determines how an object identifier is encoded.
OptionEntityIdType	The name of the option for the archive that specifies what kind of (short/long) object identifiers the program is dealing with.
OptionKerberosKDC	The name of the option for the archive that determines Kerberos Key Distribution Center (KDC).
OptionKerberosRealm	The name of the option for the archive that determines the Kerberos Realm.
OptionKerberosSPN	The name of the option for the archive that determines the name of Kerberos Service Principal Name (SPN).
OptionKerberosTicket	The name of the option for the archive that determines the Kerberos Service Ticket.
OptionLocalAddress	The name of the option for the archive that determines the local IP address of the user for the audit trail.
OptionLocalCertificate	The name of the option for, which specifies a local certificate to establish a secure connection between client and server.
OptionMaxSessionsPerUser	The name of the option for the archive that determines the maximum number of sessions per user.
OptionPersistentSessions	The name of the option for, which specifies whether sessions should remain active or should close after each use.
OptionUserPassword	The name of the option for the archive object that determines the user password for different authentication types.
OptionImpersonalizationUserName	The name of the option for the that determines which user the authenticated and established session should impersonalize. The authenticated user is presented to the server as a delegate of the above-mentioned user, if he has the proper authorizations.
OptionMaxIOPayloadSize	The name of the option for the that determines the maximum size of useful data in a single network packet in archival traffic.
OptionMaxConnectionsPerArchive	The name of the archive option that defines the maximum number of open connections to the server.

.NET : Constant	Description
OptionSessionId	The name of the option that defines the session identifier.
OptionExternalIdentityPayload	The name of the option that defines the data for external identity authentication.
OptionExternalIdentityPluginId	The name of the option that defines the plug-in identifier for external identity authentication.
OptionRetentionPolicyExternalCacheMillisecondsToExpire	The name of the archive option that defines the expiration time for the retention policy record in the external cache.
OptionDispositionHoldExternalCacheMillisecondsToExpire	The name of the archive option that defines the expiration time for the disposition hold record in the external cache.
OptionDirectoryExternalCacheMillisecondsToExpire	The name of the archive option that defines the expiration time for the directory entity record in the external cache.
OptionTemplateExternalCacheMillisecondsToExpire	The name of the archive option that defines the expiration time for the template record in the external cache.
PropertyAuditLogRequired	The name of the archive property which returns a value that tells the user whether the audit log is required or not.
PropertyAuditLogSupported	The name of the archive property which returns a value that tells the user whether the audit log is supported or not.
PropertyAuthenticatedUserAccount	The name of the archive property that tells the user which user has been authenticated in the established session.
PropertyCapabilities	The name of the archive property that tells the user which roles have been enabled for the authenticated user.
PropertyClassHierarchyDelimiter	The name of the archive property that tells the user which class hierarchy delimiter is used in classification codes.
PropertyDocumentHierarchyDelimiter	The name of the archive property that tells the user which document hierarchy delimiter is used in classification codes.
PropertyFolderHierarchyDelimiter	The name of the archive property that tells the user which folder hierarchy delimiter is used in classification codes.
PropertyRootEffectiveRights	The name of the archive property that tells the user the effective rights of the authenticated user.
PropertyServiceName	The name of the archive property that tells the user the name of the archive.
PropertyServiceVersion	The name of the archive property that tells the user the version of the archive.
PropertyTrafficEncrypted	The name of the archive property which returns a value that tells the user whether communication between the client and the archive is encrypted or not.

.NET : Constant	Description
PropertyImpersonatedUserAccount	The name of the archive property that returns the name of the impersonated archive user.
PropertyComputerName	The name of the archive property that returns the name of the device which was set when opening the archive.
PropertyLocalAddress	The name of the archive property that returns the IP address which was set when opening the archive.

.NET : Property	Description
ContentTypeResolver	Returns the predefined interface for getting an extension from the content type (MIME) and vice versa.
CustomContentTypeResolver	Returns or sets a custom interface for getting an extension from the content type (MIME) and vice versa.
Instance	Returns a singleton instance of the StorageConnector object. The first time the program is used an instance is created. This instance is returned until the FreeInstance method is called up, at which point the singleton instance is no longer valid.
LogHandlers	Returns a list of external logging handlers.
LogInternal	Returns or sets a value that tells the user whether internal logging is performed or not.
LogLevel	Returns or sets the current level of logging.
LogLocale	Returns or sets regional settings for logging.
VersionInfo	Returns the IMiS®/Storage Connector version.

.NET : Method	Description
FreeInstance	Terminates the singleton instance of the StorageConnector object. Once this method is used, calling up the Instance property will not return a valid instance, as this instance no longer exists.
LogAddHandler	Adds a logging handler to the list of external logging handlers.
LogClearHandlers	Clears the list of external logging handlers.
LogRemoveHandler	Removes the logging handler from the list of external logging handlers.
ObjectTransfer	Enables moving legacy objects to a selected file attribute of the target entity.
OpenArchive	Opens the archive for IMiS®/ARCHive Server (the IMiSARC archive) through the provided network address (host name or IP address) and port.

Java : Constant	Description
MAX_OPTION_NAME_LENGTH	Represents the maximum name length for the audit trail.
OPTION_APPLICATION_NAME	The name of the option for the archive, which specifies the application name for the audit trail.
OPTION_AUTH_CRYPTO_ALGORITHM	The name of the option for the archive, which specifies the type of cryptographic algorithm used in authentication.
OPTION_AUTH_CRYPTO_CIPHERMODE	The name of the option for the archive, which specifies the type of operation with cryptographic algorithm blocks in authentication.
OPTION_AUTH_CRYPTO_KEYSIZE	The name of the option for the archive, which specifies the size of the authentication key.
OPTION_AUTH_KEY	The name of the option for the archive, which specifies the authentication key.
OPTION_AUTH_TYPE	The name of the option for the archive, which specifies the authentication type.
OPTION_AUTH_TYPE_DISPOSITION	The name of the option for the archive, which specifies the authentication type selection preference.
OPTION_COMPUTER_NAME	The name of the option for the archive, which specifies the computer name for audit trail.
OPTION_CONTENT_PART_IDENCODING	The option name for the archive, which specifies how the entity's content identifier should be encoded.
OPTION_CONTENT_PART_IDTYPE	The option name for the archive, which specifies with which type (short/long) of entity's content identifier we are dealing with.
OPTION_DEFERRED_COLLECTION_FILTERING	The name of the option for the archive which specifies whether the collections should be filtered when reading or when creating the collection.
OPTION_DISCOVERY_ARCHIVETYPES	The name of the option to search for a particular archive type.
OPTION_DISCOVERY_HINT	The name of the option to search for an archive via a network address.
OPTION_ENTITY_IDENCODING	The name of the option for the archive, which specifies how to code the entity identifier.
OPTION_ENTITY_IDTYPE	The name of the option for the archive, which specifies with what type (short/deal) of entity identifiers we are dealing with.
OPTION_ENTITYCOLLECTION_PAGECOUNT	The name of the option for the archive, which specifies the number of pages in the entity collections.

Java : Constant	Description
<p>OPTION_ENTITYCOLLECTION_PAGESIZE</p> <p>OPTION_KERBEROS_KDC</p> <p>OPTION_KERBEROS_REALM</p> <p>OPTION_KERBEROS_SPN</p> <p>OPTION_KERBEROS_TICKET</p>	<p>The name of the option for the archive, which specifies the number of entities per page in entity collections.</p> <p>The name of the option for the archive, which specifies the Kerberos Key Distribution Center (KDC).</p> <p>The name of the option for the archive, which specifies the Kerberos realm.</p> <p>The name of the option for the archive, which specifies the Kerberos Service Principal Name (SPN).</p> <p>The name of the option for the archive, which specifies the Service ticket for Kerberos.</p>
<p>OPTION_LOCAL_ADDRESS</p> <p>OPTION_LOCAL_CERTIFICATE</p> <p>OPTION_MAX_SESSIONS_PER_USER</p> <p>OPTION_PERSISTENT_SESSIONS</p> <p>OPTION_IMPERSONALIZATION_USER_NAME</p> <p>OPTION_MAX_IO_PAYLOAD_SIZE</p> <p>OPTION_USER_NAME</p>	<p>The name of the option for the archive, which specifies the user's local IP address for the audit trail.</p> <p>The name of the option for the archive, which specifies a local certificate to establish a secure connection between client and server.</p> <p>The name of the option for the archive, which specifies the maximum number of sessions per user.</p> <p>The name of the option for the archive, which specifies whether sessions should remain active or should close after each use.</p> <p>The name of the option for the archive that determines which user the authenticated and established session should impersonalize. The authenticated user is presented to the server as a delegate of the above-mentioned user, if he has the proper authorizations.</p> <p>The name of the option for the archive that determines the maximum size of useful data in a single network packet in archival traffic.</p> <p>The name of the option for the archive, which specifies the username in different authentication types and/or for the audit trail.</p>

Java : Constant	Description
OPTION_USER_PASSWORD	The name of the option for the archive, which specifies the user's password in different authentication types.
OPTION_MAX_CONNECTIONS_PER_ARCHIVE	The name of the archive option that defines the maximum number of open connections to the server.
OPTION_SESSION_ID	The name of the option that defines the session identifier.
PROPERTY_AUDIT_LOG_REQUIRED	The name of the archive property which returns a value that tells the user whether the audit log is required or not.
OPTION_EXTERNAL_IDENTITY_PAYLOAD	The name of the option that defines the data for external identity authentication.
OPTION_EXTERNAL_IDENTITY_PLUGIN_ID	The name of the option that defines the plug-in identifier for external identity authentication.
OPTION_RETENTION_POLICY_EXTERNAL_CACHE_MILLISECONDS_TO_EXPIRE	The name of the archive option that defines the expiration time for the retention policy record in the external cache.
OPTION_DISPOSITION_HOLD_EXTERNAL_CACHE_MILLISECONDS_TO_EXPIRE	The name of the archive option that defines the expiration time for the disposition hold record in the external cache.
OPTION_DIRECTORY_EXTERNAL_CACHE_MILLISECONDS_TO_EXPIRE	The name of the archive option that defines the expiration time for the directory entity record in the external cache.
OPTION_TEMPLATE_EXTERNAL_CACHE_MILLISECONDS_TO_EXPIRE	The name of the archive option that defines the expiration time for the template record in the external cache.
PROPERTY_CAPABILITIES	The name of the archive property that tells the user which roles have been enabled for the authenticated user.
PROPERTY_CLASS_HIERARCHY_DELIMITER	The name of the archive property that tells the user which class hierarchy delimiter is used in classification codes.
PROPERTY_DOCUMENT_HIERARCHY_DELIMITER	The name of the archive property that tells the user which document hierarchy delimiter is used in classification codes.
PROPERTY_FOLDER_HIERARCHY_DELIMITER	The name of the archive property that tells the user which folder hierarchy delimiter is used in classification codes.

Java : Constant	Description
PROPERTY_ROOT_EFFECTIVE_RIGHTS	The name of the archive property that tells the user the effective rights of the authenticated user.
PROPERTY_SERVICE_NAME	The name of the archive property that tells the user the name of the archive.
PROPERTY_SERVICE_VERSION	The name of the archive property that tells the user the version of the archive.
PROPERTY_TRAFFIC_ENCRYPTED	The name of the archive property which returns a value that tells the user whether communication between the client and the archive is encrypted or not.
PROPERTY_IMPERSONATED_USER_ACCOUNT	The name of the archive property that returns the name of the impersonated archive user.
PROPERTY_COMPUTER_NAME	The name of the archive property that returns the name of the device which was set when opening the archive.
PROPERTY_LOCAL_ADDRESS	The name of the archive property that returns the IP address which was set when opening the archive.

Java : Method	Description
freeInstance	Terminates the »singleton« instance of a StorageConnector object. After using this method, the call of Instance's properties do not return a valid instance because it no longer exists.
getContentResolver	Returns a predefined interface to obtain extensions from the content type (MIME) and vice versa.
getCustomContentResolver	Returns or sets a customized interface to obtain extensions from the content type (MIME) and vice versa.

Java : Method	Description
getInstance	Returns a singleton instance of a StorageConnector object. On first use the instance is created, and later the same instance is returned until the call of the FreeInstance method, when it becomes invalid.
getVersionInfo	Returns the version of IMiS®/Storage Connector.
logAddHandler	Adds a logging handle to the list of external logging handles.
logGetLevel	Returns the current logging level.
logInternal	Returns or sets a value that indicates whether internal logging is carried out or not.
logIsInternal	Returns a value that indicates whether internal logging is carried out or not.
logRemoveHandler	Removes a logging handle from the list of external logging handles.
logSetLevel	Sets the current logging level.
objectTransfer	Enables moving legacy objects to a selected file attribute of the target entity.
openArchive	Opens the archive for the IMiS®/ARChive Server via a specified network address (host name or IP address), network port and selected options.
setCustomContentTypeResolver	Sets a customized interface to obtain extensions from the content type (MIME) and vice versa.

5.3.2 IArchive interface

The IArchive interface represents an archive on the client side that is linked to an archive server. It contains the following operations: creating and opening entities (classes, folders and documents), getting the audit trail through the AuditLogQuery method and archive search using the Search method. A message for the audit trail report can also be set for certain operations using the AuditLog object (chapter [Auditlog object](#)). Note that a message must be separately set for each operation.

The IArchive interface has the following elements:

.NET : Events	Description
Authenticating	Triggers when authenticating on the archive.
Connecting	Triggers when connecting to the archive.

.NET : Property	Description
AuditLog	Returns the AuditLog object for setting a message for the audit trail.
Cache	Returns or sets the archive's external cache.
Directory	Returns the IDirectory object for identifying archive users.
DispositionHolds	Returns the collection of all disposition holds on the archive.
EntityCollectionPageCount	Returns or sets the number of pages in an entity collection.
EntityCollectionPageSize	Returns or sets the page size in an entity collection.
Host	Returns network address (host name or IP address) and port.
IsClosed	Returns a value that tells the user whether the archive is closed or not.
Properties	Returns the collection of the archive properties.
RetentionPolicies	Returns the collection of all retention policies on the archive.
SessionId	Returns the session identifier.
Template	Returns a collection of all entity templates in the archive
User	Returns the user name of the user currently logged in.

.NET : Method	Description
AuditLogQuery	Performs an action that gets the audit trail.
Authenticate	Authenticates the archive user.
ChangeEntityType	Opens the entity with the selected template and retained values on common attributes. The entity template is modified only if the returned entity is saved.
CheckInDraft	Checks-in a document draft.
CheckOutEntity	Creates a document draft.
Close	Closes the archive.
CreateClass	Creates a class on the root archive or in the selected class.
CreateDocument	Creates a document in the selected class or folder.
CreateEntity	Creates an entity on the archive root or in the selected entity.
CreateEntityReference	Creates a reference.
CreateEmail	Creates an email document in the selected class or folder.
CreateFolder	Creates a folder in the selected class or folder.
CreateReview	Creates a review of disposition actions.
DeleteEntity	Deletes an entity listed with an entity identifier from the archive.
DiscardDraft	Discards a document draft.
GetDeletedEntities	Returns a collection of deleted entities.
GetDeletedEntity	Returns a deleted entity.

.NET : Method	Description
GetDraftInfo	Returns a collection of a document draft information.
GetDrafts	Returns a collection of drafts on the archive.
GetEffectiveRights	Returns effective rights of the user at selected entity.
GetEntityInfo	Returns public data about one or more entities listed with their identifiers.
GetEntityReference	Returns reference.
GetLogEntities	Returns a collection of entities from the selected system directory.
GetPublicClassificationCode	Returns public form from the inherited canonical classification code.
GetReport	Returns the selected type of report.
GetReviewInfo	Returns public data on review of disposition actions.
GetReviews	Returns a review of disposition actions.
GetRootClasses	Returns a collection of classes on the root archive.
GetSessions	Returns a collection of sessions.
GetSubEntities	Returns a collection of subentities according to the selected filter and editing keys.
GetSystemPropertyName	Returns the name of the selected system property.
GetSystemPropertySortKey	Returns a sorting key for the selected system property for editing entity collections.
MoveEntity	Moves an entity to the selected parent entity.
OpenClass	Opens a class in the archive.
OpenDocument	Opens a document in the archive.
OpenDraft	Opens a document draft.
OpenEntity	Opens an entity in the archive.
OpenFolder	Opens a folder in the archive.
OpenReview	Opens a review of disposition actions.
Search	Performs a search of the archive.
SetCacheMessage	Sets a change notification in the archive's external cache.
SetEntityClassificationCode	Sets the classification code of an entity.
SetEntitySecurityClass	Sets the security class of an entity.
SetEntityStatus	Sets the status of an entity.

Java : Method	Description
addAuthenticatingListener	Adds a callback method to an Authenticating even.
addConnectingListener	Adds a callback method to a Connecting event.
auditLogQuery	Executes the action of obtaining the audit trail.
Authenticate	Authenticates the archive user.

Java : Method	Description
changeEntityTemplate	Opens the entity with the selected template and retained values on common attributes. The entity template is modified only if the returned entity is saved.
checkInDraft	Checks-in a document draft.
checkOutEntity	Creates a document draft.
close	Closes the archive.
createClass	Creates a class at the root of the archive or in the selected class.
Authenticate	Authenticates the archive user.
createDocument	Creates a document in the selected class or folder.
createEntity	Creates an entity in the selected entity.
createEntityReference	Creates a reference.
createEmail	Creates an email document in the selected class or folder.
createFolder	Creates a folder in the selected class or folder.
createReview	Creates a review of the review processes.
deleteEntity	Deletes the identifier specified entity from the archive.
discardDraft	Discards a document draft.
getAuditLog	Returns an AuditLog object to set the message for the audit trail.
getCache	Returns the archive's external cache.
getDeletedEntities	Returns a collection of deleted entities.
GetDeletedEntity	Returns a deleted entity.
getDirectory	Returns an IDirectory object for identifying the users of the archive.
getDispositionHolds	Returns a collection of all disposition holds in the archive.
getDraftInfo	Returns a collection of a document draft information.
getDrafts	Returns a collection of drafts on the archive.
getEffectiveRights	Returns effective rights of the user at selected entity.
getEntityCollectionPageCount	Returns page count in the entity collection.
getEntityCollectionPageSize	Returns page size in the entity collection.
getEntityInfo	Returns public data on one or more identifier specified entities.
getEntityReference	Returns a reference.
getHost	Returns the network address (host name or IP address) and port.
getInternalId	Returns the identifier of an entity in the archive associated with an external identifier.
getLogEntities	Returns a collection of entities of the selected system folder.

Java : Method	Description
getProperties	Returns a collection of the archive properties.
getPublicClassificationCode	Returns a public form from a canonical form of the relayed classification code.
getReport	Returns a selected report type.
getRetentionPolicies	Returns a collection of all retention policies in the archive.
getReviewInfo	Returns public information on the review in the review process.
getReviews	Returns a collection of reviews in the review process.
getRootClasses	Returns a collection of classes at the root of the archive.
getSessionId	Returns the session identifier.
getSessions	Returns a collection of sessions.
GetSubEntities	Returns a collection of subentities according to the selected filter and editing keys.
getSystemPropertyName	Returns the name of the system properties for the selected system property.
getSystemPropertySortKey	Returns a sorting key for the selected system property for editing entity collections.
getTemplates	Returns a collection of all entity templates in the archive.
getUser	Returns the name of the currently logged user.
isClosed	Returns the value that indicates whether the archive is closed or not.
moveEntity	Moves the entity in the chosen parent entity.
openClass	Opens a class in the archive.
openDocument	Opens a document in the archive.
openEntity	Opens an entity in the archive.
openFolder	Opens a folder in the archive.
openReview	Opens a review in the review process.
removeAuthenticatingListener	Removes the callback method of an Authenticating event.
removeConnectingListener	Removes the callback method of a Connecting event.
Search	Performs a search in the archive.
setCache	Sets the archive's external cache.
setCacheMessage	Sets a change notification in the archive's external cache.
setEntityCollectionPageCount	Sets a page count in the entity collection.
setEntityCollectionPageSize	Sets a page size in the entity collection.
setEntityClassificationCode	Sets the classification code of an entity.
setEntitySecurityClass	Sets the security class of the entity.
setEntityStatus	Sets the status of the entity.

5.3.3 IDirectory, IDirectoryEntity and IUserProfile interfaces

The IDirectory interface represents a service for identifying registered archive users. Registered users are presented through the IDirectoryEntity interface, which is uniquely defined through the Subject property. The user profile of the current user is presented through the IUserProfile interface. This service is available for authenticated archive users.

The IDirectory interface contains the following elements:

.NET : Property	Description
InvalidDirectoryEntity	Returns an invalid user.
Members	Returns all registered archive users.

.NET : Method	Description
GetGroupMembers	Returns all registered archive users for the selected group.
GetUserProfile	Returns a user's profile.
Search	Performs a search in the archive.

Java : Method	Description
getGroupMembers	Returns all the registered users of the archives for the selected group.
getInvalidDirectoryEntity	Returns an invalid user.
getMembers	Returns all the registered users of the archive.
getUserProfile	Returns a user's profile.
Search	Performs a search in the archive.

The IDirectoryEntity interface contains the following elements:

.NET : Property	Description
Aliases	Returns a collection of directory entity aliases.
Created	Returns the date and time the user was created in the archive.
CreatedBy	Returns the author of the user.
Description	Returns a description of the user.
Email	Returns a user's email address.
FirstName	Returns a user's first name.
Icon	Returns a user's avatar.
IsDeleted	Returns a value that indicates whether the user is deleted.
IsEnabled	Returns a value that indicates whether the user is active.

.NET : Property	Description
LastName	Returns a user's last name.
Modified	Returns the date and time the user was last modified.
ModifiedBy	Returns the last user modifier.
SecurityClass	Returns a user's assigned security class.
Subject	Returns a unique user identifier.
Type	Returns the type of user (user group or individual user).

.NET : Method	Description
GetGroupMemberships	Returns a collection of directory entity memberships.

Java : Method	Description
created	Returns the date and time the user was created in the archive.
getAliases	Returns a collection of directory entity aliases.
getCreatedBy	Returns the author of the user.
getDescription	Returns the description of the user.
getEmail	Returns the e-mail address of the user.
getFirstName	Returns the first name of the user.
getGroupMemberships	Returns a collection of directory entity memberships.
getIcon	Returns the icon of the user.
getLastName	Returns the last name of the user.
modified	Returns the date and time the user was last modified.
getModifiedBy	Returns the last user modifier.
getSecurityClass	Returns the security class that belongs to the user.
getSubject	Returns the unique identifier of the user.
getType	Returns the type of the user (user group or individual user).
isDeleted	Returns the value that indicates whether the user is deleted.
isEnabled	Returns the value that indicates whether the user is active.

The IUser Profile contains the following elements:

.NET : Properties	Description
Aliases	Returns a collection of directory entity aliases.
Created	Returns the date and time the user was created in the archive.
CreatedBy	Returns the author of the user.
Description	Returns or sets a description of the user.
Email	Returns or sets a user's email address.

.NET : Properties	Description
FirstName	Returns or sets a user's first name.
Icon	Returns a user's icon.
IsDescriptionEditable	Returns a value that indicates whether a user's description is editable.
IsEmailEditable	Returns a value that indicates whether a user's email is editable.
IsFirstNameEditable	Returns a value that indicates whether a user's first name is editable.
IsIconEditable	Returns a value that indicates whether a user's icon is editable.
IsLastNameEditable	Returns a value that indicates whether a user's last name is editable.
LastName	Returns a user's last name.
Modified	Returns the date and time the user was last modified.
ModifiedBy	Returns the last user modifier.
SecurityClass	Returns a user's assigned security class.
Subject	Returns a unique user identifier.

.NET : Method	Description
ChangePassword	Enables a password change.
GetData	Returns user data.
GetGroupMemberships	Returns a collection of user memberships.
Save	Saves a user's profile.
SetData	Sets user data.
SetIconData	Sets a user's icon.

Java : Method	Description
changePassword	Enables a password change.
Created	Returns the date and time the entity was created in the archive.
getAliases	Returns a collection of user aliases.
getCreatedBy	Returns the author of the user.
getData	Returns user data.
getDescription	Returns the description of the user.
getEmail	Returns the e-mail address of the user.
getFirstName	Returns the first name of the user.
getGroupMemberships	Returns a collection of user memberships.
getIcon	Returns the icon of the user.
getLastName	Returns the last name of the user.

Java : Method	Description
Modified	Returns the date and time the user was last modified.
getModifiedBy	Returns the last user modifier.
getSecurityClass	Returns the security class that belongs to the user.
getSubject	Returns a unique user identifier.
isDescriptionEditable	Returns a value that indicates whether a user's description is editable.
isEmailEditable	Returns a value that indicates whether a user's email is editable.
isFirstNameEditable	Returns a value that indicates whether a user's first name is editable.
isIconEditable	Returns a value that indicates whether a user's icon is editable.
isLastNameEditable	Returns a value that indicates whether a user's last name is editable.
save	Saves a user's profile.
setData	Sets user data.
setDescription	Sets a user's description.
setEmail	Sets a user's email.
setFirstName	Sets a user's first name.
setIconData	Sets a user's icon.
setLastName	Sets a user's last name.

5.3.4 IEntityStub interface

The IEntityStub interface represents publicly available data on an individual entity. These data include the title (the Title property), the classification code (the ClassificationCode property), a collection of public metadata obtained through the Properties property, and methods such as Open for opening an entity in read-only or read and write mode and Search for searching sub-entities.

The IEntityStub interface contains the following elements:

.NET : Property	Description
Accessed	Returns the date and time the entity was last accessed.
Archive	Returns a reference to the archive.
Categories	Returns a collection of the categories.

.NET : Property	Description
ChildClassificationCodeMode	Returns the mode of generating classification codes for child entities. The following values are possible: <ul style="list-style-type: none"> - Automatic: classification codes for child entities are generated automatically. - Manual: classification codes for child entities must be entered manually. - Manual Optional: classification codes for child entities can be entered manually.
ClassificationCode	Returns the classification code in canonicalized form.
Closed	Returns the date and time the entity status was changed to Closed.
Contents	Returns the entity's content collection.
Created	Returns the date and time the entity was created in the archive.
Creator	Returns the author of the entity.
CustomContents	Returns a collection of custom entity contents.
Description	Returns a description of the entity.
DraftCreator	Returns the author of the draft.
DraftId	Returns the internal identifier of the draft.
EffectiveRights	Returns the effective rights of the current user on the entity.
ExternalIds	Returns a list of external identifiers of the entity.
HasAIP	Returns the value that indicates whether an archival information package is present for the entity.
HasDraft	Returns a value that indicates whether the entity has draft.
HasReference	Returns a value that indicates whether the entity has references.
HasVersions	Returns a value that indicates whether the entity has versions.
Id	Returns the entity's internal identifier.
IsPermanent	Returns the value that indicates if the entity in the archive is in permanent retention.
Keywords	Returns a collection of keywords for the entity.
Modified	Returns the date and time the entity was last modified.
ModifiedBy	Returns the last entity modifier.
Opened	Returns the date and time the entity's status was changed to Opened.
Owner	Returns the owner of the entity.
Parent	Returns the parent entity.
ParentId	Returns an identifier of the parent entity.
Properties	Returns a collection of metadata in folder format.
PropertiesList	Returns a collection of metadata in list format.

.NET : Property	Description
PublicClassificationCode	Returns the classification code in public form.
Reference	Returns the collection of references.
SecurityClass	<p>Returns the security class of the entity.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Unclassified: there are no special restrictions on accessing the entity. - Restricted: the entity is internal in nature. Only users with a Restricted security class or higher may access the entity. - Confidential: the entity is confidential in nature. Only users with a Confidential security class or higher may access the entity. - Secret: the entity is secret in nature. Only users with a Secret security class or higher may access the entity. - Top Secret: the entity is top secret. Only users with a Top Secret security class or higher may access the entity.
Significance	<p>Returns the significance of the entity.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Vital: the entity is of vital importance. - Permanent: the entity is permanent. - Retain: the entity is marked for retention. - Delete: the entity is marked for deletion.
Status	<p>Returns the status of the entity (of a class or a folder or of a document located directly below a class).</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Opened: a user may edit the entity provided they have adequate rights (write rights). - Closed: users can no longer edit the entity.
SubEntityCount	Returns the absolute number of sub-entities.
SubEntityTemplates	Returns a collection of templates for creating sub-entities.
SystemProperties	Returns a collection of system properties.
Template	Returns the template used to create the entity.
Timestamped	Returns the date and time when the entity was last timestamped.
Title	Returns the title of the entity.
Type	Returns the type of entity.
VersionComment	Returns the comment of the version.
VersionLabel	Returns the label of the version.
Versions	Returns a collection of versions.
VersionSequence	Returns a sequence number of the version.

.NET Method	Description
AreValuesInherited	Returns a value that specifies whether the values of the entity's system property are inherited or not.
CheckOut	Creates a draft entity.
Delete	Deletes the entity.
GetDraftInfo	Returns a collection of a document draft information.
GetPickListValues	Returns a list of predefined values for the entity's system properties.
GetReport	Returns the selected report type.
GetRetention	Returns a collection of retention policies and disposition holds.
GetSubEntities	Returns a collection of subordinated entities according to the selected filter and editing keys.
GetSystemProperty	Returns a system property.
Move	Moves the entity under the selected parent entity.
Open	Opens the entity in the selected mode (read or edit).
Search	Performs search under the entity.
SetSecurityClass	Sets security class of the entity.
SetStatus	Sets the status of the entity.

Java: Method	Description
accessed	Returns the date and time of last access to the entity.
areValuesInherited	Returns the value that indicates whether the system property values have been inherited or not.
checkOut	Creates a draft entity.
closed	Returns the date and time when the status of the entity was changed to Closed.
created	Returns the date and time of creation of the entity in the archive.
delete	Deletes the entity.
getArchive	Returns a reference to the archive.
getCategories	Returns a collection of categories.

Java: Method	Description
ChildClassificationCodeMode	<p>Returns the mode of generating classification codes for child entities.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Automatic: classification codes for child entities are generated automatically. - Manual: classification codes for child entities must be entered manually. - Manual Optional: classification codes for child entities can be entered manually.
getClassificationCode	Returns a classification code in canonical form.
getCreator	Returns the author of the entity.
getCustomContents	Returns the custom content collection of the entity.
getDescription	Returns the description of the entity.
getDraftCreator	Returns the author of the draft.
getDraftId	Returns the internal identifier of the draft.
getDraftInfo	Returns a collection of a document draft information.
getEffectiveRights	Returns effective rights of the current user over the entity.
getExternalIds	Returns a list of external identifiers of the entity.
getId	Returns the internal identifier of the entity.
getKeywords	Returns a collection of keywords for the entity.
getModifiedBy	Returns the last entity author.
getOwner	Returns the owner of the entity.
getParent	Returns the parent entity.
getParentId	Returns an identifier of the parent entity.
getPickListValues	Returns a list of predefined values of the system property of the entity.
getPublicClassificationCode	Returns the classification code in a public form.
getContent	Returns the content collection of the entity.
getProperties	Returns a collection of metadata in folder format.
getProperty	Returns a collection of metadata in list format.
getReferences	Returns a collection of references.
getReport	Returns the selected report type.
getRetention	Returns a collection of retention policies and disposition holds.

Java: Method	Description
getSecurityClass	<p>Returns the security class of the entity.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Unclassified: access to the entity is not particularly restricted. - Restricted: the entity is internal in nature. Only those users with a Restricted security class or higher may access it. - Confidential: the entity is confidential in nature. Only those users with a Confidential security class or higher may access it. - Secret: the entity is secret in nature. Only those users with a Secret security class or higher may access it. - Top Secret: the entity is top secret in nature. Only those users with a Top secret security class or higher may access it.
getSignificance	<p>Returns the importance of the entity.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Vital: the entity is of vital importance. - Permanent: the entity is permanent. - Retain: the entity is specified for retainment. - Delete: the entity is specified for deletion.
getStatus	<p>Returns the status of the entity (class or folder or document directly under the class).</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Opened: the user can edit the entity providing he has appropriate effective rights (writing rights). - Closed: the users cannot edit the entity.
getSubEntities	<p>Returns a collection of subordinate entities according to the selected filter and editing keys.</p>
getSubEntityTemplates	<p>Returns a collection of templates for the creation of subordinate entities.</p>
getSystemProperties	<p>Returns a collection of system properties.</p>
getSystemProperty	<p>Returns a system property.</p>
getTemplate	<p>Returns the template after which the entity was created.</p>
getTitle	<p>Returns the title of the entity.</p>
getType	<p>Returns the type of the entity.</p>
getVersionComment	<p>Returns the comment of the version.</p>
getVersionLabel	<p>Returns the label of the version.</p>
getVersions	<p>Returns a collection of versions.</p>

Java: Method	Description
getVersionSequence	Returns a sequence number of the version.
hasAIP	Returns a value that indicates whether an archival information package is present for the entity.
hasDraft	Returns a value that indicates whether the entity has draft.
hasReferences	Returns a value that indicates whether the entity has references.
hasVersions	Returns a value that indicates whether the entity has versions.
isPermanent	Returns a value that indicates whether the entity in the archive is in permanent retention.
modified	Returns the date and time of the last modification of the entity.
move	Moves the entity under the selected parent entity.
open	Opens the entity in the selected mode (read or edit).
opened	Returns the date and time when the status of the entity changed to Opened.
search	Performs search under the entity.
setSecurityClass	Sets security class of the entity (see the getSecurityClass method).
setStatus	Sets the status of the entity (see the getStatus method).
subEntityCount	Returns the absolute number of subordinated entities.
timestamped	Returns the date and time when the entity was last timestamped.

5.3.5 IEntity, IClass, IFolder and IDocument interfaces

The IEntity interface represents an entity that was opened in read only or read and write mode. It contains the shared properties and methods of entities in the entity model. The IClass, IFolder and IDocument interfaces represent specialized entities for class, folder and document.

Besides publicly accessible data on the entity (chapter [IEntityStub interface](#)) the following properties are also available: EffectiveRights presents an overview of the currently logged in user's rights for an entity, PhysicalEntity brings together metadata about a physical entity, and the Save method is used to save changes to an entity.

The IEntity interface contains the following elements:

.NET : Property	Description
Accessed	Returns the date and time the entity was last accessed.
ACL	Returns a collection of user rights for the entity.
ArchivalInformationalPackage	Returns the archival information package in base64 format.
Archive	Returns a reference to the archive.
AuditLog	Returns the AuditLog object for setting a message for the audit trail.
Categories	Returns or sets s collection of categories.
ClassificationCode	Returns or sets a classification code in canonicalized form.
Closed	Returns the date and time the entity's status was changed to Closed.
Created	Returns the date and time the entity was created in the archive.
Creator	Returns the author of the entity.
Description	Returns or sets a description of the entity.
DraftCreator	Returns the author of the draft.
DraftId	Returns the internal identifier of the draft.
EffectiveRights	Returns the effective rights of the current user for the entity.
EmailEntity	Returns metadata about email.
EvidenceRecord	Returns an evidence record in base64 format.
ExternalIds	Returns or defines a list of external identifiers of the entity.
Handle	Returns the entity handle.
HasAIP	Returns a value that indicates whether an archival information package is present for the entity.
HasDraft	Returns a value that indicates whether the entity has draft.
HasReferences	Returns a value that indicates whether the entity has references.

.NET : Property	Description
HasSaveLog	Returns a value that indicates whether the entity has save log.
HasVersions	Returns a value that indicates whether the entity has versions.
Id	Returns the entity's internal identifier.
IsClosed	Returns a value that tells the user whether the entity is closed or not.
IsPermanent	Returns a value that indicates whether the entity in the archive is in permanent retention.
Keywords	Returns or defines keywords for the entity.
Mode	Returns a value that specifies the mode in which the entity is open.
Modified	Returns the date and time the entity was last modified.
ModifiedBy	Returns the last entity modifier.
MoveDetails	Returns a collection of metadata of the moved entity.
Opened	Returns the date and time the entity's status was changed to Opened.
Owner	Returns or sets the owner of the entity.
Parent	Returns the parent entity.
ParentId	Returns an identifier of the entity.
PhysicalEntity	Returns metadata about physical entity.
Properties	Returns a collection of metadata in the folder format.
PropertiesList	Returns a collection of metadata in the list format.
PublicClassificationCode	Returns the classification code in public format.
References	Returns a collection of references.
SaveLog	Returns a record generated when the entity is saved.
SecurityClass	Returns or sets the security class of the entity. The following values are possible: <ul style="list-style-type: none"> - Unclassified: there are no special restrictions on accessing the entity. - Restricted: the entity is internal in nature. Only users with a Restricted security class or higher may access the entity. - Confidential: the entity is confidential in nature. Only users with a Confidential security class or higher may access the entity. - Secret: the entity is secret in nature. Only users with a Secret security class or higher may access the entity. - Top Secret: the entity is top secret. Only users with a Top Secret security class or higher may access the entity.
SecurityClassChangeDetails	Returns a list of changes to the entity's security class.

.NET : Property	Description
Significance	Returns or sets the significance of the entity. The following values are possible: <ul style="list-style-type: none"> - Vital: the entity is of vital importance. - Permanent: the entity is permanent. - Retain: the entity is marked for retention. - Delete: the entity is marked for deletion.
Status	Returns the status of the entity (of a class or a folder or of a document located directly below a class). The following values are possible: <ul style="list-style-type: none"> - Opened: a user may edit the entity provided they have adequate rights (write rights). - Closed: users can no longer edit the entity.
Stub	Returns publicly available entity data.
SubEntityCount	Returns the absolute number of child or sub-entities.
SubEntityTemplates	Returns a collection of templates for creating sub-entities.
SystemProperties	Returns a collection of system properties.
Template	Returns the template used to create the entity.
Title	Returns or sets the title of the entity.
TransferDetails	Returns metadata about a transferred entity.
Type	Returns a value that specifies the entity type.
VersionComment	Returns the comment of the version.
VersionLabel	Returns the label of the version.
VersionSequence	Returns the sequence number of the version.

.NET : Method	Description
AreValuesInherited	Returns a value that tells the user whether an entity's system properties are inherited or not.
Close	Closes an entity.
CreateBinaryValue	Creates binary content in the archive.
CreateStringMaxValue	Creates text or string content in the archive.
Flush	Writes changes to the entity.
GetPickListValues	Returns a list of the entity's predefined system properties values.
GetReport	Returns the selected type of report.
GetRetention	Returns a collection of retention policies and disposition holds.
GetSubEntities	Returns a collection of subentities according to the selected filter and editing keys.
GetSystemProperty	Returns a system property.
Save	Saves changes to the entity.
Search	Performs a search below the entity.

Java : Method	Description
accessed	Returns the date and time of last access to the entity.
areValuesInherited	Returns the value that indicates whether the system property values of the entity have been inherited or not.
close	Closes the entity.
closed	Returns the date and time when the status of the entity was changed to Closed.
createBinaryValue	Creates binary content in the archive.
created	Returns the date and time of creation of the entity in the archive.
createStringMaxValue	Creates textual content in the archive.
flush	Writes changes to the entity.
getACL	Returns a collection of user rights over an entity.
getArchivalInformationalPackage	Returns archival information package in base 64 format.
getArchive	Returns a reference to the archive.
getAuditLog	Returns an AuditLog object to set a message for the audit trail.
getCategories	Returns a collection of categories.
getClassificationCode	Returns a classification code in canonical form.
getCreator	Returns the author of the entity.
getDescription	Returns the description of the entity.
getDraftCreator	Returns the author of the draft.
getDraftId	Returns the internal identifier of the draft.
getEffectiveRights	Returns effective rights of the current user over the entity.
getEmailEntity	Returns the metadata about email.
getEvidenceRecord	Returns the evidence record in base 64 format.
getExternalIds	Returns a list of external identifiers of the entity.
getHandle	Returns the entity handle.
getId	Returns the internal identifier of the entity.
getKeywords	Returns a collection of keywords for the entity.
getMode	Returns a value that indicates the way in which the entity is open.
getModifiedBy	Returns the last entity modifier.
getMoveDetails	Returns a metadata collection of a moved entity.
getOwner	Returns the owner of the entity.
getParent	Returns the parent entity.
getParentId	Returns an identifier of the parent entity.
getPhysicalEntity	Returns the metadata on physical material.
getPickListValues	Returns a list of predefined values of the system property of the entity.
getProperties	Returns a collection of metadata in the folder format.
getPropertiesList	Returns a collection of metadata in the list format.
getPublicClassificationCode	Returns the classification code in the public form.

Java : Method	Description
getReferences	Returns a collection of references.
getReport	Returns the selected report type.
getRetention	Returns a collection of retention policies and disposition holds.
getSaveLog	Returns a log that is generated when saving an entity.
getSecurityClass	Returns the security class of the entity.
	The following values are possible:
	- Unclassified: access to the entity is not particularly restricted.
	- Restricted: the entity is internal in nature. Only those users with a Restricted security class or higher may access it.
	- Confidential: the entity is confidential in nature. Only those users with a Confidential security class or higher may access it.
	- Secret: the entity is secret in nature. Only those users with a Secret security class or higher may access it.
	- Top Secret: the entity is top secret in nature. Only those users with a Top secret security class or higher may access it.
getSecurityClassChangeDetails	Returns the list of security class changes.
getSignificance	Returns or sets the importance of the entity.
	The following values are possible:
	- Vital: the entity is of vital importance.
	- Permanent: the entity is permanent.
	- Retain: the entity is specified for retainment.
	- Delete: the entity is specified for deletion.
getStatus	Returns or sets the status of the entity (class or folder or document directly under the class). Possible values are:
	- Opened: the user can edit the entity providing he has appropriate effective rights (writing rights).
	- Closed: the users cannot edit the entity.
getStub	Returns publicly available entity data.
getSubEntities	Returns a collection of subordinate entities according to the selected filter and editing keys.
getSubEntityTemplates	Returns a collection of templates for the creation of subordinate entities.
getSystemProperties	Returns a collection of system properties.
getSystemProperty	Returns the system property.
getTemplate	Returns the template after which the entity was created.
getTitle	Returns the title of the entity.
getTransferDetails	Returns the metadata on transferred entity.
getType	Returns a value that indicates the entity type.
getVersionComment	Returns the comment of the version.

Java : Method	Description
getVersionLabel	Returns the label of the version.
getVersionSequence	Returns a sequence number of the version.
hasAIP	Returns a value that indicates whether an archival information package is present for the entity.
hasDraft	Returns a value that indicates whether the entity has draft.
hasReferences	Returns a value that indicates whether the entity has references.
hasSaveLog	Returns a value that indicates whether the entity has save log.
hasVersions	Returns a value that indicates whether the entity has versions.
isClosed	Returns a value that indicates whether an entity is closed or not.
isPermanent	Returns a value that indicates whether an entity is in permanent retention in the archive.
modified	Returns the date and time of last modification of the entity.
opened	Returns the date and time when the entity status changed to Opened.
save	Saves changes to the entity.
search	Performs search under the entity.
setCategories	Sets a collection of the categories.
setClassificationCode	Sets the classification code in canonical form.
setDescription	Sets the description of the entity.
setExternalIds	Sets the list of external entity identifiers.
setKeywords	Sets a collection of keywords for the entity.
setOwner	Sets the owner of the entity.
setSecurityClass	Sets the security class of the entity (see the getSecurityClass method).
setSignificance	Sets the significance of the entity (see the getSignificance method).
setStatus	Sets the status of the entity (see the getStatus method).
setTitle	Sets the title of the entity.
subEntityCount	Returns the absolute number of subordinate entities.

Besides the elements of the IEntity interface, the IClass interface also contains the following elements:

.NET : Property	Description
IsChildClassificationCodeMode	<p>Returns the mode of generating classification codes for child entities.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Automatic: classification codes for child entities are generated automatically. - Manual: classification codes for child entities must be entered manually. - Manual Optional: classification codes for child entities can be entered manually.

.NET : Method	Description
CreateClass	Creates a subclass below the class.
CreateDocument	Creates a document below the class.
CreateFolder	Creates a folder below the class.

Java : Method	Description
createClass	Creates a subclass under the class.
createDocument	Creates a document under the class.
createFolder	Creates a folder under the class.
getChildClassificationCodeMode	<p>Returns the mode of generating classification codes for child entities.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Automatic: classification codes for child entities are generated automatically. - Manual: classification codes for child entities must be entered manually. - Manual Optional: classification codes for child entities can be entered manually.
setChildClassificationCodeMode	Sets the mode of generating classification codes for child entities (see the getChildClassificationCodeMode method).

Besides the elements of the IEntity interface, the IFolder interface also contains the following elements:

.NET : Property	Description
ChildClassificationCodeMode	<p>Returns the mode of generating classification codes for child entities.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Automatic: classification codes for child entities are generated automatically. - Manual: classification codes for child entities must be entered manually. - Manual Optional: classification codes for child entities can be entered manually.

.NET : Method	Description
CreateDocument	Creates a document below the folder.
CreateFolder	Creates a subfolder below the folder.

Java : Method	Description
createDocument	Creates a document under the folder.
createFolder	Creates a contained folder under the folder.
getChildClassificationCodeMode	<p>Returns the mode of generating classification codes for child entities.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Automatic: classification codes for child entities are generated automatically. - Manual: classification codes for child entities must be entered manually. - Manual Optional: classification codes for child entities can be entered manually.
setChildClassificationCodeMode	Sets the mode of generating classification codes for child entities (see the getChildClassificationCodeMode method).

Besides the elements of the IEntity interface, the IDocument interface also contains the following elements:

.NET : Property	Description
Content	Returns the entity's content collection.
CustomContents	Returns a custom collection of the entity's content.

.NET : Method	Description
CreateContentPart	Creates a file in the archive.
OpenContentPart	Opens an unsaved file.

Java : Method	Description
createContentPart	Creates a folder in the archive.
getContent	Returns a collection of document contents.
getCustomContents	Returns a collection of customized document contents.
openContentPart	Opens an unsaved file.

5.3.6 IReadOnlyProperty and IProperty interfaces

The IReadOnlyProperty interface represents metadata intended only for reading or viewing. It contains properties that describe metadata and metadata values. The Type property returns the metadata type, and the ValueCount property returns the number of metadata values. Access to the metadata values is enabled with the GetValue and GetValues methods.

The IProperty executable interface represents metadata that can be edited. Besides the values and methods of the IReadOnlyProperty interface, it also contains the EffectiveRights property for viewing the effective rights of the current user for the metadata and the SetValue and SetValues methods for setting one or more metadata values.

The IReadOnlyProperty interface contains the following elements:

.NET : Property	Description
AreValuesInherited	Returns a value that tells the user whether metadata values are inherited or not.
Description	Returns a description of the metadata.
EffectiveRights	Returns the current user's effective rights over the metadata.
IsAppendOnly	Returns a value that tells the user whether metadata values can only be appended (added) or not.
IsIncludedInAIP	Returns a value that tells the user whether metadata values form a part of the archival information package (AIP).
IsInherited	Returns a value that tells the user whether a metadata value is inherited.
IsMultiValue	Returns a value that tells the user whether metadata can have more than one value.

.NET : Property	Description
isNonEmpty	Returns a value that tells the user whether the metadata value must be empty.
IsPickList	Returns a value that tells the user whether the metadata has predefined valid values.
IsPublic	Returns a value that tells the user whether the metadata is publicly accessible.
IsReadOnly	Returns a value that tells the user whether the metadata is read only.
IsReadOnlyAfterCheckIn	Returns a value that tells the user whether the metadata is read only after creating a new version.
IsReadOnlyAfterCreate	Returns a value that tells the user whether the metadata is read only after create.
IsRequired	Returns a value that tells the user whether the metadata is required.
IsSearchable	Returns a value that tells the user whether the metadata's values can be used to search.
IsUnique	Returns a value that tells the user whether the metadata value must be unique.
IsVersionable	Returns a value that tells the user whether the metadata value can be defined for each version.
Label	Returns the metadata label.
Name	Returns the unique name of the metadata.
PickListValues	Returns a list of predefined metadata values.
Type	Returns the type of metadata.
ValueCount	Returns the number or count of metadata values.

.NET : Method	Description
GetValue	Returns the metadata value.
GetValues	Returns a list of metadata values.
GetXmValue	Returns the metadata value in XML-equivalent format.
GetXmValues	Returns a list of metadata values in XML-equivalent format.

Java : Method	Description
areValuesInherited	Returns a value that indicates whether the metadata values are inherited or not.
getDescription	Returns the description of the metadata.
getEffectiveRights	Returns the current user's effective rights over the metadata.
getLabel	Returns the metadata label.
getName	Returns the unique name of the metadata.
getPickListValues	Returns a list of predefined metadata values.
getType	Returns the type of metadata.
getValue	Returns the value of metadata.
getValues	Returns a list of metadata values.
getXmlValue	Returns the value of metadata in XML equivalent format.
getXmlValues	Returns a list of metadata values in XML equivalent format.
isAppendOnly	Returns a value that indicates whether the value of the metadata can only be added.
isIncludedInAIP	Returns a value that indicates whether the value of the metadata is a part of an archival information package.
isInherited	Returns a value that indicates whether the value of the metadata is inherited.
isMultiValue	Returns a value that indicates whether the metadata has more than one value.
isPickList	Returns a value that indicates whether the metadata has prescribed valid values.
isPublic	Returns a value that indicates whether the metadata is publicly accessible.
isReadOnly	Returns a value that indicates whether the metadata is read-only.
isReadOnlyAfterCheckIn	Returns a value that indicates whether the metadata is read-only after check-in.
isReadOnlyAfterCreate	Returns a value that indicates whether the metadata is read-only after create.
isRequired	Returns a value that indicates whether the metadata is required.
isSearchable	Returns a value that indicates whether the metadata value is searchable.
isUnique	Returns a value that indicates whether the metadata value must be unique.
IsVersionable	Returns a value that tells the user whether the metadata value can be defined for each version.
valueCount	Returns the value count of the metadata.

Besides the elements of the `IReadOnlyProperty` interface, the `IProperty` interface also contains the following elements:

.NET : Property	Description
CommittedValueCount	Returns the number or count of saved metadata values.

.NET : Method	Description
Clear	Clears the metadata value(s).
SetValue	Sets the metadata value.
SetValues	Sets a list of metadata values.
SetXmlValue	Sets the metadata value in XML-equivalent format.
SetXmlValues	Sets a list of metadata values in XML-equivalent format.

Java : Method	Description
clear	Clears the metadata value(s).
committedValueCount	Returns the number of saved metadata values.
setValue	Sets the metadata value.
setValues	Sets the metadata value list.
setXmlValue	Sets the metadata value in XML equivalent format
setXmlValues	Sets the metadata value list in XML equivalent format.

5.3.7 `IReadOnlyContent`, `IContent` and `IContentPart` interfaces

The `IReadOnlyContent` interface represents the content of an entity intended only for reading or viewing. The `IContent` executable interface represents the content of an entity that may be edited. The content of an entity consists of one or more files accessed through the `IContentPart` interface.

The `IReadOnlyContent` interface contains the following elements:

.NET : Property	Description
Description	Returns a short description of the content.
EffectiveRights	Returns effective rights of the user at selected content.
IsAppendOnly	Returns a value that indicates whether the content value can only be added.
IsIncludedInAIP	Returns a value that indicates whether the content value is part of an archival information package.
IsMultiValue	Returns a value that indicates whether the content has more than one value.

.NET : Property	Description
EffectiveRights	Returns the effective rights of the current user over the content.
IsPublic	Returns a value that indicates whether the content is public.
IsReadOnly	Returns a value that indicates whether the content is read-only.
IsReadOnlyAfterCheckIn	Returns a value that indicates whether the content is read-only after check-in.
IsReadOnlyAfterCreate	Returns a value that indicates whether the content is read-only after create.
IsRequired	Returns a value that indicates whether the content is required.
IsSearchable	Returns a value that indicates whether the content value is searchable.
IsVersionable	Returns a value that tells the user whether the content can be defined for each version.
IsVersionable	Returns a value that tells the user whether the content can be defined for each version.
Label	Returns the content label.
Name	Returns the unique name of the content collection.
PartsCount	Returns the number or count of contents in the content collection.
SignatureDisposition	Returns the type of content signature.

.NET : Method	Description
GetParts	Returns a list of entity contents.

Java : Method	Description
getDescription	Returns a short description of the content.
EffectiveRights	Returns the effective rights of the current user over the content.
getLabel	Returns the content label.
getName	Returns the unique name for the content collection.
getParts	Returns a list of the contents of the entity.
getSignatureDisposition	Returns the type of content signature.
isAppendOnly	Returns a value that indicates whether the content value can only be added.
isIncludedInAIP	Returns a value that indicates whether the content value is part of an archival information package.
isMultiValue	Returns a value that indicates whether the content has more than one value.
isPublic	Returns a value that indicates whether the content is public.

Java : Method	Description
isReadOnly	Returns a value that indicates whether the content is read-only.
isReadOnlyAfterCheckIn	Returns a value that indicates whether the content is read-only after check-in.
isReadOnlyAfterCreate	Returns a value that indicates whether the content is read-only after create.
isRequired	Returns a value that indicates whether the content is required.
isSearchable	Returns a value that indicates whether the content value is searchable.
isVersionable	Returns a value that tells the user whether the content can be defined for each version.
partsCount	Returns the number of contents in the content collections.

Besides the elements of the IReadOnlyContent interface, the IContent interface also contains the following elements:

.NET : Method	Description
Clear	Clears an entity's content collection.
CloneParts	Clones entity content.
DetachParts	Detaches entity content.
MoveParts	Moves entity content.
QueuePartsForConvert	Adds files to the conversion queue.
QueuePartsForIndex	Adds files to the indexing queue.
SetParts	Sets a list of entity contents.

Java : Method	Description
clear	Clears the content collection of the entity.
cloneParts	Clones entity content.
detachParts	Detaches entity content.
moveParts	Moves entity content.
queuePartsForConvert	Adds files to the conversion queue.
queuePartsForIndex	Adds files to the indexing queue.
setParts	Sets a list of the contents of the entity.

The IContentPart interface contains the following elements:

.NET : Property	Description
Accessed	Returns the date and time the file was last accessed.
ContentType	Returns a list of content type (MIME) for the file.
Created	Returns the date and time the file was created.
DefaultContentType	Returns the default content type (MIME) for the file.
DefaultExtension	Returns the default file extension for the file.
Description	Returns or sets a description of the file.
Extension	Returns a list of extension for the file.
Id	Returns the unique identifier of the content.
IsIndexed	Returns a value that specifies whether the content is indexed.
IsSigned	Returns a value that specifies whether the content is signed.
Modified	Returns the date and time the file was last modified.
Parent	Returns the parent entity content.
Size	Returns the number of content values.
SubParts	Returns the subordinate entity content.

.NET : Method	Description
Clone	Copies the file to a specific entity.
Detach	Detaches the representation of the entity content.
Move	Moves the entity content.
OpenDataStream	Opens the datastream of the file in the selected mode (read only or read and write).
QueueForConvert	Adds a file to the conversion queue.
QueueForIndex	Adds a file to the indexing queue.

Java : Method	Description
accessed	Returns the date and time of last access to the file.
clone	Copies the file to a specific entity.
created	Returns the date and time of file creation.
detach	Detaches the subordinate entity content.
getContentType	Returns a list of content types (MIME) for the file.
getDescription	Returns a file description.
getExtension	Returns the default extension for the file.
getId	Returns the unique content identifier.
getParent	Returns the parent entity content.

Java : Method	Description
getSize	Returns the number of content values.
getSubParts	Returns the subordinate entity content.
isIndexed	Returns a value that specifies whether the content is indexed.
isSigned	Returns a value that specifies whether the content is signed.
modified	Returns the date and time of last modification of the file.
move	Moves entity content.
openDataInputStream	Opens a data stream for a read file.
openDataOutputStream	Opens a data stream for a write file.
queueForConvert	Adds a file to the conversion queue.
queueForIndex	Adds a file to the indexing queue.
setDescription	Sets file description.

5.3.8 IRetention, IRetentionPolicyEntry, IRetentionPolicyContext and IDispositionHoldEntry interfaces

The IRetention interface represents entry collections for retention policy and entity disposition hold. It enables access to the collections and saving changes. The retention policy entry of an entity is represented by the IRetentionPolicyEntry interface that is specified in detail by the IRetentionPolicyContext interface.

The entity disposition hold entry is represented by the IDispositionHoldEntry interface.

The IRetention interface contains the following elements:

.NET : Property	Description
DispositionHoldEntries	Returns the collection of entries for entity disposition hold.
Mode	Returns the method of accessing the collections of entries for retention policies and disposition holds of the entity.
PolicyEntries	Returns the collection of entries for entity retention policies.

.NET : Method	Description
AddDispositionHold	Adds an entry of entity disposition hold.
AddPolicyEntry	Adds an entry of entity retention policies.
Close	Closes the access to the collections of retention policies and disposition holds of the entity.
Save	Saves changes over collections of retention policies and disposition holds of the entity.

Java : Method	Description
addDispositionHold	Adds a disposition hold entry for the entity.
addPolicyEntry	Adds a policy retention hold entry for the entity.
close	Closes the access to the collections of retention policies and disposition holds of the entity.
getDispositionHoldEntries	Returns the entry collection for disposition holds of the entity.
getMode	Returns the method of accessing the collections of entries for retention policies and disposition holds of the entity.
getPolicyEntries	Returns the entry collection for retention policies of the entity.
save	Saves changes over collections of retention policies and disposition holds of the entity.

The IRetentionPolicyEntry interface contains the following elements:

.NET : Property	Description
Definition	Returns the definition of entity retention policy.
ExplicitContext	Returns the explicit context entry for entity retention policy.
InheritedContext	Returns the inherited context entry for entity retention policy.

.NET : Method	Description
Delete	Deletes the explicit context entry for entity retention policy.

Java : Method	Description
delete	Deletes explicit entry context for retention policies of the entity.
getDefinition	Returns the definition of the retention policy of the entity.
getExplicitContext	Returns the explicit entry context for the retention policy of the entity.
getInheritedContext	Returns the inherited context for the retention policy of the entity.

The IReadOnlyRetentionPolicyContext interface contains the following elements:

.NET : Property	Description
Filter	Returns the context filter for the retention policy of the entity.
IsEffective	Returns a value that indicates whether the policy retention context of the entity is effective.
Scope	Returns the context scope for the retention policy of the entity.

Java : Method	Description
getFilter	Returns the context filter for the retention policy of the entity.
getScope	Returns the context scope for the retention policy of the entity.
isEffective	Returns a value that indicates whether the policy retention context of the entity is effective.

The IRetentionPolicyContext interface derives from the IReadOnlyRetentionPolicyContext interface and contains the following elements:

.NET : Property	Description
Filter	Returns the context filter for the retention policy of the entity.
Owner	Returns the IRetentionPolicyEntry bound to the context.
Scope	Returns the context scope for the retention policy of the entity.

Java : Method	Description
getOwner	Returns the IRetentionPolicyEntry bound to the context.
setFilter	Sets a context filter for the retention policy of the entity.
setScope	Returns the context scope for the retention policy of the entity.

The IDispositionHoldEntry interface contains the following elements:

.NET : Property	Description
Definition	Returns the definition of entity disposition hold.
IsInherited	Returns the value that tells the user whether the entry for entity disposition hold is inherited.

.NET : Method	Description
Delete	Deletes an explicit entry for entity disposition hold.

Java : Method	Description
delete	Deletes explicit entry context for the disposition hold of the entity.
getDefinition	Returns the definition of the disposition hold of the entity.
isInherited	Returns a value that indicates whether the entry for disposition hold is inherited or not.

5.3.9 IReviewStub interface

The IReviewStub interface represents publicly available review metadata. The interface is a limited version of IEntityStub (chapter [EntityStub](#)) interface with two additions:

- The State property that represents the review state.
- The Message property, where an archive server logs operation messages during the review.

The IReviewStub interface contains the following elements:

.NET : Property	Description
Accessed	Returns the date and time the review was last accessed.
Archive	Returns the reference to the archive.
ClassificationCode	Returns the classification code in canonicalized form.
Closed	Returns the date and time the reviewing status was changed to Closed.
Created	Returns the date and time the review was created.
Creator	Returns the author of the review.
Description	Returns a description of the review.
EffectiveRights	Returns the effective rights of the current user on the review.
HasAIP	Returns a value that indicates whether an archival information package is present for the review.
Id	Returns the review's internal identifier.
Keywords	Returns a collection of keywords for the review.
Message	Returns the message from the archive server that represents the state or error.
Modified	Returns the date and time the review was last modified.
ModifiedBy	Returns the last review modifier in the review process.
Opened	Returns the date and time the review's status was changed to Opened.
Owner	Returns the owner of the review.
PublicClassificationCode	Returns the classification code in public form.

.NET : Property	Description
State	Returns the review's state. The following values are possible: <ul style="list-style-type: none"> - Unknown: the review's state is unknown. - Created: a review is created. - Preparing: a review is being prepared. - InReview: the review is in review. - Completing: the review is in the process of completion. - Discarded: the review has been discarded. - Failed: the review has failed.
Status	Returns the status of the review. The following values are possible: <ul style="list-style-type: none"> - Opened: the review can be edited by a user with adequate rights (write rights). - Closed: users can no longer edit the review.
Stub	Returns publicly available entity data.
SubEntityTemplates	Returns a collection of templates for creating sub-entities.
SystemProperties	Returns a collection of system properties.
Template	Returns the template used to create the review.
Title	Returns the title of the review.

.NET : Method	Description
AreValuesInherited	Returns a value that tells the user whether the review's system properties are inherited or not.
GetPickListValues	Returns a list of predefined values of the system properties of the entity.
GetReport	Returns the selected report type.
GetSystemProperty	Returns the system property.
Open	Opens a review in the review process in the selected mode (for reading or editing).

Java : Method	Description
accessed	Returns the date and time of last access to the review in the review process.
areValuesInherited	Returns a value that indicates whether the review values of the system property in the review process are inherited or not.
closed	Returns the date and time when the status of the review in the review process changed to Closed.

Java : Method	Description
created	Returns the date and time of creation of the review in the review process in the archive.
getArchive	Returns a reference to the archive.
getClassificationCode	Returns a classification code in canonical form.
getCreator	Returns the author of the review in the review process.
getDescription	Returns a description of the review in the review process.
getEffectiveRights	Returns the effective rights of the current user over the review in the review process.
getId	Returns an internal identifier of the review in the review process.
getKeywords	Returns a collection of keywords for the review in the review process.
getMessage	Returns a message of the archive server that represents a status or an error during the execution of the review process.
getModifiedBy	Returns the last review modifier in the review process.
getOwner	Returns the owner of the review in the review process.
getPickListValues	Returns a list of predefined values of the system properties of the entity.
getPublicClassificationCode	Returns a classification code in public form.
getReport	Returns the selected report type.
getState	<p>Returns the review status of review processes.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Unknown: the review status in the review process is unknown. - Created: the review in the review process is created. - Preparing: the review in the review process is being prepared. - InReview: the review in the review process is in review. - Completing: the review in the review process is being completed. - Completed: the review in the review process has been completed. - Discarded: the review in the review process has been discarded. - Failed: the review in the review process has been completed with an error.

Java : Method	Description
getStatus	Returns the review status in the review process. The following values are possible: - Opened: the user can edit the review in the review process providing he has appropriate effective rights (writing rights). - Closed: the users cannot edit the review in the review process.
getSubEntityTemplates	Returns a collection of templates for the creation of subordinate entities.
getSystemProperties	Returns a collection of system properties.
getSystemProperty	Returns the system property.
getTemplate	Returns the template after which the review in the review process was created.
getTitle	Returns the title of the review in the review process.
modified	Returns the date and time of the last review modification in the review process.
open	Opens the review in the review process in the selected mode (read or edit).
opened	Returns the date and time when the status of the review in the review process changed to Opened.

5.3.10 IReview interface

The IReview interface represents a review that is opened in read only or read and write mode.

The interface represents a limited version of the IEntity interface. For more information see chapter [Entity, IClass, IFolder and IDocument interfaces](#).

Besides publicly available review data (chapter [IReviewStub interface](#)), the following properties are also available:

- Action for selecting an action in the review.
- Members for selecting members in the review.
- ReviewedItems and ScheduledItems with a collection of entities that are reviewed or subjects to review.

The IReview interface contains the following elements:

.NET : Property	Description
Accessed	Returns the date and time the review was last accessed.
ACL	Returns a collection of user rights for the review.
Action	Returns or sets a review action. The following values are possible: <ul style="list-style-type: none"> - Reviewing: a review is in progress. - Completed: a review is completed. - Discard: a review will be discarded.
ArchivalInformationalPackage	Returns the archival information package (AIP) in base64 format.
Archive	Returns a reference to the archive.
AuditLog	Returns the AuditLog object for setting a message for the audit trail.
ClassificationCode	Returns or sets a classification code in canonicalized form.
Closed	Returns the date and time the review's status was changed to Closed.
Comments	Returns or sets review comments in the review process.
Created	Returns the date and time the review was created in the archive.
Comments	Returns comments on the review.
Creator	Returns the author of the review.
Description	Returns or sets a description of the review.
EffectiveRights	Returns the effective rights of the current user for the review.
EvidenceRecord	Returns an evidence record in base64 format.
Handle	Returns the handle.
HasAIP	Returns a value that indicates whether an archival information package is present for the review.
HasSaveLog	Returns a value that indicates whether a review has save log.
EvidenceRecord	Returns an evidence record in base64 format.
Id	Returns the entity's internal identifier.
IsClosed	Returns a value that tells the user whether the review is closed or not.
Keywords	Returns or sets a collection of keywords for the review.
Members	Returns or sets the members of the commission that have implemented the review.
Message	Returns a message from the archive server that represents the state or error in the review process.
Mode	Returns a value that specifies the mode in which the review is open.

.NET : Property	Description
Modified	Returns the date and time the review was last modified.
ModifiedBy	Returns the last review modifier in the review process.
Opened	Returns the date and time the review's status was changed to Opened.
Owner	Returns or sets the owner of the review when creating the review.
PublicClassificationCode	Returns the classification code in public format.
QueryExpression	Returns a query expression used when creating the review.
ReviewedItems	Returns a collection of entities that have been reviewed.
SaveLog	Returns a record generated when the entity is saved.
ScheduledItems	Returns a collection of entities that are subjects to review.
Scope	Returns an entity that defines the scope of the review.
State	Returns the review state when creating the review. The following values are possible: <ul style="list-style-type: none"> - Unknown: the review is unknown. - Created: a review is created. - Preparing: a review is being prepared. - InReview: the review is in review. - Completing: the review is in the process of completion. - Completed: the review is completed. - Discarded: the review has been discarded. - Failed: the review has failed.
Status	Returns or sets the status when creating the review. The following values are possible: <ul style="list-style-type: none"> - Opened: a user may edit the review if he/she has appropriate effective rights (write rights). - Closed: a user can no longer edit the review.
Stub	Returns publicly available entity data on review in the review process.
SubEntityTemplates	Returns a collection of templates for creating sub-entities.
SystemProperties	Returns a collection of system properties.
Template	Returns the template used to create the review.
Title	Returns or sets the title of the review.

.NET : Method	Description
AreValuesInherited	Returns a value that tells the user whether a review's system properties are inherited or not.
Close	Closes the review.
CreateDocument	Creates a document in the review.
Flush	Writes changes to the review.
GetDocuments	Returns a collection of review documents in the review process.
GetPickListValues	Returns a list of the review's predefined system properties values.
GetReport	Returns the selected report type.
GetRetentionPolicies	Returns a collection of retention policies used in creating the review in the review process.
GetSystemProperty	Returns the system property.
Save	Saves changes to the review.

Java : Method	Description
accessed	Returns the date and time of last access to the review in the review process.
areValuesInherited	Returns the value that indicates whether the review system property values in the review process have been inherited or not.
close	Closes the review in the review process.
closed	Returns the date and time when the status of the review in the review process was changed to Closed.
created	Returns the date and time of review creation in the review process in the archive.
createDocument	Creates a document in the review in the review process.
flush	Writes changes to the review.
getACL	Returns a collection of user rights over the review in the review process.
getAction	Returns the review action in the review process. The following values are possible: <ul style="list-style-type: none"> - Reviewing: a review in the review process is being carried out. - Completed: a review in the review process has been completed. - Discard: a review in the review process has been discarded.
getArchivalInformationalPackage	Returns an archival information package in base 64 format.
getArchive	Returns a reference to the archive.
getAuditLog	Returns an AuditLog object to set a message for the audit trail.
getClassificationCode	Returns or sets a classification code in canonical form.
getComments	Returns review comments in the review process.
getCreator	Returns the author of the review in the review process.

Java : Method	Description
getDescription	Returns the description of the review in the review process.
getDocuments	Returns a review document collection in the review process.
getEffectiveRights	Returns effective rights of the current user over the review in the review process.
getEvidenceRecord	Returns the evidence record in base 64 format.
getHandle	Returns the handle.
getId	Returns the internal identifier of the entity.
getKeywords	Returns a collection of keywords for the review in the review process.
getMembers	Returns the members of the committee that carried out the review in the review process.
getMessage	Returns a message of the archive server that represents a status or an error during the execution of the review process.
getMode	Returns a value that indicates how the review in the review process was open.
getModifiedBy	Returns the last review modifier in the review process.
getOwner	Returns the owner of the review in the review process.
getPickListValues	Returns a list of predefined values of the review system properties in the review process.
getPublicClassificationCode	Returns a classification code in public form.
getQueryExpression	Returns a query expression used to create the review in the review process.
getReport	Returns the selected report type.
getRetentionPolicies	Returns a collection of retention policies used to create the review in the review process.
getReviewedItems	Returns the collection of entities that were reviewed in the review process.
getSaveLog	Returns a log that is created when saving the entity.
getScheduledItems	Returns a collection of entities that were reviewed in the review process.
getScope	Returns the entity that determines the review scope in the review process.

Java : Method	Description
getState	<p>Returns the review status of review processes.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Unknown: the review status in the review process is unknown. - Created: the review in the review process is created. - Preparing: the review in the review process is being prepared. - InReview: the review in the review process is in review. - Completing: the review in the review process is being completed. - Completed: the review in the review process has been completed. - Discarded: the review in the review process has been discarded. - Failed: the review in the review process has been completed with an error.
getStatus	<p>Returns the review status in the review process.</p> <p>The following values are possible:</p> <ul style="list-style-type: none"> - Opened: the user can edit the review in the review process providing he has appropriate effective rights (writing rights). - Closed: the users cannot edit the review in the review process.
getStub	Returns publicly available entity data.
getSubEntityTemplates	Returns a collection of templates for the creation of subordinate entities.
getSystemProperties	Returns a collection of system properties.
getSystemProperty	Returns the system property.
getTemplate	Returns the template after which the review in the review process was created.
getTitle	Returns the title of the review in the review process.
hasAIP	Returns a value that indicates whether an archival information package is present for the review.
hasSaveLog	Returns a value that indicates whether a review has save log.
isClosed	Returns a value that indicates whether the review of the review process is closed or not.
modified	Returns the date and time of the last review modification of the review process.
opened	Returns the date and time when the review status in the review process changed to Opened.
save	Saves changes to the review in the review process.
setAction	Sets the review action in the review process (see the getAction method).

Java : Method	Description
setComments	Sets review comments in the review process.
setDescription	Sets the review description in the review process.
setKeywords	Sets a collection of keywords for the review in the review process.
setMembers	Sets committee members that performed the review in the review process.
setOwner	Sets the review owner in the review process.
setStatus	Sets the review status in the review process (see the getStatus method).
setTitle	Sets the review title in the review process.

5.3.11 IDraftStub interface

The IDraftStub interface represents the publicly accessible data on the document draft. Among other things, its title via the Title property, a collection of public metadata via the Properties property, and the CheckIn methods for creating a new document version and Open for opening a document draft in read mode.

The IDraftStub interface contains the following elements:

.NET : Property	Description
Accessed	Returns the date and time the entity draft was last accessed.
Categories	Returns a collection of the categories.
Content	Returns the entity's draft content collection.
Created	Returns the date and time of entity draft creation in the archive.
Creator	Returns the author of the entity draft.
CustomContents	Returns a collection of customized entity draft contents.
Description	Returns a description of the entity draft.
EffectiveRights	Return the effective rights of the current user on the entity draft.
Id	Returns the entity's draft internal identifier.
Keywords	Returns a collection of keywords for the entity draft.
Modified	Returns the date and time the entity draft was last modified.
ModifiedBy	Returns the last entity draft modifier.
Owner	Returns the owner of the entity draft.
Properties	Returns a collection of metadata in the folder format.
PropertiesList	Returns a collection of metadata in the list format.
SourceId	Returns the entity internal identifier, which is the source of the entity draft.

.NET : Property	Description
SystemProperties	Returns a collection of system properties.
Template	Returns the template used to create the entity draft.
Title	Returns the title of the entity draft.

.NET: Method	Description
AreValuesInherited	Returns a value that indicates whether the entity's system property values are inherited or not.
CheckIn	Creates a new version of document from draft.
Discard	Discards an entity draft.
GetPickListValues	Returns a list of predefined values of the entity's draft system properties.
GetSystemProperty	Returns the system property.
Open	Opens the entity draft in the selected mode (read or edit).

Java : Method	Description
accessed	Returns the date and time the entity draft was last accessed.
areValuesInherited	Returns a value that indicates whether the entity's system property values are inherited or not.
checkIn	Creates a new version of document from draft.
created	Returns the date and time of entity draft creation in the archive.
discard	Discards an entity draft.
getCategories	Returns a collection of the categories.
getContent	Returns the entity's draft content collection.
getCreator	Returns the author of the entity draft.
getCustomContents	Returns a collection of customized entity draft contents.
getDescription	Returns a description of the entity draft.
getEffectiveRights	Return the effective rights of the current user on the entity draft.
getId	Returns the entity's draft internal identifier.
getKeywords	Returns a collection of keywords for the entity draft.
getModifiedBy	Returns the last entity draft modifier.
getOwner	Returns the owner of the entity draft.
getPickListValues	Returns a list of predefined values of the entity's draft system properties.
getProperties	Returns a collection of metadata in the folder format.
getPropertiesList	Returns a collection of metadata in the list format.
getSourceId	Returns the entity internal identifier, which is the source of the entity draft.

Java : Method	Description
getSystemProperties	Returns a collection of system properties.
getSystemProperty	Returns the system property.
getTemplate	Returns the template used to create the entity draft.
getTitle	Returns the title of the entity draft.
modified	Returns the date and time the entity draft was last modified.
open	Opens the entity draft in the selected mode (read or edit).

5.3.12 IDraft interface

The IDraft interface represents an entity draft that is opened in read only or read and write mode. Besides the publicly accessible data on the document draft (chapter [IDraftStub interface](#)), it also provides properties such as ACL for accessing a collection of user rights over the document draft and the Save method for saving changes to the entity.

The IDraft interface contains the following elements:

.NET : Property	Description
Accessed	Returns the date and time the entity draft was last accessed.
ACL	Returns a collection of user rights for the entity draft.
Categories	Returns a collection of the categories.
Content	Returns the entity's draft content collection.
Created	Returns the date and time of entity draft creation in the archive.
Creator	Returns the author of the entity draft.
CustomContents	Returns a collection of customized entity draft contents.
Description	Returns a description of the entity draft.
EffectiveRights	Return the effective rights of the current user on the entity draft.
EmailEntity	Returns the metadata about email.
Id	Returns the entity's draft internal identifier.
IsClosed	Returns a value that indicates whether the entity draft is closed or not.
Keywords	Returns a collection of keywords for the entity draft.
Mode	Returns a value that indicates how the entity draft was open.
Modified	Returns the date and time the entity draft was last modified.
ModifiedBy	Returns the last entity draft modifier.
Owner	Returns the owner of the entity draft.
PhysicalEntity	Returns the metadata on physical material.
Properties	Returns a collection of metadata in the folder format.
PropertiesList	Returns a collection of metadata in the list format.

.NET : Property	Description
SourceId	Returns the entity internal identifier, which is the source of the entity draft.
SystemProperties	Returns a collection of system properties.
Template	Returns the template used to create the entity draft.
Title	Returns the title of the entity draft.

.NET : Method	Description
AreValuesInherited	Returns a value that indicates whether the entity's system property values are inherited or not.
Close	Closes the entity draft.
CreateBinaryValue	Creates binary content in the archive.
CreateContentPart	Creates a file in the archive.
CreateStringMaxValue	Creates textual content in the archive.
Flush	Writes changes to the document draft.
GetPickListValues	Returns a list of predefined values of the entity's draft system properties.
GetSystemProperty	Returns the system property.
Save	Saves changes to the entity draft.

Java : Method	Description
accessed	Returns the date and time the entity draft was last accessed.
areValuesInherited	Returns a value that indicates whether the entity's system property values are inherited or not.
close	Closes the entity draft.
createBinaryValue	Creates binary content in the archive.
createContentPart	Creates a file in the archive.
created	Returns the date and time of entity draft creation in the archive.
createStringMaxValue	Creates textual content in the archive.
flush	Writes changes to the document draft.
getACL	Returns a collection of user rights for the entity draft.
getCategories	Returns a collection of the categories.
getContent	Returns the entity's draft content collection.
getCreator	Returns the author of the entity draft.
getCustomContents	Returns a collection of customized entity draft contents.
getDescription	Returns a description of the entity draft.
getEffectiveRights	Return the effective rights of the current user on the entity draft.

Java : Method	Description
getEmailEntity	Returns the metadata about email.
getId	Returns the entity's draft internal identifier.
getKeywords	Returns a collection of keywords for the entity draft.
getMode	Returns a value that indicates how the entity draft was open.
getModifiedBy	Returns the last entity draft modifier.
getOwner	Returns the owner of the entity draft.
getPhysicalEntity	Returns the metadata on physical material.
getPickListValues	Returns a list of predefined values of the entity's draft system properties.
getProperties	Returns a collection of metadata in the folder format.
getPropertiesList	Returns a collection of metadata in the list format.
getSourceId	Returns the entity internal identifier, which is the source of the entity draft.
getSystemProperties	Returns a collection of system properties.
getSystemProperty	Returns the system property.
getRetention	Returns a collection of retention policies and disposition holds.
getTemplate	Returns the template used to create the entity draft.
getTitle	Returns the title of the entity draft.
isClosed	Returns a value that indicates whether the entity draft is closed or not.
modified	Returns the date and time the entity draft was last modified.
save	Saves changes to the entity draft.
setCategories	Sets a collection of the categories.
setDescription	Sets the entity draft description.
setKeywords	Sets a collection of keywords for the entity draft.
setOwner	Sets the entity draft owner.
setTitle	Sets the entity draft title.

5.3.13 AuditLog object

The AuditLog object represents a message that can be used in the audit trail for certain operations with an entity, including creating, opening, saving, moving and deleting.

The message must be delivered in the form of a C-style string.

The AuditLog object contains the following elements:

.NET : Property	Description
Arguments	Returns or sets arguments for the audit trail message.
Message	Returns or sets the audit trail message.

.NET : Method	Description
Clear	Clears the message and arguments for the audit trail.

Java : Method	Description
clear	Clears the message and arguments for the audit trail.
getArguments	Returns the message arguments for the audit trail.
getMessage	Returns the message for the audit trail.
setArguments	Sets the message arguments for the audit trail.
setMessage	Sets the message for the audit trail.

5.3.14 AuditQuery object

The Auditquery object represents parameters for getting the audit trail. The parameters are divided into three groups: parameters linked to the session (network address, computer name and user name), parameters linked to objects (object identifiers and action identifiers) and dates.

Session and object parameters can be delivered as a list or a series. The series determines the first and last values. Besides these parameters, there is also a parameter that determines the order in which the audit trail is sorted. The audit trail is returned in the form of a data stream through the AuditLogQuery method of the IArchive interface. For more information see chapter [IArchive interface](#).

The AuditLog object contains the following elements:

.NET : Property	Description
Addresses	Returns a list of network addresses that form a part of the session parameters.
AddressFrom	Returns or sets the first network address in a series of network addresses that form a part of the session parameters.
AddressTo	Returns or sets the last network address in a series of network addresses that form a part of the session parameters.
ComputerNameFrom	Returns or sets the first computer name in a series of computer names that form a part of the session parameters.
ComputerNames	Returns a list of computer names that form a part of the session parameters.
ComputerNameTo	Returns or sets the last computer name in a series of computer names that form a part of the session parameters.
DateFrom	Returns or sets the first date in a series of dates that form a part of the date parameters.
DateTo	Returns or sets the last date in a series of dates that form a part of the date parameters.
EventIdFrom	Returns or sets the first event identifier in a series of event identifiers that form a part of the object parameters.
EventIdQueryType	Returns or sets a value that tells the user whether event identifiers are arranged as a list or a series.
EventIds	Returns a list of event identifiers that form a part of the object parameters.
EventIdTo	Returns or sets the last event identifier in a series of event identifiers that form a part of the object parameters.
Filter	Returns or sets the filter for search results in the audit trail.
IsRecursive	Returns a value that indicates whether the search in the audit trail of given object identifiers should be performed recursively.
IsValid	Returns a value that indicates whether the currently set search parameters in the audit trail are valid.
ObjectIds	Returns a list of object identifiers that form a part of the object parameters.
ObjectScope	Returns or sets a value that tells the user whether the object parameters are object identifiers, event identifiers or both.
SessionQueryType	Returns or sets a value that tells the user whether session parameters are arranged as a list or a series.
SessionScope	Returns or sets a value that tells the user whether session parameters are network addresses, user names, computer names or all of these.

.NET : Property	Description
SortOrder	Returns or sets a value that tells the user the sorting order of the audit trail parameters (session, object and date parameters).
UserNameFrom	Returns or sets the first user name in a series of user names that form a part of the session parameters.
UserNames	Returns a list of user names that form a part of the session parameters.
UserNameTo	Returns or sets the last user name in a series of user names that form a part of the session parameters.

Java : Method	Description
getAddresses	Returns a list of network addresses that are a part of session parameters.
getAddressFrom	Returns the first network address of a string of network addresses that are a part of session parameters.
getAddressTo	Returns the last network address of a string of network addresses that are a part of session parameters.
getComputerNameFrom	Returns the first computer's name of a string of computer names that are a part of session parameters.
getComputerNames	Returns a string of computer names that are a part of session parameters.
getComputerNameTo	Returns the last computer's name of a string of computer names that are a part of session parameters.
getDateFrom	Returns the first date of a string of dates that are a part of date parameters.
getDateTo	Returns the last date of a string of dates that are a part of date parameters.
getEventIdFrom	Returns the first event identifier of a string of event identifiers that are a part of object parameters.
getEventIdQueryType	Returns a value that indicates whether event identifiers are stacked in a list or a string.
getEventIds	Returns a list of event identifiers that are a part of object parameters.
getEventIdTo	Returns the last event identifier of a string of event identifiers that are a part of object parameters.
getFilter	Returns a filter for search results in the audit trail.
getObjectIds	Returns a list of object identifiers that are a part of object parameters.

Java : Method	Description
getObjectScope	Returns a value that indicates whether object parameters are object identifiers, event identifiers or all.
getSessionQueryType	Returns a value that indicates whether session parameters are stacked in a list or a string.
getSessionScope	Returns a value that indicates whether session parameters are network addresses, usernames, computer names or all.
getSortOrder	Returns a value that indicates the sorting order of the audit trail depending on session parameters, object or date.
getUserNameFrom	Returns the first username of a string of usernames that are a part of session parameters.
getUserNames	Returns a list of usernames that are a part of session parameters.
getUserNameTo	Returns or sets the last username of a string of usernames that are a part of session parameters.
isRecursive	Returns a value that indicates whether the search in the audit trail of given object identifiers should be performed recursively.
isValid	Returns a value that indicates whether the currently set search parameters in the audit trail are valid.
setAddressFrom	Sets the first network address of a string of network addresses that are a part of session parameters.
setAddressTo	Sets the last network address of a string of network addresses that are a part of session parameters.
setComputerNameFrom	Sets the first computer's name of a string of computer names that are a part of session parameters.
setComputerNameTo	Sets the last computer's name of a string of computer names that are a part of session parameters.
setDateFrom	Sets the first date of a string of dates that are a part of date parameters.
setDateTo	Sets the last date of a string of dates that are a part of date parameters.
setEventIdFrom	Sets the first event identifier of a string of event identifiers that are a part of object parameters.
setEventIdQueryType	Sets a value that indicates whether event identifiers are stacked in a list or a string.
setEventIdTo	Sets the last event identifier of a string of event identifiers that are a part of object parameters.
setFilter	Sets a filter for search results in the audit trail.
setObjectScope	Sets a value that indicates whether object parameters are object identifiers, event identifiers or all.

Java : Method	Description
setSessionQueryType	Sets a value that indicates whether session parameters are stacked in a list or a string.
setSessionScope	Sets a value that indicates whether session parameters are network addresses, usernames, computer names or all.
setSortOrder	Sets a value that indicates the sorting order of the audit trail depending on session parameters, object or date.
setUserNameFrom	Sets the first username of a string of usernames that are a part of session parameters.
setUserNameTo	Sets the last username of a string of usernames that are a part of session parameters.

5.4 Examples of use

The key feature of the IMiS®/Storage Connector interface is the transfer of objects between the application server and IMiS®/ARChive Server. The transfer means saving objects on the archive server and taking objects from the archive server.

5.4.1 Initializing IMiS®/Storage Connector

Running IMiS®/Storage Connector starts by initializing the `StorageConnector` instance.

This occurs the first time the *StorageConnector* class is used.

Getting an instance of the *StorageConnector* object follows these steps:

.NET
<code>StorageConnector sc = StorageConnector.Instance;</code>

Java
<code>StorageConnector sc = StorageConnector.getInstance();</code>

The instance is set and valid until finalization, which is described in the chapter [Finalizing IMiS®/Storage Connector](#). After finalization, the steps described above will return an undefined value.

5.4.2 Finalizing IMiS®/Storage Connector

Finalizing sees to the proper shutting down of the IMiS®/Storage Connector interface. It is performed when the instance of the StorageConnector object is freed. This is done when the instance of the StorageConnector object is no longer used.

Freeing an instance of the StorageConnector object follows these steps:

.NET

```
StorageConnector.FreeInstance();
```

Java

```
StorageConnector.freeInstance();
```

With this method, the StorageConnector instance longer exists. Obtaining an instance of the StorageConnector object as described in the previous section will return an undefined value. For more information see chapter [Initializing IMiS®/Storage Connector](#).

5.4.3 Examples for IMiS®/ARChive Server version 7

This chapter will present some of the most frequent examples of ways IMiS®/Storage Connector is used with IMiS®/ARChive Server version 7. These are operations for opening the archive, saving and retrieving documents and providing data for the audit trail.

5.4.3.1 Opening the archive

To open the archive, the following are needed: a StorageConnector instance (chapter [Initializing IMiS®/Storage Connector](#)), the network address of the server (host name or IP address) and a suitable port.

To open the archive with PreSharedKey authentication, a collection of additional option parameters must be created and sent to the method for opening the archive.

An example of opening the archive without authentication:

.NET

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;  
string host = "iarc.acme.com";  
int port = 16807;  
Storage stg = sc.OpenIMiSARCStorage(host, port);
```


Java

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;
String host = "iarc.acme.com";
int port = 16807;
Storage stg = sc.openIMiSARCStorage(host, port);
```

An example of opening the archive with PresharedKey authentication:

.NET

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;
string host = "iarc.acme.com";
int port = 16807;
IDictionary options = new SortedList();

options.Add(StorageConnector.OptionAuthType, AuthType.PreSharedKey);
options.Add(StorageConnector.OptionAuthKey, "psk1");

Storage stg = sc.OpenIMiSARCStorage(host, port, options);
```

Java

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;
String host = "iarc.acme.com";
int port = 16807;
Map options = new TreeMap();

options.put(StorageConnector.OPTION_AUTH_TYPE, new Integer(AuthType.PRE_SHARED_KEY));
options.put(StorageConnector.OPTION_AUTH_KEY, "psk1");

Storage stg = sc.openIMiSARCStorage(host, port, options);
```

5.4.3.2 Saving objects

Saving objects to the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address) and a port.
For more information see chapter [Opening the archive](#).
- Saving the document to the archive as an object on the archive server.

.NET

```
Storage stg = IMIS_ARCHIVE_V7;  
string fileName = "c:\acme.tif";  
string profile = "Documents";  
  
string objectId = stg.StoreObject(fileName, profile);
```

Java

```
Storage stg = IMIS_ARCHIVE_V7;  
String fileName = "c:\acme.tif";  
String profile = "Documents";  
  
String objectId = stg.storeObject(fileName, profile);
```

5.4.3.3 Retrieving objects

Retrieving objects saved on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address) and port.
For more information see chapter [Opening the archive](#).
- Retrieving a document listed with an object identifier from the archive server.

.NET

```
Storage stg = IMIS_ARCHIVE_V7;  
string objectId = "e1aeed50688b8fd6df2b1aa93a8bd08620b7332561d84016b80428b69fe45e49";  
  
string fileName = stg.RetrieveObject(objectId);
```

Java

```
Storage stg = IMIS_ARCHIVE_V7;  
String objectId = "e1aeed50688b8fd6df2b1aa93a8bd08620b7332561d84016b80428b69fe45e49";  
  
String fileName = stg.retrieveObject(objectId);
```

5.4.3.4 Providing data for the audit trail

The audit trail is a feature of IMiS®/ARChive Server. It is a log that records operations performed on objects. If this feature is enabled on the server, clients are required to provide audit information when opening the archive. This information must be provided through a collection of option parameters.

An example of opening the archive with an audit trail:

.NET

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;
string host = "iarc.acme.com";
int port = 16807;
IDictionary options = new SortedList();

options.Add(StorageConnector.OptionUserName, "MyUser");
options.Add(StorageConnector.OptionComputerName, "MyComputer");
options.Add(StorageConnector.OptionApplicationName, "MyApplication");

Storage stg = sc.OpenIMiSARCStorage(host, port, options);
```

Java

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;
String host = "iarc.acme.com";
int port = 16807;
Map options = new TreeMap();

options.put(StorageConnector.OPTION_USER_NAME, "Test User");
options.put(StorageConnector.OPTION_COMPUTER_NAME, "Test Computer");
options.put(StorageConnector.OPTION_APPLICATION_NAME, "Test Application");

Storage stg = sc.openIMiSARCStorage(host, port, options);
```

An example of sending a user message for the audit trail when opening an object on the archive server:

.NET

```
Storage stg = IMIS_ARCHIVE_V7;
string objectId = "e1aeed50688b8fd6df2b1aa93a8bd08620b7332561d84016b80428b69fe45e49";
string message = "Revision of scanned document %s";
System.Collections.IList arguments = new ArrayList();
arguments.Add("Invoice 1234");

stg.AuditLog.Message = message;
stg.AuditLog.Arguments = arguments;

Document doc = stg.OpenObject(objectId, DocumentAccess.Read);
```

Java

```
Storage stg = IMIS_ARCHIVE_V7;
String objectId = "e1aeed50688b8fd6df2b1aa93a8bd08620b7332561d84016b80428b69fe45e49";
String message = "Revision of scanned document %s";
java.util.List arguments = new ArrayList();
argumentList.Add("Invoice 1234");

stg.AuditLog.Message = message;
stg.AuditLog.Arguments = arguments;

Document doc = stg.OpenObject(objectId, Document.MODE_READONLY);
```

5.4.4 Examples for IMiS®/ARChive Server version 9

This chapter will present some of the most frequent examples of ways IMiS®/Storage Connector is used with IMiS®/ARChive Server version 9. These are operations for opening the archive, creating entities, reading and editing metadata and content in the form of files and providing data for the audit trail.

5.4.4.1 Opening the archive

To open the archive, the following are needed: a StorageConnector instance (chapter [Initializing IMiS®/Storage Connector](#)), the network address of the server (host name or IP address) and a suitable port. To use the entity model on IMiS®/ARChive Server version 9 user authentication is mandatory, which is why a collection of additional option parameters must be created. The collection will be sent to the method for opening the archive.

An example of opening the archive with LocalCredentials authentication:

.NET

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;
string host = "iarc.acme.com";
int port = 16807;
IDictionary options = new SortedList();

options.Add(StorageConnector.OptionAuthType, AuthType.LocalCredentials);
options.Add(StorageConnector.OptionUserName, "User1");
options.Add(StorageConnector.OptionUserPassword, "Password1");

IArchive arc = sc.OpenArchive(ArchiveType.IMiSARChive, host, port, options);
```

Java

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;
String host = "iarc.acme.com";
int port = 16807;
Map options = new TreeMap();

options.put(StorageConnector.OPTION_AUTH_TYPE, AuthType.LOCAL_CREDENTIALS);
options.put(StorageConnector.OPTION_USER_NAME, "User1");
options.put(StorageConnector.OPTION_USER_PASSWORD, "Password1");

IArchive arc = sc.openArchive(ArchiveType.IMIS_ARCHIVE, host, port, options);
```

5.4.4.2 Public data about root classes

Retrieving public data about root classes on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Retrieving public data about the root classes of the archive using the method in the IArchive interface.

An example of retrieving public data without collection sorting:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;  
  
ILargeReadOnlyList<IEntityStub> stubs = arc.GetRootClasses(null);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;  
  
ILargeReadOnlyList<IEntityStub> stubs = arc.getRootClasses(null);
```

An example of retrieving public data with collection sorting by classification code:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;  
IList<EntitySortKey> sortKeys = new List<EntitySortKey> {  
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.ClassificationCode,  
    EntitySortKeyDirection.Ascending)  
};  
  
ILargeReadOnlyList<IEntityStub> stubs = arc.GetRootClasses(sortKeys);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;  
List<EntitySortKey> sortKeys = Collections.singletonList(  
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.CLASSIFICATION_CODE,  
    EntityCollection.SortDirection.ASCENDING));  
  
ILargeReadOnlyList<IEntityStub> stubs = arc.GetRootClasses(sortKeys);
```

5.4.4.3 Public data about an entity

Getting public data about an entity on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).

- Getting public data about an entity identified with an identifier or classification code using the method in the IArchive interface.

An example of getting public data about a folder:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;  
string classificationCode = FOLDER_CLASS_CODE;  
  
IEntityStub stub = arc.GetEntityInfo(EntityIdKind.ClassificationCode, classificationCode);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;  
string classificationCode = FOLDER_CLASS_CODE;  
  
IEntityStub stub = arc.getEntityInfo(EntityIdKind. CLASSIFICATION_CODE, classificationCode);
```

5.4.4.4 Public data about subentities

Viewing sub-entities through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Getting public data about the selected entity on the archive through an identifier or a classification code.
For more information see chapter [Public data about an entity](#).
- Viewing the public data of the child or sub-entities using the method in the IEntityStub interface.

An example of retrieving public data about sub-entities in a folder without collection sorting:

.NET

```
IEntityStub stub = FOLDER_STUB;  
  
ILargeReadOnlyList<IEntityStub> stubs = stub.GetSubEntities(null);
```

Java

```
IEntityStub stub = FOLDER_STUB;  
  
ILargeReadOnlyList<IEntityStub> stubs = stub.getSubEntities(null);
```

An example of retrieving public data about sub-entities with collection sorting by classification code:

.NET

```
IEntityStub stub = FOLDER_STUB;  
IList<EntitySortKey> sortKeys = new List<EntitySortKey> {  
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.ClassificationCode,  
    EntitySortKeyDirection.Ascending)  
};  
  
ILargeReadOnlyList<IEntityStub> stubs = stub.GetSubEntities (sortKeys);
```

Java

```
IEntityStub stub = FOLDER_STUB;  
List<EntitySortKey> sortKeys = Collections.singletonList(  
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.CLASSIFICATION_CODE,  
    EntityCollection.SortDirection.ASCENDING));  
  
ILargeReadOnlyList<IEntityStub> stubs = stub.getSubEntities (sortKeys);
```

5.4.4.5 Creating an entity

Creating an entity on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.

For more information see chapter [Initializing IMiS®/Storage Connector](#).

- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Creating an entity using the method in the IArchive interface or a specialized IEntity interface for a template listed with a unique template identifier.
- Setting required system metadata values such as the name of the entity.
- Choosing a retention policy if the parent entity doesn't already have a specified effective retention policy.
- Saving the entity on the archive.

An example of creating a class below the root archive using the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
string templateId = ROOT_CLASS_TEMPLATE;
string policyId = RETENTION_POLICY_ID;

IRetentionPolicy policy = arc.RetentionPolicies[policyId];

IClass cls = arc.CreateClass(templateId);

IRetention retention = cls.GetRetention(AccessMode.ReadWrite);
retention.AddPolicyEntry(policy);
retention.Save(true);

cls.Title = "A root class";
cls.Save();
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
String templateId = ROOT_CLASS_TEMPLATE;
String policyId = RETENTION_POLICY_ID;

IRetentionPolicy policy = arc.getRetentionPolicies().get(policyId);

IClass cls = arc.createClass(templateId);

IRetention retention = cls.getRetention(AccessMode.READ_WRITE);
retention.addPolicyEntry(policy);
retention.save(true);

cls.setTitle("A root class");
cls.save();
```

An example of creating a class below a class using the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
string templateId = CLASS_TEMPLATE_ID;
string parentClassificationCode = PARENT_CLASS_CODE;

IClass cls = arc.CreateClass(templateId, EntityIdKind.ClassificationCode, parentClassificationCode);
cls.Title = "Class in class";
cls.Save();
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
String templateId = CLASS_TEMPLATE_ID;
String parentClassificationCode = PARENT_CLASS_CODE;

IClass cls = arc.createClass(templateId, EntityIdKind.CLASSIFICATION_CODE,
parentClassificationCode);
cls.setTitle("Class in class");
cls.save();
```

An example of creating a folder below a class using the IClass interface:

.NET

```
IClass cls = CLASS_ENTITY;  
string templateId = FOLDER_TEMPLATE_ID;  
  
IFolder folder = cls.CreateFolder(templateId);  
folder.Title = "Folder in class";  
folder.Save();
```

Java

```
IClass cls = CLASS_ENTITY;  
String templateId = FOLDER_TEMPLATE_ID;  
  
IFolder folder = cls.createFolder(templateId);  
folder.setTitle("Folder in class");  
folder.save();
```

An example of creating a document in a folder using the IFolder interface:

.NET

```
IFolder folder = FOLDER_ENTITY;  
string templateId = DOCUMENT_TEMPLATE;  
  
IDocument document = folder.CreateDocument(templateId);  
document.Title = "Document in folder";  
document.Save();
```

5.4.4.6 Opening an entity

Opening an entity on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).

- Opening an entity identified by an identifier or classification code using the method in IArchive for the selected access mode (read only or read and write) or opening an entity through the IEntityStub interface.

Example of opening a document in read only mode using the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;  
string classificationCode = DOCUMENT_CLASS_CODE;  
  
IDocument document = arc.OpenDocument(EntityIdKind.ClassificationCode, classificationCode,  
AccessMode.Read);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;  
String classificationCode = DOCUMENT_CLASS_CODE;  
  
IDocument document = arc.openDocument(EntityIdKind.CLASSIFICATION_CODE, classificationCode,  
AccessMode.READ);
```

Example of opening a document in read only mode using the IEntityStub interface:

.NET

```
IEntityStub stub = DOCUMENT_STUB;  
  
IDocument document = stub.Open(AccessMode.ReadWrite);
```

Java

```
IEntityStub stub = DOCUMENT_STUB;  
  
IDocument document = stub.open(AccessMode.READ_WRITE);
```

5.4.4.7 Moving an entity

Moving an entity on the archive with the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.

For more information see chapter [Initializing IMiS®/Storage Connector](#).

- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Moving an entity to the selected parent entity (both entities (child and parent) are identified with their identifiers or classification codes) using the method in the IArchive interface or moving an entity using the the IEntityStub interface by giving the IEntityStub interface of the parent entity.

An example of moving a document using the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
string classificationCode = DOCUMENT_CLASS_CODE;
string parentClassificationCode = TARGET_FOLDER_CLASS_CODE;

arc.MoveEntity(EntityIdKind.ClassificationCode, classificationCode, EntityIdKind.ClassificationCode,
parentClassificationCode, null);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
string classificationCode = DOCUMENT_CLASS_CODE;
string parentClassificationCode = TARGET_FOLDER_CLASS_CODE;

arc.moveEntity(EntityIdKind.CLASSIFICATION_CODE, classificationCode,
EntityIdKind.CLASSIFICATION_CODE, parentClassificationCode, null);
```

An example of moving a document using the IEntityStub interface:

.NET

```
IEntityStub stub = DOCUMENT_STUB;
IEntityStub parentStub = TARGET_FOLDER_STUB;

stub.Move(parentStub, null);
```

Java

```
IEntityStub stub = DOCUMENT_STUB;
IEntityStub parentStub = TARGET_FOLDER_STUB;

stub.move(parentStub, null);
```

5.4.4.8 Deleting an entity

Deleting an entity on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Deleting an entity identified with an identifier or classification code from the archive using the method in the IArchive interface or using the IEntityStub interface.

An example of deleting a document using the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;  
string classificationCode = DOCUMENT_CLASS_CODE;  
  
arc.DeleteEntity(EntityIdKind.ClassificationCode, classificationCode);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;  
string classificationCode = DOCUMENT_CLASS_CODE;  
  
arc.deleteEntity(EntityIdKind.CLASSIFICATION_CODE, classificationCode);
```

An example of deleting a document using the IEntityStub interface:

.NET

```
IEntityStub stub = DOCUMENT_STUB;  
  
stub.Delete();
```

Java

```
IEntityStub stub = DOCUMENT_STUB;  
  
stub.delete();
```

5.4.4.9 Viewing and editing data about an entity

Viewing and editing data about an entity on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Opening the entity on the archive with an identifier or a classification code.
For more information see chapter [Opening an entity](#).
- Viewing and editing metadata values associated with the unique name of the entity.
- Saving any changes made to the content of the entity using the Save method in the entity.

An example of viewing and editing the metadata of an entity:

```
.NET  
IEntityStub doc = DOCUMENT_ENTITY;  
string propertyName = CUSTOM_STRING_PROPERTY_NAME;  
  
string propertyValue = doc.Properties[propertyName].GetValue();  
System.Console.WriteLine(propertyValue);  
  
doc.Properties[propertyName].SetValue("New custom value");  
doc.Save();  
  
propertyValue = doc.Properties[propertyName].GetValue();  
System.Console.WriteLine(propertyValue);
```

Java

```
 IEntityStub doc = DOCUMENT_ENTITY;
 String propertyName = CUSTOM_STRING_PROPERTY_NAME;

 String propertyValue = doc.properties.get(propertyName).getValue();
 System.out.println(propertyValue);

 doc.getProperties().get(propertyName).setValue("New custom value");
 doc.save();

 propertyValue = doc.getProperties().get(propertyName).getValue();
 System.out.println(propertyValue);
```

5.4.4.10 Saving records to a document

Saving a file to the content of a document on the archive using the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Opening the entity on the archive with an identifier or a classification code.
For more information see chapter [Opening an entity](#).
- Creating a file on the archive using the method in the IDocument interface and providing the suitable content type (MIME).
- Copying the file content to the archive using the data stream.
- Assigning the file to the content of a document.
- Saving any changes made to the content of the entity using the Save method in the document.

An example of saving a file in the content of a document:

.NET

```
IDocument doc = DOCUMENT_ENTITY;
string fileName = "c:\\Temp\\test.tif ";
string contentType = "image/tiff";

IContentPart contentPart = doc.CreateContentPart(contentType);
Stream contentPartStream = contentPart.OpenDataStream(AccessMode.ReadWrite);
try {
    FileStream fileStream = new FileStream(fileName, FileMode.Open);
    try {
        int len;
        byte[] buffer = new byte[8192];
        while (0 < (len = fileStream.Read(buffer, 0, buffer.Length)))
            contentPartStream.Write(buffer, 0, len);
        contentPartStream.Flush();
    }
    finally {
        fileStream.Close();
    }
}
finally {
    contentPartStream.Close();
}

IList<IContentPart> contentParts = doc.Content.GetParts();
contentParts.Add(contentPart);
content.SetParts(contentParts);

doc.Save();
```

Java

```
IDocument doc = DOCUMENT_ENTITY;
String fileName = "c:\\Temp\\test.tif ";
String contentType = "image/tiff";

IContentPart contentPart = doc.createContentPart(contentType);

OutputStream contentPartStream = contentPart.openDataOutputStream(false);
try {
    FileInputStream fileStream = new FileInputStream(fileName);
    try {
        int len;
        byte[] buffer = new byte[8192];
        while (0 < (len = fileStream.read(buffer, 0, buffer.length)))
            contentPartStream.write(buffer, 0, len);
        contentPartStream.flush();
    }
    finally {
        fileStream.close();
    }
}
finally {
    contentPartStream.close();
}

List<IContentPart> contentParts = doc.content.getParts();
contentParts.add(contentPart);
content.setParts(contentParts);

doc.Save();
```

5.4.4.11 Moving content between documents

Moving content between documents on the archive via the IMiS®/Storage Connector interface is done as follows:

- Obtain a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Open the archive with a network address (host name or IP address) and port, and authenticate the user.
For more information see chapter [Opening the archive](#).

- Open the entity on the archive via an identifier or a classification code in the editing mode. For more information see chapter [Opening an entity](#).
- Move the selected content on the archive using IContent or IContentPart interface when forwarding an appropriate content identifier and target document identifier, as well as the name of the target document's file value;
- Save entity's content changes using Save on the document.

An example of opening a document to read via the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
string classificationCode = DOCUMENT_CLASS_CODE;
string targetClassificationCode = TARGET_CLASS_CODE;
string targetPropertyName = TARGET_PROPERTY_NAME;
string partId = CONTENT_PART_ID;

IDocument doc = arc.OpenDocument(EntityIdKind.ClassificationCode, classificationCode, null,
AccessMode.ReadWrite);

foreach (IContentPart part in document.Content.GetParts()) {
    if (partId == part.Id) {
        part.Move(EntityIdKind.ClassificationCode, targetClassificationCode, targetPropertyName);
        break;
    }
}

doc.Save();
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
String classificationCode = DOCUMENT_CLASS_CODE;
String targetClassificationCode = TARGET_CLASS_CODE;
String targetPropertyName = TARGET_PROPERTY_NAME;
String partId = CONTENT_PART_ID;

IDocument doc = arc.openDocument(EntityIdKind.CLASSIFICATION_CODE, classificationCode, null,
AccessMode.READ_WRITE);

for (IContentPart part : document.getContent().getParts()) {
    if (partId == part.getId()) {
```

```
part.move(EntityIdKind.CLASSIFICATION_CODE, targetClassificationCode, targetPropertyName);
break;
}
}

doc.save();
```

An example of moving content between documents:

```
.NET
IDocument doc = DOCUMENT_ENTITY;
string fileName = "c:\\Temp\\test.tif ";
string contentType = "image/tiff";

IContentPart contentPart = doc.CreateContentPart(contentType);

Stream contentPartStream = contentPart.OpenDataStream(AccessMode.ReadWrite);
try {
    FileStream fileStream = new FileStream(fileName, FileMode.Open);
    try {
        int len;
        byte[] buffer = new byte[8192];
        while (0 < (len = fileStream.Read(buffer, 0, buffer.Length)))
            contentPartStream.Write(buffer, 0, len);
        contentPartStream.Flush();
    }
    finally {
        fileStream.Close();
    }
}
finally {
    contentPartStream.Close();
}

IList<IContentPart> contentParts = doc.Content.GetParts();
contentParts.Add(contentPart);
content.SetParts(contentParts);

doc.Save();
```

Java

```
IDocument doc = DOCUMENT_ENTITY;
String fileName = "c:\\Temp\\test.tif ";
String contentType = "image/tiff";

IContentPart contentPart = doc.createContentPart(contentType);

OutputStream contentPartStream = contentPart.openDataOutputStream(false);
try {
    FileInputStream fileStream = new FileInputStream(fileName);
    try {
        int len;
        byte[] buffer = new byte[8192];
        while (0 < (len = fileStream.read(buffer, 0, buffer.length)))
            contentPartStream.write(buffer, 0, len);
        contentPartStream.flush();
    }
    finally {
        fileStream.close();
    }
}
finally {
    contentPartStream.close();
}

List<IContentPart> contentParts = doc.content.getParts();
contentParts.add(contentPart);
content.setParts(contentParts);

doc.Save();
```

5.4.4.12 Providing data for the audit trail

The audit trail is a feature of IMiS®/ARChive Server that creates a record of operations with objects.

If this functionality is enabled on the server, clients are required to provide audit information. A selection of option parameters is then used to deliver this information when opening the archive.

The user name and computer name are of key importance for the audit trail. The name of the application is currently used only when recording operations on the archive server itself.

An example of opening the archive with audit trail information:

.NET

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;
string host = "iarc.acme.com";
int port = 16807;
IDictionary options = new SortedList();

options.Add(StorageConnector.OptionUserName, "MyUser");
options.Add(StorageConnector.OptionComputerName, "MyComputer");
options.Add(StorageConnector.OptionApplicationName, "MyApplication");

IArchive arc = sc.OpenArchive(ArchiveType.IMiSARChive, host, port, options);
```

Java

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;
String host = "iarc.acme.com";
int port = 16807;
Map options = new TreeMap();

options.put(StorageConnector.OPTION_USER_NAME, "MyUser");
options.put(StorageConnector.OPTION_COMPUTER_NAME, "MyComputer");
options.put(StorageConnector.OPTION_APPLICATION_NAME, "MyApplication");

IArchive arc = sc.openArchive(ArchiveType.IMIS_ARCHIVE, host, port, options);
```

An example of sending a user message for the audit trail when performing the opening operation on the archive server:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
string classificationCode = DOCUMENT_CLASS_CODE;
string message = "Revision of scanned document %s";
System.Collections.IList arguments = new ArrayList();
arguments.Add("Invoice 1234");

stg.AuditLog.Message = message;
stg.AuditLog.Arguments = arguments;

IDocument doc = arc.OpenDocument(EntityIdKind.ClassificationCode, classificationCode, null,
AccessMode.ReadWrite);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
string classificationCode = DOCUMENT_CLASS_CODE;
string message = "Revision of scanned document %s";
List arguments = new ArrayList();
arguments.add("Invoice 1234");

stg.getAuditLog().setMessage(message);
stg.getAuditLog().setArguments(arguments);

IDocument doc = arc.openDocument(EntityIdKind.CLASSIFICATION_CODE, classificationCode);
```

5.4.4.13 Public data of reviews

Retrieving public data of a review on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name and IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Retrieving public data about all or only selected reviews, identified with an identifier or classification code using the method in the IArchive interface.

An example of retrieving public data of all reviews without collection sorting:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;

ILargeReadOnlyList<IReviewStub> reviewStubs = arc.GetReviews(null);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;

ILargeReadOnlyList<IReviewStub> reviewStubs = arc.getReviews(null);
```

An example of retrieving public data about all reviews with collection sorting by classification code:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
IList<EntitySortKey> sortKeys = new List<EntitySortKey> {
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.ClassificationCode,
    EntitySortKeyDirection.Ascending)
};
ILargeReadOnlyList<IReviewStub> reviewStubs = arc.GetReviews(sortKeys);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
List<EntitySortKey> sortKeys = Collections.singletonList(
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.CLASSIFICATION_CODE,
    EntityCollection.SortDirection.ASCENDING));

ILargeReadOnlyList<IReviewStub> reviewStubs = arc.getReviews(sortKeys);
```

An example of retrieving public data about a selected review:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
string classificationCode = REVIEW_CLASS_CODE;

IReviewStub reviewStub = arc.GetReviewInfo(EntityIdKind.ClassificationCode, classificationCode);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
string classificationCode = REVIEW_CLASS_CODE;

IReviewStub reviewStub = arc.getReviewInfo(EntityIdKind.CLASSIFICATION_CODE, classificationCode);
```


5.4.4.14 Creating a review

Creating a review on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Creating a review through one of the methods on the IArchive interface.
- Setting required system metadata values such as the address and members of the commission in the review;
- Saving the review on the archive.

An example of creating a review with selected retention policies through the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
IEntityStub scopeEntity = SCOPE_ENTITY;
ICollection<IRetentionPolicy> retentionPolicies = RETENTION_POLICIES;
IList<string> members = MEMBERS;

IReview review = arc.CreateReview(scopeEntity, retentionPolicies);
review.Title = "A review";
review.Members = members;
review.Save();
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
IEntityStub scopeEntity = SCOPE_ENTITY;
Collection<IRetentionPolicy> retentionPolicies = RETENTION_POLICIES;
List<string> members = MEMBERS;

IReview review = arc.createReview(scopeEntity, retentionPolicies);
review.setTitle("A review");
review.setMembers(members);
review.save();
```

An example of creating a review with a selected query through the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
 IEntityStub scopeEntity = SCOPE_ENTITY;
 string queryExporession = QUERY_EXPRESSION;
 IList<string> members = MEMBERS;

 IReview review = arc.CreateReview(scopeEntity, queryExporession);
 review.Title = "A review";
 review.Members = members;
 review.Save();
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
 IEntityStub scopeEntity = SCOPE_ENTITY;
 String queryExporession = QUERY_EXPRESSION;
 List<String> members = MEMBERS;

 IReview review = arc.createReview(scopeEntity, queryExporession);
 review.setTitle("A review");
 review.setMembers(members);
 review.save();
```

5.4.4.15 Opening a review

Opening a review on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication. For more information see chapter [Opening the archive](#).
- Opening a review identified by an identifier or classification code using the method in IArchive for the selected access mode (read only or read and write) or opening a review through the IReviewStub interface.

An example of opening a review for reading through the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;  
string classificationCode = REVIEW_CLASS_CODE;  
  
IReview review = arc.OpenReview(EntityIdKind.ClassificationCode, classificationCode,  
AccessMode.Read);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;  
String classificationCode = REVIEW_CLASS_CODE;  
  
IReview review = arc.openReview(EntityIdKind.CLASSIFICATION_CODE, classificationCode,  
AccessMode.READ);
```

An example of opening a review for reading and writing through the IReviewStub interface:

.NET

```
IReviewStub reviewStub = DOCUMENT_STUB;  
  
IReview review = reviewStub.Open(AccessMode.ReadWrite);
```

Java

```
IReviewStub reviewStub = DOCUMENT_STUB;  
  
IReview review = reviewStub.open(AccessMode.READ_WRITE);
```

5.4.4.16 Public data about entity draft

Retrieving public data of a document draft on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance. For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication. For more information see chapter [Opening the archive](#).
- Retrieving public data about all or only selected document draft, identified with an identifier or classification code using the method in the IArchive interface.

An example of retrieving public data of all document drafts without collection sorting:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;

IEntityCollection<IDraftStub> draftStubs = arc.GetDrafts(null, null);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;

IEntityCollection<IDraftStub> reviewStubs = arc.getDrafts(null, null);
```

An example of retrieving public data about all document drafts with collection sorting by classification code:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
IList<EntitySortKey> sortKeys = new List<EntitySortKey> {
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.ClassificationCode,
    EntitySortKeyDirection.Ascending)
};

IEntityCollection<IDraftStub> draftStubs = arc. GetDrafts(sortKeys, null);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;
List<EntitySortKey> sortKeys = Collections.singletonList(
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.CLASSIFICATION_CODE,
    EntityCollection.SortDirection.ASCENDING));

IEntityCollection<IDraftStub> draftStubs = arc. getDrafts(sortKeys, null);
```

An example of retrieving public data about a selected document review:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
string classificationCode = DRAFT_CLASS_CODE;

IDraftStub draftStub = arc.GetDraftInfo(EntityIdKind.ClassificationCode, classificationCode);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;  
string classificationCode = DRAFT_CLASS_CODE;  
  
IDraftStub draftStub = arc.getDraftInfo(EntityIdKind.CLASSIFICATION_CODE, classificationCode);
```

5.4.4.17 Creating an entity draft

Creating a document draft on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance. For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication. For more information see chapter [Opening the archive](#).
- Creating a document draft through the CheckOutEntity method on the IArchive interface or CheckOut method on the IEntityStub interface.

An example of creating a document draft through the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;  
string classificationCode = DOCUMENT_CLASS_CODE;  
  
string draftId = arc.CheckOutEntity(EntityIdKind.ClassificationCode, classificationCode, null);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;  
string classificationCode = DOCUMENT_CLASS_CODE;  
  
string draftId = arc.checkOutEntity(EntityIdKind. CLASSIFICATION_CODE, classificationCode, null);
```

An example of creating a document draft through the IEntityStub interface:

.NET

```
IEntityStub stub = DOCUMENT_STUB;  
  
string draftId = stub.CheckOut();
```

Java

```
IEntityStub stub = DOCUMENT_STUB;  
  
string draftId = stub.checkOut();
```

5.4.4.18 Opening an entity draft

Opening a document draft on the archive through the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a StorageConnector instance. For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication. For more information see chapter [Opening the archive](#).
- Opening a document draft identified by an identifier using the method in IArchive for the selected access mode (read only or read and write) or opening a document draft through the IDraftStub interface.

An example of opening a document draft for reading through the IArchive interface:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;  
string draftId = DRAFT_ID;  
  
IDraft draft = arc.OpenDraft(EntityIdKind.Internal, draftId, AccessMode.Read);
```

Java

```
IArchive arc = IMIS_ARCHIVE_V9;  
string draftId = DRAFT_ID;  
  
IDraft draft = arc.openDraft(EntityIdKind.INTERNAL, draftId, AccessMode.READ);
```

An example of opening a document review for reading and writing through the IDraftStub interface:

.NET

```
IDraftStub draftStub = DRAFT_STUB;  
  
IDraft draft = draftStub.Open(AccessMode.ReadWrite);
```

Java

```
IDraftStub draftStub = DRAFT_STUB;  
  
IDraft draft = draftStub.open(AccessMode.READ_WRITE);
```

5.4.4.19 Searching the archive

IMiS®/ARChive Server version 9 enables searching by entity metadata and/or the full text of archived records. Searching can be performed on the entire archive or just in a selected entity in the classification scheme. Searching the archive using the IMiS®/Storage Connector interface takes place in the following steps:

- Obtaining a *StorageConnector* instance.
For more information see chapter [Initializing IMiS®/Storage Connector](#).
- Opening the archive with a network address (host name or IP address), a port and user authentication.
For more information see chapter [Opening the archive](#).
- Viewing public data about an entity (chapter [Public data about an entity](#)) or using an identifier or classification code to open the entity (chapter [Opening an entity](#)) under which the user would like to perform the search.
- Searching the archive using the method in the *IArchive* interface or searching below the selected entity using the method in the *IEntityStub* or *IEntity* interface.

An example of searching the entire archive for classes and folders whose names start with the letter A:

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;  
EntityFilter filter = new EntityFilter(EntityTypeFilter.Classes | EntityTypeFilter.Folders, null);  
ICollection<EntitySortKey> sortKeys = null;  
SearchOptions options = SearchOptions.Recursive;  
string expression = String.Format("[{O}]=\"{1} \",",  
arc.GetSystemPropertyName(SystemProperty.Title), "A*");  
  
ILargeReadOnlyList<IEntityStub> stubs = arc.Search(filter, sortKeys, options, expression, null, null,  
null);
```

Java

```

IArchive arc = IMIS_ARCHIVE_V9;
EntityFilter filter = new EntityFilter(EnumSet.of(EntityFilter.CLASSES, EntityFilter.FOLDERS), null);
Collection<EntitySortKey> sortKeys = null;
SearchOptions options = SearchOptions.RECURSIVE;
String expression = MessageFormat.format("[{O}]=\"{1} \",
arc.getSystemPropertyName(SystemProperty.TITLE), "A*");

ICollection<IEntityStub> stubs = arc.search(filter, sortKeys, options, expression, null, null, null);

```

An example of searching for documents containing the word “Invoice” below a specified folder:

.NET

```

IEntityStub stub = FOLDER_STUB;
EntityFilter filter = EntityFilter.Documents;
ICollection<EntitySortKey> sortKeys = new List<EntitySortKey> {
EntitySortKey.GetSystemPropertySortKey(SystemProperty.Title, EntitySortKeyDirection.Ascending)
};
SearchOptions options = SearchOptions.Recursive;
string expression = String.Format("[{O}]", "Invoice");

ICollection<IEntityStub> stubs = arc.search(filter, sortKeys, options, expression, null, null, null);

```

Java

```

IEntityStub stub = FOLDER_STUB;
EntityFilter filter = EntityFilter.DOCUMENTS;
List<EntitySortKey> sortKeys = Collections.singletonList(
EntitySortKey.GetSystemPropertySortKey(SystemProperty.CLASSIFICATION_CODE,
EntityCollection.SortDirection.ASCENDING));
SearchOptions options = SearchOptions.RECURSIVE;
string expression = MessageFormat.format("[{O}]", "Invoice");

ICollection<IEntityStub> stubs = arc.search(filter, sortKeys, options, expression, null, null, null);

```


An example of searching the metadata and full text of documents below a specified folder for documents whose title starts with the letter A and that contain the word "Invoice":

.NET

```
IArchive arc = IMIS_ARCHIVE_V9;
IEntityStub stub = FOLDER_STUB;
EntityFilter filter = EntityFilter.Documents;
ICollection<EntitySortKey> sortKeys = new List<EntitySortKey> {
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.Title, EntitySortKeyDirection.Ascending)
};
SearchOptions options = SearchOptions.Recursive;
string expression = String.Format("{{0}}=\{1} \" AND {{{2}}}",
arc.GetSystemPropertyName(SystemProperty.Title), "A*", "Invoice");

IEntityCollection<IEntityStub> stubs = arc.search(filter, sortKeys, options, expression, null, null, null);
```

Java

```
IEntityStub stub = FOLDER_STUB;
EntityFilter filter = EntityFilter.DOCUMENTS;
List<EntitySortKey> sortKeys = Collections.singletonList(
    EntitySortKey.GetSystemPropertySortKey(SystemProperty.CLASSIFICATION_CODE,
    EntityCollection.SortDirection.ASCENDING));
SearchOptions options = SearchOptions.RECURSIVE;
string expression = MessageFormat.format("{{{0}}}", "Invoice");

IEntityCollection<IEntityStub> stubs = arc.search(filter, sortKeys, options, expression, null, null, null);
```

5.4.5 Logging IMiS®/Storage Connector

Logging or creating records of the operations of IMiS®/Storage Connector is an important function for administrators and application developers. It serves to monitor operations and pinpoint and solve problems that may arise during use.

The interface supports two logging methods. The first is so-called internal logging to a rotating log file at a specified location with records in a predefined form. The second method is based on the specific needs of the user. The user can specify the handlers of records (a log file, console window, etc.) and customize the form of records to suit their needs (for example, records can be in plain text format or XML format).

5.4.5.1 Internal logging

IMiS®/Storage Connector enables internal logging, which means that the program sees to the creation of records on its operations. These records are saved to a rotating log file at a predefined location in the file system.

Internal logging is supported through a StorageConnector instance (chapter [Initializing IMiS®/Storage Connector](#)) and takes place in the following way:

.NET

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;  
  
sc.LogInternal = true;
```

Java

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;  
  
sc.logInternal(true);
```

If the IMiS®/Storage Connector .NET interface is being used, the log file is rotating and is located in the system temporary directory. The name of the log files is equal to IMiS.StorageConnector.NET.X.log, where X represents a generated number separating the different rotating log files.

A rotating log file is also used with IMiS®/Storage Connector Java. The name of the log files is equal to IMiS.StorageConnector.Java.X.log, where X represents a generated number separating the different log files. Location:

- On Windows systems it is located in the system temporary directory (the path is returned by the System.getProperty("java.io.tmpdir") method).
- Otherwise it is located in the user's home directory (the path is returned by the System.getProperty("user.home") method).

The number of rotating log files is limited to 10, and each file has a size limit of roughly 1 MB.

5.4.5.2 Custom logging

Users can customize logging in IMiS®/Storage Connector to suit their specific needs by using their own handlers for creating records on product operations. The pre-implemented handlers in the .NET Framework or Java can be used, or the user can implement their own handlers.

If the IMiS®/Storage Connector .NET version is being used, the handlers must be based on the `System.Diagnostics.TraceListener` abstract class. Additional information about this class is available on Microsoft's website:

[http://msdn.microsoft.com/en-us/library/system.diagnostics.tracelistener\(v=vs.100\).aspx](http://msdn.microsoft.com/en-us/library/system.diagnostics.tracelistener(v=vs.100).aspx).

Some handlers are already implemented in the .NET Framework, including:

- `System.Diagnostics.TextWriterTraceListener`, which creates a record to a file or to the data stream.
- `System.Diagnostics.ConsoleTraceListener`, which writes to the console window.
- `System.Diagnostics.EventLogTraceListener`, which writes to the system event log.

A handler in IMiS®/Storage Connector .NET can also be based on the `IMiS.Diagnostics.LogHandler` abstract class. This class derives from the `System.Diagnostics.TraceListener` class and provides additional options for customizing reports. It is located in the `imibase.net.dll` library, which is part of IMiS®/Storage Connector .NET.

An example of implementing a handler derived from the `IMiS.Diagnostics.LogHandler` class would be `IMiS.Diagnostics.FileLogHandler`. This will write to a file and will also be used in internal logging. For more information see chapter [Internal logging](#).

If the IMiS®/Storage Connector Java version is being used, the handler must derive from the `java.util.logging.Handler` abstract class. Additional information about this class is available on Oracle's website: <http://docs.oracle.com/javase/1.5.0/docs/>

Examples of handlers implemented in Java include:

- `java.util.logging.FileHandler`, which writes to a file.
- `java.util.logging.ConsoleHandler`, which writes to the console window.
- `java.util.logging.SocketHandler`, which writes over the network.

Custom logging is enabled through the `StorageConnector` instance (chapter [Initializing IMiS®/Storage Connector](#)); the administrator creates a handler and adds it to the list of handlers.

An example of creating a handler that writes to a file:

.NET

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;  
string fileName = @"c:\isc.log";  
IMiS.Diagnostics.FileLogHandler fileLog = new FileLogHandler(fileName, "My File Log", 1000000, 10,  
FileLogOptions.Append);  
  
sc.LogHandlers.Add(fileLog);
```

Java

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;  
String fileName = "/isc.log";  
java.util.logging.FileHandler fileLog = new FileHandler(fileName, 1000000, 10, true);  
  
sc.logAddHandler(fileLog);
```

5.4.5.3 Logging levels

IMiS®/Storage Connector enables different levels of logging. The Administrator can set limits on which types of records of operational events are created in the log file or in some other handler.

Example: An administrator can choose to record only errors and information about the system (the default setting) or they can choose to keep records on even the most minute aspects of system operations.

Generally speaking, less logging means, among other things, faster logging. However, in the event that problems arise in system use it might be beneficial to change the level of logging. It is a good idea to set logging to the most detailed level and to repeat the events that led to the issue.

If an administrator cannot successfully resolve the issues by analyzing the log, we advise him or her to send it, along with a description of the problem, to support@imis.eu.

The following constants are used to set the logging level:

.NET : Property	Description
SourceLevels.Off	Logging disabled.
SourceLevels.Critical	Logging level that only records critical errors.
SourceLevels.Error	Logging level that records common and critical errors.
SourceLevels.Warning	Logging level that records warnings and common and critical errors.
SourceLevels.Information	Logging level that records informational records, warnings and common and critical errors.
SourceLevels.Verbose	Logging level that records details on operations, informational records, warnings and common and critical errors.
SourceLevels.All	Logging level that records all events.

Java : Method	Description
Level.OFF	Logging disabled.
Level.SEVERE	Logging level that only records errors.
Level.WARNING	Logging level that records warnings and errors.
Level.INFO	Logging level that records informational records, warnings and errors.
Level.FINE	Logging level that records details on operations, informational records, warnings and common and critical errors.
Level.FINER	Logging level that records details on operations, informational records, warnings and common and critical errors.
Level.FINEST	Logging level that records details on operations, informational records, warnings and common and critical errors.
Level.ALL	Logging level that records all events.

The logging level is set using the StorageConnector instance (chapter [Initializing IMiS®/Storage Connector](#)). One of the constants listed above is used, as the example below shows.

Example of setting logging to the most detailed level:

.NET

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;  
  
sc.LogLevel = System.Diagnostics.SourceLevels.Verbose;
```

Java

```
StorageConnector sc = IMIS_STORAGE_CONNECTOR;  
  
sc.logSetLevel(java.util.logging.Level.FINEST);
```

6 TROUBLESHOOTING

6.1 Problems using IMiS®/Storage Connector .NET version

Below, issues frequently encountered when using IMiS®/Storage Connector are described and instructions for resolving them are given.

6.1.1 Issues with references in a development project

When developing applications with IMiS®/Storage Connector .NET usually a reference to the storageconnector.net.dll library is not sufficient.

Example: If an administrator in a development project would like to catch errors specific to the interface, when attempting to create a binary code (build)..

```
.NET  
try {  
    ...  
}  
catch (StorageConnectorException ex) {  
    ...  
}
```

...the following error occurs:

1. The type "IMiS.GlobalizedException" is defined in an assembly that is not referenced. You must add a reference to assembly 'imisbase.net, Version=2.0.0.0, Culture=neutral, PublicKeyToken=51833a6f82ea576f'
2. The type caught or thrown must be derived from System.Exception

Cause of the problem: In a development project, the development environment requires a reference to the library containing the unknown class in the error description.

In this example, the unknown class is defined in the "misbase.net.dll" library, which is not listed in the references of the development project.

This class is a basic class for all types of errors in IMiS® software on the .NET platform.

System.Exception

IMiS.BaseException

IMiS.GlobalizedException

IMiS.StorageConnector.StorageConnectorException

Resolving the problem: a reference to the imisbase.net.dll library must be added to the references in the development project, as this library is also a part of the interface.

6.2 Problems using IMiS®/Storage Connector Java version

6.2.1 Issues with references in a development project

When developing applications with IMiS®/Storage Connector Java usually a reference to the storageconnector.jar library in the classpath of the development project is not sufficient.

If the application developer is using a method that can return an error specific to this interface, as shown below...

Java

```
static Storage openIMiSARCStorage(String host, int port)
    throws StorageConnectorException
{
    // opening the archive with an instance of IMiS/Storage Connector Java
    return sc.openIMiSARCStorage(host, port);
}
```

...the following error occurs:

No exception of type StorageConnectorException can be thrown; an exception type must be a subclass of Throwable

Cause of the problem: In a development project, the development environment requires a reference to the library containing the unknown class in the error description. In this example, this class is the basic class for all types of errors in IMiS® software on the Java platform.

This class is specified in the imibase.jar library, which is not listed in the classpath of the development project.

java.lang.Throwable

java.lang.Exception

com.imis.GlobalizedException

com.imis.storageconnector.StorageConnectorException

Resolving the problem: A reference to the imibase.jar library must be added to the classpath, as this library is also a part of the IMiS®/Storage Connector Java interface.

6.2.2 Issues with unhandled errors

If an application developer calls up an IMiS®/Storage Connector Java method that could return an error as shown below...

```
Java
static Storage openIMiSARCStorage(String host, int port)
{
    // opening the archive with an instance of IMiS/Storage Connector Java
    return sc.openIMiSARCStorage(host, port);
}
```

...the following error occurs:

Unhandled exception type StorageConnectorException

Cause of the problem: Java identifies two types of errors: checked and unchecked.

Checked errors are those errors that are not derived from the java.lang.Error or even the java.lang.RuntimeException classes and which must therefore be processed within a method or listed together with a method declaration.

In the above example, the error that could be caused by the called-up method is a checked error, which is why Java tells the user the error is unhandled.

Resolving the problem: When working with a checked error, it must be listed either with a method declaration or with a throws sentence ...

Java

```
static Storage OpenIMiSARCStorage(String host, int port)
    throws StorageConnectorException
{
    // opening the archive with an instance of IMiS/Storage Connector Java
    return sc.openIMiSARCStorage(host, port);
}
```

... or handled within the method:

Java

```
static Storage OpenIMiSARCStorage(String host, int port)
{
    Storage stg = null;
    try {
        // opening the archive with an instance of IMiS/Storage Connector Java
        stg = sc.openIMiSARCStorage(host, port);
    }
    catch (StorageConnectorException e) {
        // ..
    }
    return stg;
}
```

6.2.3 Problems opening a session between the server and a client

When IMiS®/Storage Connector Java is running, an error may occur when setting up a session between IMiS®/ARChive Server and a client using the interface.

Operations on the archive where this issue could occur are creating, opening or deleting objects.

The issue is logged in the log as follows:

```
Java
com.imis.storageconnector.StorageConnectorException: Error occurred while opening session on
IMiS/ARC Server <iarc.acme.com:16807>
...
com.imis.imisarc.client.IAClientException: Authentication between server and client failed.
...
```

Cause of the problem: The issue could be caused by improper Java Cryptography Extension (JCE) policy files, which usually do not have the required 192/256-byte AES encryption if the Java Runtime Environment (JRE) was installed normally due to legal constraints in the US regarding the export of cryptographic products.

Resolving the problem: JCE policy files need to be upgraded to Java JVM.

With Sun Microsystems JRE, JCE policy files are available on Oracle's website:

http://www.oracle.com/technetwork/java/javasebusiness/downloads/java-archive-downloads-java-plat-419418.html#jce_policy-1.5.0-oth-JPR

If IBM JRE is used, the appropriate IBM JCE policy files can be found on IBM's website:

<https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=jcesdk>

The JCE policy files replace existing files in the JRE Security directory...

<java-home>/lib/security *[in Java 2 Runtime Environment]*
<java-home>/jre/lib/security *[in Java 2 SDK]*

...where <java-home> represents the directory where JRE or JDK is installed.

6.2.4 Problems with log editing rights

When activating IMiS®/Storage Connector Java, a problem may occur due to restrictions in the rights settings in the Java environment.

The problem is logged as follows in the system log:

```
Java
java.security.AccessControlException: access denied (java.util.logging.LoggingPermission control)
    at java.security.AccessControlContext.checkPermission( AccessControlContext.java:269)
    at java.security.AccessController.checkPermission( AccessController.java:401)
    at java.lang.SecurityManager.checkPermission(SecurityManager.java:524)
    at java.util.logging.LogManager.checkAccess(LogManager.java:834)
    at java.util.logging.Handler.checkAccess(Handler.java:276)
    at java.util.logging.FileHandler.<init>(FileHandler.java:329)
    at com.imis.storageconnector.StorageConnectorLogger.setInternalLogging(
StorageConnectorLogger.java:174)
    at com.imis.storageconnector.StorageConnector.logInternal( StorageConnector.java:608)
    ...
```

Cause of the problem: The problem pertains to excluded rights for logging in the Java environment. Specifically, the `java.util.logging.LoggingPermission` right has not been included in the Java Authentication and Authorization Service (JAAS) policy file.

Resolving the problem: The system or user policy file must be fixed to include the right or permission to write in the log (`java.util.logging.LoggingPermission`).

The example below shows how to resolve internal logging problems in a project that uses IMiS®/Storage Connector Java in a Windows environment where the system policy file is replaced with a user file.

To successfully write in the log, which is created in the system temporary directory on Windows systems (chapter [Internal logging](#)), besides the right to write in the log the right to read the `java.io.tmpdir` system values and the right to read, write and delete in the system temporary directory must be specified.

Java

```
grant codeBase "file:/C:/IMiS/iscjavatest/-" {  
  permission java.util.PropertyPermission "java.io.tmpdir", "read";  
    permission java.io.FilePermission "${java.io.tmpdir}${/}-", "read,write,delete";  
  permission java.util.logging.LoggingPermission "control";  
};
```

Additional information on permissions and policy files in Java is available on Oracle's website at the following links: <http://docs.oracle.com/javase/1.5.0/docs/>

6.3 List of errors that may occur when using IMiS®/Storage Connector

Below, frequent errors that could occur when using the IMiS®/Storage Connector interface are listed. Each description is followed by the cause of the error and instructions on how to deal with the error.

6.3.1 Errors in IMiS®/ARChive Server 7

Demo license expired.

This notification means that the demo version of IMiS®/Storage Connector .NET or Java has expired. To renew the demo version, contact info@imis.eu.

Feature/method is currently not supported.

This notification means that the feature or method that returned the error is currently not supported or implemented.

Error occurred while opening a session.

This notification informs the user that an error occurred when attempting to establish a connection with IMiS®/ARChive Server.

The cause of the error could be an incorrectly listed host name or port, an error determining the IP address from the host name, a network connection error, an unresponsive server, an invalid server response, an error sent by the server when establishing the connection or failed authentication between the server and the client. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while creating an object on IMiS/ARC Server <host>

(profile=<profile_name> mime=<mime_type>).

This notification tells the user that an error occurred when attempting to create an object on IMiS®/ARChive Server using Storage.CreateObject() (.NET) or Storage.createObject() (Java). The cause of the error could be an incorrect profile or MIME type, an interrupted connection, an error sent by the server when creating the object or an error associated with the server's compression library. This error is critical, and there is a chance that the product manufacturer will need to intervene.

We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while opening object <object_identifier> on IMiS/ARC Server <host> in mode <access_mode>.

This notification tells the user that an error occurred when attempting to open an object on IMiS®/ARChive Server using Storage.OpenObject() (.NET) or Storage.openObject() (Java). The cause of the error could be an incorrect object identifier, an interrupted connection, an error sent by the server when opening the object or an error associated with the server's compression library. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while committing object *<object_identifier>* changes on IMiS/ARC Server *<host>*.

This notification means that an error occurred when saving an object on IMiS®/ARChive Server using the Document.Save() (.NET) or Document.save() (Java) method. The error could be caused by an interrupted connection, a connection error or an error on the server, or the object could already be closed. It would be a good idea to promptly send a log of the error to the manufacturer at support@imis.eu for further analysis.

Error occurred while moving object *<object_identifier>* on IMiS/ARC Server *<host>* to new profile *<profile_name>*.

This notification tells the user that an error occurred when attempting to move an object on IMiS®/ARChive Server using Storage.MoveObject() (.NET) or Storage.moveObject() (Java). This error occurs because this feature is not supported.

Error occurred while removing object *<object_identifier>* on IMiS®/ARChive Server *<host>*.

This notification tells the user that an error occurred when attempting to delete an object on IMiS®/ARChive Server using Storage.DeleteObject() (.NET) or Storage.deleteObject() (Java). The cause of the error could be an incorrect object identifier, an interrupted connection or an error sent by the server when deleting the object. This error could represent a problem that requires the product manufacturer's intervention. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while closing object *<object_identifier>* on IMiS/ARC Server *<host>*.

This notification means that an error occurred when closing an object on IMiS®/ARChive Server using the Document.Close() (.NET) or Document.close() (Java) method. The error could be caused by an interrupted connection or an error sent by the server when closing the object, or the object could already be closed. In theory this error does not represent a major problem; it would however be a good idea to send a log of the error to the manufacturer at support@imis.eu for further analysis.

Object identifier is not valid until new object is saved.

This notification means that an object identifier was requested through `Document.Id (.NET)` or `Document.getId() (Java)`, but the object was just created on IMiS®/ARChive Server and has yet to be saved. An object does not have a valid identifier until it is saved. This error does not represent a serious problem. It is just a warning about correct program use.

Operation on closed object is not allowed.

This notification means that the object that returned this error when the method was called up was already closed using the `Document.Close() (.NET)` or `Document.close() (Java)` method. This error does not represent a serious problem. It is just a warning about correct program use.

Operation on closed storage is not allowed.

This notification means that the archive that returned this error when the method was called up was already closed using the `Storage.Close() (.NET)` or `Storage.close() (Java)` method. This error does not represent a serious problem. It is just a warning about correct program use.

File has no extension which is required if MIME type is not provided!

This notification tells the user that an error occurred when attempting to save an object on IMiS®/ARChive Server using `Storage.StoreObject() (.NET)` or `Storage.storeObject() (Java)`. The error occurred because the provided file name does not have an extension and the MIME type was not provided. This error does not represent a serious problem. It is just a warning about correct program use. For help resolving this problem, the administrator can send a log of the error to the manufacturer at support@imis.eu.

Error getting object data stream.

This notification means that an error occurred when attempting to get the data stream of an object located on IMiS®/ARChive Server using `Document.DataStream (.NET)`. The error could be caused by an interrupted connection or a problem with the server's compression library, or the object could already be closed. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error getting object input data stream.

This notification means that an error occurred when attempting to get a data stream for reading an object located on IMiS®/ARChive Server using `Document.DataStream (Java)`. The error could be caused by an interrupted connection, improper simultaneous use of the data stream for writing or a problem with the server's compression library, or the object could already be closed. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error getting object output data stream.

This notification means that an error occurred when attempting to get a data stream for writing an object located on IMiS®/ARChive Server using `Document.getInputDataStream()` (Java). The error could be caused by an interrupted connection, improper simultaneous use of the data stream for reading or a problem with the server's compression library, or the object could already be closed.

This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error copying stream contents.

This notification means that an error occurred when copying an object's contents through the object's data stream. The cause could be an issue in the input data stream or in the data stream for writing the object on IMiS®/ARChive Server. The error represents an issue that should be addressed by the manufacturer. Send a log of the error and a description to support@imis.eu.

6.3.2 Errors for IMiS®/ARChive Server 9**Demo license expired.**

This notification means that the test or demo version of IMiS®/Storage Connector .NET or Java has expired. To renew the demo version, contact info@imis.eu.

Error occurred while opening a session.

This notification informs the user that an error occurred when attempting to establish a connection with IMiS®/ARChive Server. The cause of the error could be an incorrectly listed host name or port, an error determining the IP address from the host name, a network connection error, an unresponsive server, an invalid server response, or an error sent by the server when establishing a connection between the server and the client. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

User name or password for UserCredentials authentication is invalid.

This notification informs the user that an error occurred when attempting to establish a connection with IMiS®/ARChive Server. The error is caused by unsuccessful authentication between the server and the client. This error does not represent a serious problem. It is just a warning that incorrect information was sent during authentication (an incorrect user name or password).

Error occurred while getting available archives on server <host>.

This notification informs the user that an error occurred when attempting to get archives on IMiS®/ARChive Server. This error is sent by the server.

This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while getting directory members on archive <host>.

This notification informs the user that an error occurred when attempting to get groups or users from the directory on IMiS®/ARChive Server. This error is sent by the server.

This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while getting root classes on archive <host>.

This notification informs the user that an error occurred when attempting to get collections of root classes on IMiS®/ARChive Server. This error is sent by the server.

This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while getting child entity stubs.

This notification informs the user that an error occurred when attempting to get collections of sub-entities on IMiS®/ARChive Server. This error is sent by the server.

This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu

Error occurred while getting templates on archive <host>.

This notification informs the user that an error occurred when attempting to get templates for entities on IMiS®/ARChive Server. This error is sent by the server. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while creating entity on archive <host>.

This notification informs the user that an error occurred when attempting to create an entity on IMiS®/ARChive Server. The cause of the error could be that the user does not have read rights for the parent entity, the parent entity has Closed status, or some other error sent by the server when creating the entity. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while opening entity <entity_identifier> on archive <host>.

This notification informs the user that an error occurred when attempting to open an entity on IMiS®/ARChive Server. The cause of the error could be that the user does not have read rights, the entity is already open in write mode, or some other error sent by the server when opening the entity. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Operation on unsaved new entity is not allowed.

This notification means that an unpermitted operation has been performed on a new, unsaved entity. This error occurs when the user attempts to access data that is generated only once an entity has been successfully saved on IMiS®/ARChive Server.

For example, this error occurs when reading `Id`, `ClassificationCode`, or `PublicClassificationCode` or when using the `GetReport` method in the `IEntity` interface. This error does not represent a serious problem. It is just a warning about correct use of the program.

Operation on saved entity is not allowed.

This notification means that an unpermitted operation has been performed on a saved entity. This error occurs when a user attempts to edit information that can only be set when creating a new entity. For example, this error occurs when changing values for Id, ClassificationCode, Status or SecurityClass in the IEntity interface. This error does not represent a serious problem. It is just a warning about correct use of the program.

Operation on entity opened in read-only mode is not allowed.

This notification means that an unpermitted operation has been performed on an entity opened in read-only mode. This error occurs when a user attempts to edit information about an entity that is open in read-only mode, such as when a user attempts to set new values for Title, Description or Owner in the IEntity interface. This error does not represent a serious problem. It is just a warning about correct use of the program.

Operation on closed entity is not allowed.

This notification means that an unpermitted operation has been performed on a closed entity. This error occurs when operations are performed on an entity after the Close method has been called up in the IEntity interface. This error does not represent a serious problem. It is just a warning about correct use of the program.

Error occurred while committing entity changes on archive <host>.

This notification informs the user that an error occurred when attempting to save changes to an entity on IMiS®/ARChive Server. This error is sent by the server when saving an entity. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while moving entity <entity_identifier> on archive <host>.

This notification informs the user that an error occurred when attempting to move an entity on IMiS®/ARChive Server. The cause of the error could be that the user does not have write rights, that one of the parent entities or the target parent entity has Closed status, or some other error sent by the server when creating the entity. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while removing entity <entity_identifier> on archive <host>.

This notification informs the user that an error occurred when attempting to delete an entity on IMiS®/ARChive Server. The cause of the error could be that the user does not have delete rights, that one of the parent entities has Closed status, that the entity is of Vital or Permanent significance or some other error sent by the server when deleting the entity. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while setting entity property value.

This notification informs the user that an error occurred when attempting to set metadata values for an entity on IMiS®/ARChive Server. This error is sent by the server when setting metadata values. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while creating binary/file/string value.

This notification informs the user that an error occurred when attempting to create a binary/file/string value on IMiS®/ARChive Server. This error is sent by the server when creating a binary/file/string value. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Error occurred while opening binary/file/string value data stream.

This notification informs the user that an error occurred when attempting to open a binary/file/string value data stream for the property of an entity on IMiS®/ARChive Server. This error is sent by the server when opening an entity. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Property *<property_name>* is not present in entity's template *<template_identifier>*.

This notification informs the user that an error occurred when attempting to read or write the metadata of an entity on IMiS®/ARChive Server. The error is caused by an incorrect archive server configuration. This issue needs to be addressed by the manufacturer. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

System property *<property_name>* is not present in entity's template *<template_identifier>*.

This notification informs the user that an error occurred when attempting to read or write the system metadata of an entity on IMiS®/ARChive Server. The error is caused by an incorrect archive server configuration. This issue needs to be addressed by the manufacturer. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.

Generic argument type *<generic_type>* is not compatible with property type *<property_type>*.

This notification informs the user that an error occurred when attempting to read or write the metadata of an entity. This error is caused when a generic type which does not match the type of values in the metadata is used when calling up the GetValue/GetValues or SetValue/SetValues method in the IReadonlyProperty/IProperty interface. This error does not represent a serious problem. It is just a warning about correct program use.

Error occurred while performing search on archive/entity <host/entity_identifier>.

This notification informs the user that an error occurred when attempting to search the entire archive or below the selected entity on IMiS®/ARChive Server. This error is sent by the server when searching the archive. This error is critical, and there is a chance that the product manufacturer will need to intervene. We advise users to promptly send a log of the error to the manufacturer at support@imis.eu.