MetaDataManager - Installation manual

Release 2.1.10

ISTAT

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CHAPTER

ONE

INTRODUCTION

1.1 Aim of this document

Provide an installation guide of the base software, databases and web services needed to the tool Meta & Data Manager.

1.2 Acronyms and glossary

Definition / Acronym	Description
.NET	Microsoft software development framework.
.NET Core	Free and open source software development framework for different operating sys-
	tems: Microsoft Windows, MacOS e Linux
AuthDB	Database used for the authentication and authorization. It is released by Eutostat and
	enhanced by Istat
DCAT-AP	Application Profile for data catalogue
DDB	Dissemination Data Base
DM API WS	Web Service for managing Data, Reference Metadata, authentication and authoriza-
	tion
IIS	Internet Information Services
MA API WS	Mapping Assistant API developed by Eurostat
MSDB	Mapping Store Data Base
NSI	National Statistical Institute
NSI WS	SDMX Web Service released by Eurostat
RMDB	Referential Metadata Data Base
SDMX	Statistical Data and Metadata eXchange
OS	Operating System

CHAPTER

TWO

SOFTWARE INSTALLATION

2.1 Pre-requisites

2.1.1 Operating system

The supported operating systems are the same ones supported by .NET. In the following table, the Microsoft Operating System supported are listed.

Windows Client	7 SP1+, 8.1	x64, x86
Windows 10 Client	Version 1607+	x64, x86
Windows Server	2008 R2 SP1+	x64, x86

2.1.2 Sql Server

The supported database is Microsoft Sql Server ver.2012 or higher.

2.1.3 IIS

IIS has to be installed in a version supported by the used windows operating system. Please verify that the .svg e .json MIME types are available:

- 1. click on the IIS Web Site under which has to be installed the application;
- 2. double click the MIME Types;
- 3. verify the following mime types:
 - .svg image/svg+xml
 - .json application/json
- 4. If they are missing, add them by right clicking and selecting 'Add'

Connections	<u> </u>	- T					
ð- 🗟 😥	MIME Types						
Start Page ✓ Start Page ✓ TESTSDMX (PCISTAT\alcardac)	Use this feature to	Use this feature to manage the list of file name extensions and associated content types that are served as static files by the Web server.					
- Application Pools	Group by: No Grouping •						
✓ a Sites	Extension	MIME Type	Entry Type				
V 💽 Default Web Site	smd	audio/x-smd	Inherited				
> aspnet_client	smi	application/octet	Inherited				
DATAMANACTO	.smx	audio/x-smd	Inherited				
DALAMANAGER	.smz	audio/x-smd	Inherited				
A A A A A A A A A A A A A A A A A A A	.snd	audio/basic	Inherited				
MAWS	.snp	application/octet	Inherited				
S META WS	.spc	application/x-pkc	Inherited				
> 💮 METAMANAGER	.spl	application/future	Inherited				
> A METAMANAGER_NEW	.spx	audio/ogg	Inherited				
> 💮 METAMANAGER_ULT	.src	application/x-wais	Inherited				
> OP NODEAPI_WS	.ssm	application/strea	Inherited				
> 😴 Nodo1	.sst	application/vnd	Inherited				
> 😚 NSI_CLIENT	.stl	application/vnd	Inherited				
> 💮 Registry	.sv4cpio	application/x-sv4c	Inherited				
> (WS_META	.sv4crc	application/x-sv4c	Inherited				
	svg	image/svg+xml	Inherited				
	.svgz	image/svg+xml	Inherited				
	.swf	application/x-sho	Inherited				
	,t	application/x-troff	Inherited				
	.tar	application/x-tar	Inherited				

MIME Types

2.1.4 .NET

The **.NET Framework ver.** 6.0 has to be installed, verifying before the compliance with all the related prerequisites (as specified in https://learn.microsoft.com/itit/dotnet/core/install/windows?pivots=os-windows&tabs=net60).

In order to verify if these modules have been already installed, access to: *Control Panel/Programs/Programs and functions*:

Hicrosoft ASP.NET Core 6.0.10 - Shared Framework (x86)	Microsoft Corporation	19/10/2022
Hicrosoft .NET 6.0.10 - Windows Server Hosting	Microsoft Corporation	19/10/2022
闄Microsoft .NET Runtime - 6.0.10 (x64)	Microsoft Corporation	19/10/2022
😸 Microsoft .NET Runtime - 6.0.10 (x86)	Microsoft Corporation	19/10/2022
Hicrosoft ASP.NET Core 6.0.10 - Shared Framework (x64)	Microsoft Corporation	19/10/2022
 Nat		
.1161		

If .NET has not been already installed, is possible to proceed as follows:

- 1. Download the package from the following URL: https://dotnet.microsoft.com/en-us/ download/dotnet/6.0. Install from the package the .NET runtime, the libraries and the ASP.NET module for IIS
- 2. Execute the **"net stop was /y"** e **"net start w3svc"** commands from the Windows Prompt started in administration mode in order to apply all the updates to IIS.

2.1.5 Eurostat Web Service

- MA API WS version 8.16.0 with MSDB in version 6.20
- NSI WS version 8.16.0 or higher supporting write mode, with the following characteristics:
 - MSDB version 6.20
 - AUTHDB version 1.0
 - Authentication through AUTHDB
 - Possibility to modify not final attributes and annotations of final artefacts
- NSI WS to support read mode also version lower than 8.16.0.

The current release package contains the following versions of the web services:

- NSI WS: 8.16.0
- MA WS: 8.16.0

2.1.6 SSL certificate

In order to publish the web services in https, an SSL certificate is needed. The instructions for creating that certificate depend on the certificate type and on the IIS version. For IIS ver.10 the instructions available at this URL can be followed: https://www.digicert.com/ csr-creation-ssl-installation-iis-10.htm.

2.2 IIS configuration

First of all, the creation of an application pool for each .NET application is needed. It is possible to create a new application pool by right-clicking on "Application Pool" (see Fig. *Application pool IIS for .NET*) and by clicking on 'Add Application Pool' Item.

File view Help							
Connections	Application Pools This page lets you view and manage the list of application pools on the server. Application pools are associated with worker more applications, and provide isolation among different applications.						
V 🐻 Site 🦪 Add Application Pool	Filter:	• ¥ 60	Show All	Group by: No Gro	ouping •		
🔨 🥨 🙀 Refresh	Name	Status	.NET CLR V	Managed Pipel	Identity	Ap	
	2.NET v4.5	Started	v4.0	Integrated	ApplicationPoolIdentity	7	
O DATAMANAGER	2.NET v4.5 Classic	Started	v4.0	Classic	ApplicationPoolIdentity	0	
DM API WS	DefaultAppPool	Started	v4.0	Integrated	ApplicationPoolIdentity	1	
ESTAT NSIWS	POOL_NET_CORE	Started	No Manag_	Integrated	ApplicationPoolIdentity	3	
> . MAWS	POOL_NET_CORE2	Started	No Manag_	Integrated	ApplicationPoolIdentity	1	
META WS	POOL_NET_CORE3	Started	v4.0	Integrated	ApplicationPoolIdentity	1	
> 💮 METAMANAGER	POOL_NET_CORE4	Started	v4.0	Integrated	ApplicationPoolIdentity	0	
METAMANAGER_NEW	POOL_NET_CORES	Started	v4.0	Integrated	ApplicationPoolIdentity	1	
METAMANAGER_ULT	POOL_NET_COREB	Started	No Manag_	Integrated	ApplicationPoolIdentity	0	
NODEAPI_WS	POOL_NET_COREB2	Started	No Manag_	Integrated	ApplicationPoolIdentity	0	
> 🚰 Nodo1	POOL_NET_COREB3	Started	No Manag	Integrated	ApplicationPoolIdentity	0	
> OP NSI_CLIENT	POOL_NET_COREB4	Started	No Manag_	Integrated	ApplicationPoolIdentity	0	
> 💮 Registry	POOL_NET_COREB5	Started	No Manag_	Integrated	ApplicationPoolIdentity	0	
> @ WS_META	POOL_NET_FW	Started	v4.0	Integrated	ApplicationPoolIdentity	1	
	SDMX_NET_CORE	Started	v4.0	Integrated	ApplicationPoolIdentity	0	
	SDM032	Started	v4.0	Integrated	ApplicationPoolIdentity	2	

Add a new application pool in IIS

The pools that must be created are the following:

 5 application pools with .NET CLR "No managed code" Version for the web services implemented in .NET (e.g. named POOL_NSIWS, POOL_MAWS, POOL_DMWS, POOL_NODEWS, POOL_METAWS).

NetCore					
NET CLR versio	NET CLR version:				
No Managed C	ode		~		
Managed <mark>pipe</mark> li	ne mode:				
Integrated	~				
Start applica	tion pool immedi	atelv			

Application pool IIS for .NET

2.2.1 Parameters for the management of big files

To perform the uploading of big size files you have to set some parameters in order to avoid that IIS can generate time-out.

Maximum allowed length and Max Query String for the content

- 1. Click on the IIS website under which the application has to be installed;
- 2. Double click on the Requests *filtering* menu item;
- 3. Click on "Edit feature settings";
- 4. Modify the *Maximum allowed content length (byte)* and *MaxQueryString* to the desired values.

	at the start of						Alerts
Ise this feature to	configure filtering rules. tensions (Rules) === Hidd	Edit Request Filtering Settings	?	×	1		File name extensions that appear in the list and have Allowed set to False are blocked. No other file name extensions are blocked.
File Extension	Allowed	General				^	Actions
-asex -asex	False	Allow unlisted file name extensions					Allow File Nome Extension
master	False	Allow unlisted verbs					Deny File Name Extension
.skin	False						Edit Feature Settings
.browser	False	Allow high-bit characters					Help.
.sitemap	False	Allow double escaping					2
.config	False						-
.63	False	Request Limits					
csproj	False	Maximum allowed content length (Butes):	•				
ND	False	10000000	3				
veproj	False						
lice	False	Maximum URL length (Bytes):					
Jess	False	4296					
.resources	False	Maximum query string (Bytes):					
.mdb	False	2048	2				
Njsproj	False		0				

Editing of the "Maximum Allowed Content Length" parameter

Connection Time-out

The Connection Timeout parameter has to be set in order to allow delayed responses by the web services. The suggested value for this parameter is 6000 seconds (100 minutes).

- 1. Click on the IIS website under which the application has to be installed;
- 2. Select the Advanced Settings menu;
- 3. Click on Limits;
- 4. Modify the *Connection Time-out* parameter to the desired value.

Start Page Start S	Filter ASP.NET NET Authorize	(General) Application Pool Sindings ID Sindings ID Sindings Physical Path Physical Path	DefaultAppPool http://30.net.top/008* 1 Default Web Sta %SystemDrive/Minetpublywww.root	n Connection Strings	Edit Permutation Edit Site Bindings Basis Settings View Applications View Virtual Directories
 O DATAMANAGER O DA APUWS O MAAPUWS O ESTAT_NINWS O MENS O MENS 	Machine B	Physical Path Credentials Physical Path Credentials Logion Type Prebade Enabled V Behavior Enabled Protocols	ClearTent Faire Intp		Manage Website
 METAMANAGRE METAMANAGRE, NEW METAMANAGRE, NEW NOCRAPL/WS NOCRAPL/WS NOS601 NB_CLINT Registry W X_2META 	Authentic Module	 Lingets Generation Time-oud (second) Masimum Bandwidth (b)/sec/second) Masimum Concurrent Connections Masimum Uni Segments 	6990 4.34067295 4.34067295 32	MIME Types	Browse Website Browse 180 (Http) Advanced SettingL. Configure Limits Physics Help

Editing of the Connection Timeout parameter

Request Time-out

This parameter allows to increase the time interval after which a time-out error is launched (blocking the execution) during the waiting of a response by a web service. It is suggested to increase this parameter to 120 minutes.

- 1. Click on the web site
- 2. Select Configuration Editor
- 3. Access to the system.webServer/aspNetCore section
- 4. Modify the *requestTimeout* parameter

Start Page	Section: system.webServer/aspNetCore	From: Default Web Site Web.config
Constant (PCLSIA) (and cardiac) Application Pools Stes Obfault Web Site O default Web Site O client	 Deepest Path: arguments disableSartUpErrorPage environmentVariables forwardWindowsAuthToken 	False (Count=0) True
DATAMANAGER DM_APLWS OF ESTAT_NSWS MAWS MAWS META_WS META_MANAGER	handlerSettings hostingModel processeSterApplication processPath rapidFallSerMinute crocelsOnEliaChance	(Count=0) 1 10 (Count=0)
> () METAMANAGER_NEW > () METAMANAGER_ULT > () NODEAPI WS	requestTimeout snutbownTimecimit	02:00:00
> 🛃 Nodo1 > 🕜 NSI_CLIENT	startup TimeLimit stdoutl.ogEnabled stdoutl.ogFile	120 False Jaspnetcore-stdout

Editing of the requestTimeout parameter

Execution Time-out

This parameter, similar to the previous, allows to increase the time after which a timeout is launched (blocking the execution) after the execution of a web service that doesn't modify its execution status. It is suggested to increase this parameter to 120 minutes.

- 1. Click on the web site
- 2. Select Configuration Editor
- 3. Access to the system.web/httpRuntime section
- 4. Modify the executionTimeout parameter

2. 2 8	Configuration Editor		
Start Page	Section: system.web/httpRuntime	· From: Default Web Site Web.config	-
Control C	Section: system.web/httpRuntime asyscPreloadMode delsyNothfistionTimeout enable enableHeaderChecking enableHeaderChecking enableHeaderChecking enableVersionHeader encoderTime ExecutionTimeout matQueryShingLength matQueryShingLength	From: Default Web Site Web.config None 00:00:05 True True True True 7:02:00:00 208 4096	
	matulifiends matwithings and the second second minifier Threads minified Request free Threads released Unifor Second Second Second request Registric Second Second request Registric Second Second Second Second request Registric Second Second Second Second Registric Second Second Second Second Second Second Registric Second Second Second Second Second Second Second Registric Second Second Second Second Second Second Second Registric Second Second Second Second Second Second Registric Second Second Second Second Second Second Second Registric Second Second Second Second Second Second Second Registric Second Se	260 0 8 4 False 80	
	requestValidationType requireRootedSaveAsPath sendCacheControlHeader shuddownTimeout wseFullyQualifiedRedirectUrl	True True 0001:30 False	
	executionTimeout Data Type:timeSpan Value Ranget Minimum:00:00:00 - Maximum:2485	5.09:14:07, Granularity:00.00.01	

Editing the executionTimeout parameter

2.2.2 Other parameters

Session state

In order to increase the application session duration, the Session State parameter has to be set. It allows the maintenance of the session cookies without forcing users to re-login to the application.

- 1. In IIS manager, click on the "Default Web Site"
- 2. Click on the menu "Session State"
- 3. Set the option *TimeOut* (in minutes) to a suitable value (e.g. 60 minutes)

Connections	Section State
💐 🗟 🖄	
Start Page	Session State Mode Settings
VMSDMX_DEMO (VMSDMX_DEMO)	O Not enabled
	In process
	⊖ Custom
	O State Server
	Connection string
> 💮 MA_WS > 💮 METADATA_API	tcpip=loopback:42424
> - P NSLWS	Time out (in second-)
> P NODE_API	10
> - P DM_API_WS	
	Enable Compression
	O SQL Server
	Connection string:
	data source=localhost;Integrated Security=SSPI V Create
	Time-out (in seconds):
	30
	Connection Ketry Interval (in seconds):
	0
	Enable custom database
	Enable Compression
	Cookie Settings
	Mode:
	Use Cookies 🗸
	Name:
	ASP.NET_SessionId
	Time-out (in minutes):
	60
	Kegenerate expired session ID
	Ultra berting identity for impersonation

Session state Time-out parameter

Idle Time-out

This parameter determines the time after which an idle web service is stopped. It allows to eliminate the waiting time for restarting the web service in case of a very long session. It has to be set for each pool involved in long duration tasks.

- 1. Click on the pool
- 2. Select Advanced Settings
- 3. Modify the Idle TimeOut parameter i.e. by setting it to 120 minutes

Start Page TESTSDMX (PCISTAT\alcardac)	This page lets you view and more applications, and prov	n Advanced Settings		?	>
Application Roots Software Application Roots Software Software	Fitter: Name NAT V43 NAT V45 NAT V45 Proc.NET V45 Proc.NET_CORE Proc.NET_CORES ProC.NET_CORES ProC.NE	Start Mode CFU Limit (percent) Limit Action Limit Action Limit Interval (minutes) Processor Affinity Enabled Processor Affinity Mask Processor Affinity Mask (64-bit option) Corcess Model Generate Process Model Event Log Entry Headth Interval Action Idde Time-out Action Load User Profile Maximum Worker Processe Pring Enabled Pring Maximum Response Time (seconds) Pring Maximum Response Time (seconds) Shutdown Time Limit (seconds)	OnDemand ONDemand NoAction S False 4290967295 4290967295 AnnicationPoolIdentity 120 Isomade False 1 True 90 30 90		
		Idle Time-out (minutes)			

Idle Time-Out parameter

2.2.3 Https Binding

It is needed to create a binding for https. The task can be performed as follows:

- 1. Click on "Default Web Site"
- 2. Click on Binding in the "Actions" menu on the top-right
- 3. Click on "Add"
- 4. Select https as type
- 5. Select an available SSL certificate
- 6. Click on "OK"

Connections	Confer Haute Cite Hanne	Actions
🔍 • 🔒 🖄 😣	Default web site Home	🔉 Explore
Start Page	Filter: • 🐨 Go - 🐷 Show All Group by: Area - 🔝 -	Edit Permissions
	ASI/ATT ASI/AT	Edit Site 2 Bindings Bindings View Applications View Virtual Directories Manage Website C Restart
	Site Bindings ? ×	 Start Start
	Add at Einding 7 × 8 Add. Add at Einding 7 × 9 Add C Cuptor 8 Roperts 55 Straining Flatting F	Stopse Vecbaite Browse Vecbaite Browse *30 (http) Advanced Settings Configure Limits Hidp Hidp
	S Norselected View.	

Https binding configuration

2.3 Software package

The software is released as a zip file (e.g. MDM_V0.5.3_18-11-2019.zip), so it must be unzipped. Files are organized in a hierarchical schema with the root named "*main*":

- app: contains all the executable files that must be installed under IIS
 - client: contains the files for the client module
 - * static
 - \cdot css: contains .css files
 - \cdot js: contanins .js files
 - · locales: contains files for the localization of the GUI
 - · media: contains graphical objects
 - · png: contains files in .png format
 - · config.json: client's configuration file
 - · favicon.ico: application's favicon
 - * *index.html*: the home page for the client
 - ws: contains all the WSs
 - * DM_API_WS: contains the files for the Data Manager API

- config: contains the log configuration file and the scripts to create the databases (you don't need to manually run the scripts)
- · runtime: contains all the .dll files
- · appsetting.json: it is the configuration file of the Web Service
- · Plugins: contains all the plugins
- * MA_WS: contains the files for the Mapping Assistant API
 - · AppData: contains the configuration files
 - \cdot bin: contains all the .dll files
 - $\cdot\,$ doc: contains the documentation of the Web Service
 - · script: contains the .js files
 - $\cdot\,$ style: contains the .css files
 - · log4net.config: log file configuration
 - \cdot web.config: file to configure the web service
- * NODE_API: contains the files for the NodeApi WS (the backend of the client)
 - \cdot config: contains the file to configure the Web Service
 - · runtime: contains all the .dll files
 - · appsetting.json: web service configuration file
- * NSI_WS: contains all the files of the NSI WS
- * *METADATA_API*: contains the files for the METADATA API (to manage Reference metadata and Digital catalogs)
 - · config: configuration files for the Data Providers
 - · resources: contains the resource files
 - · runtime: contains all the .ddl files
 - · appsetting.json: web service configuration file
- doc: contains the documentation (only the installation manual for now)
- files: contains some supporting files
 - **ReferenceMetadata**: folder containing files with default artefacts that describe a catalog base on the DCAT application profile for Italy
 - Estat.SdmxSource.Extension.RDFPlugin.dll: contains the plugin to download in RDF format
- source: contains the source code of the application
 - client: contains the source code of the client
 - server: contains the source code of the server APIs

2.4 Building databases

The following databases must be created:

- AUTHDB: create a new database named AUTHDB;
- MSDB: create a new database named MSDB;
- **DDB**: create a new database named **DDB**;
- **RMDB**: create a new database named **RMDB**.

The initializations of the Databases will be explained in the chapter *Initialization of the database*.

The users that will be used in the connection strings must have grants of read/write/execution on the above databases:

Select a page	CT Could	- 0 11-1-			_
👂 General	1 Script	• 🕜 Help			
Server Roles	Users ma	pped to this login:			
Securables	Map	Database	User	Default Schema	^
M Status		MASTORE	userdev	dbo	
		AUTHDB	userdev	dbo	
		DDB	userdev	dbo	
		RMDB	userdev	dbo	
		master			
Connection					Y
Server: vmsql2016dev	Database	mla mamhamhin for	DDB NEW		
Server: vmsql2016dev Connection: userdev vit <u>View connection properties</u> Progress	Database db_a db_b db_d db_d db_d db_d db_d db_d db_d db_d db_d	e role membership for: ccessadmin ackupoperator atareader atawriter dladmin enydatareader enydatawriter wner	DDB_NEW		
Server: vmsql2016dev Connection: userdev vi <u>View connection properties</u> Progress Ready	Database db_a db_b db_d db_d db_d db_d db_d db_d db_d db_d Database db_d	e role membership for: ccessadmin ackupoperator atareader atawriter diadmin enydatareader enydatawriter wner ecurityadmin c	DDB_NEW		

DB user mapping

2.5 Web Services deployment



The software supports the following architecture:

Software architecture

The web services can be installed on the same Web Site of IIS.

The users IIS_IUSRS e IUSR must have the suitable permissions on the web applications, therefore on the folder *main/app*:

- right click on the folder;
- select *Property/Security*;
- click on *Edit/Add*;
- in the section "Locations", select the local computer;
- in the section + "Enter the object name to select" write IIS_IUSRS;
- click on "check names" and then OK;
- in the section "Permission for IIS_IUSRS" include "full control";
- repeat steps from 3 to 6 for user IUSR;
- in the section "Permission for IIS_IUSRS" include "write/read" permissions.



Modify the permissions for the app folder

The following Web services must be installed:

- NSI WS
- MA API WS
- DM API WS
- Metadata API
- Node API

In the next paragraphs the installation and configuration of the web service will be explained.

2.5.1 NSI WS

The installation and configuration of the NSI WS consists of the following steps:

- 1. In IIS manager, right click on Default WebSite and then "Add application"
- 2. Insert the alias **NSI_WS**, and associate the Application Pool **POOL_NSIWS**. Select for the physical path the folder *main/app/ws/NSI_WS*.
- 3. Modify the file *main/app/ws/NSI_WS/config/app.config* in order to configure the connection strings for MSDB and AuthDB databases.



Set the connection strings for MSDB and AUTHDB databases

- 4. Set the following parameters as follows:
 - 1. "enableSubmitStructure" = "true"
 - 2. "ignoreProductionFlagForStructure" = "true"
 - 3. "InsertNewItems" = "true"



A section of the file app.config

5. Modify the file *main/app/ws/NSI_WS/log4net.config* to configure del log.

```
<log4net>
    <appender name="RollingFile" type="log4net.Appender.RollingFileAppender">
       <file value="c:\logs\NSIWS_615.log"/>
        <rollingStyle value="Date"/>
       <datePattern value="yyyyMMdd"/>
        <appendToFile value="true"/>
        <layout type="log4net.Layout.PatternLayout">
           <conversionPattern value="%level %logger %date{IS08601} - %message%newline"/>
        </layout>
       <!-- TODO filter for dataflow logger ?-->
    </appender>
    <appender name="DataflowLogger" type="log4net.Appender.RollingFileAppender">
        <file value="C:\logs\nsiws_6.0.11.csy"/>
        <rollingStyle value="Size"/>
       <maximumFileSize value="100MB" />
        <maxSizeRollBackups value="10" />
       <datePattern value="yyyyMMdd"/>
        <appendToFile value="true"/>
        <layout type="log4net.Layout.PatternLayout">
            <conversionPattern value="%d{yyyy-MM-dd HH:mm:ss,fff};%m%n"/>
        </layout>
    </appender>
    <root>
        <!-- Options are "ALL", "DEBUG", "INFO", "WARN", "ERROR", "FATAL" and "OFF". -->
        <level value="DEBUG"/>
        <appender-ref ref="RollingFile"/>
    </root>
    <!-- Comment out the following to disable logging dataflow requests -->
    <logger name="org.estat.nsiws.dataflowlogger" additivity="false">
        <level value="INFO"/:
        <appender-ref ref="DataflowLogger" />
    </logger>
</log4net>
```

A section of the file log4net.config

6. Check the configuration using the following request: *https://localhost/NSI_WS*. The web service helper of the web service is shown.

10)		15-26	200
Requ	est information		
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Endp	oints		
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Rema	rka		
-	In such success to that have assessed while a real or reason had be	na a 10 Tel Book englisht an ist bossetti fast antaña para Par	- 1792 - 14
-	The last frame income and the local		-

The NSI WS helper

7. The request *https://localhost/NSI_WS/rest/codelist* will answer with a set of code lists that are installed by default.

2.5.2 MA API WS

To install and configure the MA WS the following actions must be performed:

- 1. In IIS manager, right click on Default WebSite and then "Add application"
- 2. Insert the alias **MA_WS**, and associate the Application Pool **POOL_MAWS**. As physical path include the folder *main/app/ws/MA_WS*.
- 3. Modify the file *main/app/ws/MA_WS/AppData/ConnectionString* to configure the connection strings for the AuthDB e al MSDB databases.

condition[] cadd came* multiple cadd came* multiple cadd came* SupplicyConderver* connectionDirings="Data Source-source:Initial Catalog-MAXCOCC.User Id-equate;"Password-mainter" providerEmme*System.Data.SqLCLient* cadd came* SupplicyConderver* connectionDirings="Data Source-source:Initial Catalog-MAXCOCC.User Id-equate;"Password-mainter" providerEmme*System.Data.SqLCLient* circle Source Image* Isot MAXD ggdyrots id ->

A section of the file ConnectionString.config

- 4. Modify the file main/app/ws/MA_WS/log4net.config to configure the log.
- 5. Check the configuration using the following request: *https://localhost/MA_WS*. The helper of the web service is shown.

Mapping Assistant Web Service API To view the <u>API click here</u> Alternative the swagger file can be downloaded <u>here</u> The authentication WS API, under /auth, can be found <u>here</u> The SDMX WS REST API, under /sdmx/rest, can be found <u>here</u> Utility To change the password <u>click here</u> To access the getting started wizard <u>click here</u>

MA API WS helper

2.5.3 DM API WS

To install and configure the DM API WS the following actions must be performed:

- 1. In IIS manager, right click on Default WebSite and then "Add application"
- 2. Insert as alias DM_API_WS, and associate the Application Pool POOL_DMWS. As physical path specify the folder main/app/ws/DM_API_WS.
- 3. Modify the file main/app/ws/DM_API_WS/appsettings.json, and set the connection strings for AUTHDB, DDB and RMDB databases, through the following parameters:
 - AuthCore/CONN_STR
 - DATA_PROVIDER_NAME/DEFAULT_DATA/CONN_STR
 - DATA_PROVIDER_NAME/RM_DATA/CONN_STR

Pay attention to the escape characters (e.g. \\ for \)

- 4. Modify the path where the files will be stored during the uploading and after elaboration, using the paths
 - DMApiSettings/IMPORT_FILE_BASE_DIR
 - DMApiSettings/TRANSFORMATION_BASE_DIR
 - DMApiSettings/PROCESSING_BASE_DIR
 - DMApiSettings/OUTPUT_FILE_BASE_DIR
 - DMApiSettings/AUTO_OUTPUT_FILE_BASE_DIR.

IIS_IUSRS and IUSR users must have the permissions read/write on this folders. Pay attention to the escape character (es. $\$ for $\$)

"DEFAULT_DATA": { "DATA_STORE_TYDE": "SOL_SERVER"	
"DATA STORE TYPE": "SOL SERVER"	
"CONN_SIR": "Data Source=src;Initial Catalog=DDB;Persist Security Info=True;User ID=user;Password=pw",	
"SCHEMA": "dbo"	
}.	
"RPLDATA": {	
"DATA STORE TYPE": "SOL SERVER".	
"CONN_STR*: "Data Source=src:Initial Catalon=DDB:Persist Security Info=True:User ID=user:Password=ow"	
"SCHEMA": "dbo"	
1	
"AuthCore" - 1	
"AlgoritheDafault": "SUA_512"	
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The transmission of the second s	
//connection to the MITURE	
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-MAX_DLUCK_SIZE-: -1000000-,	
I for a formal second second by the formal second because for the formation of the second s	
//maximum dimension of blocks for import operations (10 MLN by default)	
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//maximum dimension of blocks for import operations (10 MLM by default) MMX_ELOCA_STE_IMPORT: ImBORED# //maximum number of rows with references to wrong codes before a file import operation in Loader fails	
<pre>//maximum dimension of blocks for import operations (10 MLM by default) //max.EUCCAST_EINEXT: "locade0000", //maximum number of rows with references to wrong codes before a file import operation in Loader fails MAX.CORST_EMEX.NUMY: "locade", </pre>	
//maximum dimension of blocks for import operations (10 MLH by default) //maximum energy from efficiences to energy costs before a file import operation in Loader fails /Maxed dimension from efficiences to energy costs before a file import operation in Loader fails /Maxed directory for Suring files for upload operations	
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//www.mediametisme.edl.busics.for_ispect_operations.(10 FML by deviat1) //withins makers for inva thit references to swop codes before a file apport operation in Loader fails "MALCONS_LEDGN	
//www.market.com/dimensional/files/sections/file/file/file/file/file/file/file/file	
<pre>//mcimm dismusion of Biosis for import operations (10 RM by default) McLROOL ELECTRONY informations in the strong codes before a fills import operation in Laster falls MCLROOL ELECTRONY informations (INFORMEDIATED ACCOUNTS) (Information and Accounts) (INFORMEDIATED ACCOUNTS) (Information and Accounts) (INFORMEDIATED ACCOUNTS) (Information and Accounts) (INFORMEDIATED ACCOUNTS) (Information and Accounts) (INFORMEDIATED ACCOUNTS) (Information accounts) (INFORMEDIATED ACCOUNTS</pre>	
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File appsettings.json

- 5. Copy into the folder Plugins your plugins. Create one folder for each plugin and copy into the folder the dll.
- 6. Modify the file *main/app/ws/DM_API_WS/config/base/logconfig.xml* to configure the log.
- 7. Check the web service through the request *https://localhost/DM_API_WS/api/DMApi/Ping*. If the web service is configured correctly, the version of the web service will be shown.



DM API WS is configured correctly

8. The request *https://localhost/DM_API_WS/swagger* shows the list of the methods exposed by the web service.

2.5.4 Metadata API

To install and configure the METADATA API WS the following actions must be performed:

- 1. In IIS manager, right click on Default WebSite and then "Add application".
- Insert as alias METADATA_API, and associate the Application Pool POOL_METAWS. As physical path select the folder main/app/ws/METADATA_API.
- 3. Modify the file *main/app/ws/METADATA_API/appsetting.json* and set the connection string for RMDB database.



Configuration of the METADATA API

4. In the same file, modify the value of the **NodeBaseUrl** key, so that it points to the NodeAPI endpoint, described in the next paragraph.

Note also that if **NodeId** is valorized, its value is always used to contact the NodeAPI; this behavior is adopted for security reasons, that is to avoid that the client can request information of other nodes simply by passing a different NodeId as a parameter in the URLs. **The configuration of the module is detailed in the paragraph** *2.10.8 Configurations and contexts Metadata API*.

In the same file, modify the value of the **Cache.Dir** key, so that it points to the path where the user wants cache files to be stored. The user must have read and write

permissions on this path. Pay attention to the escape character (es. \\ for \) It is possible to enable or disable the use of the cache by modifying the **Cache.Enable** key with the value true or false, as shown in the previous paragraph. If cache is enabled, read data will be saved in the folder pointed by the Cache.Dir key, to speed up the application.

If the application needs to be accessible by using a particular address, it is possible to modify the **AllowedHosts** key with a list of semicolon-delimited valid addresses without port numbers. For example:



Configuration AllowedHosts of the METADATA API

This way, the host filtering middleware does not allow the application to bind to any other hostname except for example.com or localhost.

- 5. Modify the file *main/app/ws/METADATA_API/config/base/logconfig.xml* to configure log.
- 6. Check the web service through the request *https://localhost/METADATA_API/Ping*. If the web service is configured correctly it returns 'true'.
- 7. The request *https://localhost/METADATA_API/swagger* shows the list of the methods exposed by the web service.

2.5.5 Node API

To install and configure the NodeApi service, the following actions must be performed.

- 1. In IIS manager, right click on Default WebSite and then "Add application"
- 2. Insert as alias **NODE_API**, and associate the Application Pool **POOL_NODEWS**. As physical path specify the folder *main/app/ws/NODE_API*.
- 3. If the web service is installed correctly the request *https://localhost/NODE_API/swagger* shows the list of the methods exposed by the web service.
- 4. In the appsettings.json file it is also possible to customize the name of the SENDER present in the json and xml messages created by the data exports. Just add or configure the EXPORT_RM_SDMX_SENDER_ID entry as shown in the following example:

```
{
    "EXPORT_RM_SDMX_SENDER_ID": "MDM_SENDER"
}
```

5. In the appsettings.json file it is also possible to customize the name of the dataset agency and date format present in the xml messages created by the data exports. Just add or configure the EXPORT_RM_SDMX_DATASET_AGENCY and GREGORIAN_DAY_FORMAT_SDMX_ML entries as shown in the following example:

```
{
    "EXPORT_RM_SDMX_DATASET_AGENCY": null,
    "GREGORIAN_DAY_FORMAT_SDMX_ML": "dd/MM/yyyy",
}
```

In this case dataset agency (EXPORT_RM_SDMX_DATASET_AGENCY) is not specified, so the metadataflow agency will be used as the default value.

2.6 Database initialization

The initialization wizard at the URL: *<WebSiteBasePath of the DM API>/Wizard/Home*, for example *https://localhost/DM_API_WS/Wizard/Home*. The initialization actions must be performed by a user with the permissions of administrator.

2.6.1 Login

In order to run the initialization wizard insert the url of the MA WS (e.g. *http://localhost/MDM/ws/MA_WS*) and Username/Password of the Administrator (by default admin/[*empty string*]).



Installation Wizard - Login

2.6.2 AuthDB + Extensions MSDB

The steps that must be performed in case the AUTHDB is not still initialized are listed below.

1. Click on the button [Initialize] to initialize the AUTHDB database



Installation Wizard – AuthDB initialization

2. The AUTHDB must be extended. Click on the the button [Extend AuthDB]



Installation Wizard – Extension of the AuthDB

2.6.3 Check of MSDB status

Select the MappingStoreServer and click on the button [Check]

List Mapping Store	
Authentication database is already initialized to version 1.0	
AuthDB is extended	
MappingStoreServer *	
Check	

Status Wizard – Mapping Store

2.6.4 Check the status of MSDB, DDB and RMDB

In this screenshot the MSDB, DDB and RMDB are shown. The red color means that the database must be initialized. Click on the related button and initialize the databases one by one.



Installation Wizard- initialization of the DBs

2.6.5 Disable the Wizard

After these steps have been done, for security reason we suggest to disable the access to the following wizard's methods. To do that you have to add the following emphasized lines in the file *main/app/ws/DM_API_WS/web.config*:

<configuration></configuration>
<security></security>
<pre><requestfiltering></requestfiltering></pre>
<pre></pre>
<pre><add sequence="DM API WS/Wizard/CheckMetaData"></add></pre>
<pre><add sequence="DM_API_WS/Wizard/Sten01Login"></add></pre>
<pre><add sequence="DM_API_WS/Wizard/CheckEndPoint"></add></pre>
<pre><add sequence="DM API WS/Wizard/Start"></add></pre>
<pre><add sequence="DM_API_WS/Wizard/ChangePassword"></add></pre>

2.7 Client deployment

Below the steps to install and configure the client module.

- 1. In IIS manager, right click on Default WebSite and then "Add application"
- 2. Insert as alias **client**, and as physical path the folder main/app/client.

VMSDMX_DEMO (VMSDMX_DEMO)
- Application Pools
🗸 🧕 Sites
🗸 🕘 Default Web Site
🗸 😴 main.
v 🦳 client
> - Static
🗸 - 🦳 WS
> _ DM_API_WS
> _ MA_WS
> _ METADATA_API
> - 🗇 NODE_API
> - 😚 NSI_WS

How IIS applications should appear

 Modify the parameter fetchBaseUrl in the file main/app/client/static/config.json, providing the url of the NodeApi, for example https://localhost/NODE_API.

2.7.1 Reference metadata

For the correct operation of the client it will be necessary to verify/modify the reference Metadata/metadataapi.json file in the following way:

```
{
   "baseUrl": "<BASE URL METADATAAPI>"
}
```

• baseUrl key must contain the base url of the MetadataApi url.

The configuration of the module is detailed in the paragraph 2.10.8 Configurations and contexts Metadata API

2.7.1.1 Deploy Report HTML

The HTML components exposed and integrated into the client (discussed in the previous paragraphs), can also be used in standalone mode (without using the MDM client).

To do this, just deploy the folder **referenceMetadata**, into **../main/app/client/static/** (in the MDM client installation package).

To deploy in IIS, just open the tool manager and right click on the folder **Sites** (in the tree on the left) and click on **Add Website**:



A site configuration form will open like the following:

ferenceMetadata	referencel	Aetadata	Select
Content Directory	Tererencen	ictudutu	Select
Reveical nath			
2 29-01-2021\main\ap	\client\static\referenceMe	tadata	
Pass-through authenti	ation		
Pass-through addrend	ation		
Connect as Te	st Settings		
inding			
Туре:	P address:	Port:	_
http 🗸 🗸	All Unassigned	~ 80	
Host name:			
referenceMetadata			
Example: www.contos	.com or marketing.contos	o.com	
Start Website immedia	tehz		

Where you need to fill in the fields highlighted in red in the figure.

Once the deployment is complete, to view the component that shows the CKAN catalogs, open the browser at the following url (replacing the placeholders indicated with <>):

http://referenceMetadata/CategoryTemplate.html?nodeId=<NODE_ID>& metadataSetId=<ID_METADATASET_DCAT_AP_IT>&lang=& BaseUrlMDA=<BASE_URL_METADATA_API>&BaseUrlMDM=<BASE_URL_CLIENT>

2.7.1.2 Add language report HTML CKAN

To add a language to the template that displays the CKAN catalog data you need to edit the HTML page **CategoryTemplate.html** into **../main/app/client/static/referenceMetadata** (in the MDM client installation package). Here are the portions to be changed.

NB: HTML elements that contain language-based values have type values as id attribute **<HTML_ID>-<ABBREVIATION-LANGUAGE>** for example **spa-language-it**. This convention must be maintained when adding a new language.

Language selector



Add a div and a li respectively under the elements button and ul on the basis

of those already present. For example to add the French language (fr) the code above will become:



The red rectangle highlights the css class that allows you to view the flag, this must be defined in the file **../static/referenceMetadata/mystyle.css**. In the following way:



The file **fr.f8952213.svg** is the flag image in svg format, this file must be present in the folder **..static/referenceMetadata/media**. It can be copied directly from the folder **main/app/client/static/media** which contains examples for various languages.

Theme menu

Themes	
Agriculture, fisheries, food	forestry and
A Education, culture and	d sport
-sp ^a Transport	
Energy	
Regions and cities	
Government and publ	lic sector
🚑 Environment	
Economy and finance	
😳 Health	
S International issues	
int Justice, legal system a safety	ind public
ចំក្តី៥ Population and societ	ly .
Science and technolog	8V

In this case you have to change the value of the title (div with id **title-menu-***) and the names of the links below that forward requests to extract the report data for the related topic. Below is the code for the English language to be changed.

Within the function **loadMustache** you must indicate the name of the theme and the prefix of the language.

The value of the theme will have to be recovered from codelist CL_DCAT_AP_IT_THEME of the MSD DCAT-AP_IT used.



2.7.1.3 Example of using HTML widgets

Here are some examples of invocation of HTML widgets in the case of decoupled scenario (see appendix *Configurations and contexts Metadata API*).

2.7.1.3.1 Widget CKAN catalogs

<BASE_URL>/static/referenceMetadata/template/CategoryTemplate.html? metadataSetId=<ID_METADATASET>&lang=<LINGUA(it,en)>#

Temi	Datasats (2)
🗂 Agricoltura, pesca, silvicoltura e prodotti alimentari	Datasets (2)
😰 Istruzione, cultura e sport 🌮 Trasporti	∂giustizia download
Energia	rgfgfgfgf Data di ultima modifica: 2021-02-11
Province citta'	Tema: Giustizia, sistema giuridico e sicurezza pubbli
Governo e settore pubblico	Governo e settore pubblico
ambiente	1
🙀 Economia e finanze	2giustizia download
😳 Salute	e glustizia downtoad
🚱 Tematiche internazionali	Data di ultima modifica: 2021-03-01 Tema:
figiustizia, sistema giuridico e sicurezza pubblica	 Giustizia, sistema giuridico e sicurezza pubbli
ଶକୁଣ୍ Popolazione e societa'	
Scienza e tecnologia	

By selecting one of the themes from the left menu, all reports with that theme will be searched. Clicking on the title of one of them will open the report widget with the related data.

2.7.1.3.2 Widget metadataset

<BASE_URL>/static/referenceMetadata/template/MetadatasetTemplate.html? metadataSetId=<ID_METADATASET>&reportId =<ID_REPORT>& lang=<LINGUA(it,en)>#

	ID: MDS_DCAT111 NOME: MDS_DCAT111 MSD: IT1:DCAT-AP_IT_MSD(1.11)	
METADATASET D	ATA	
METADATAFLOW	IT1:DCAT_AP_IT_METADATAFLOW111(1.0)	
MSD	IT1:DCAT-AP_IT_MSD(1.11)	
Reporting Begin-End		
Valid From-To	•	
REPORTS (ID - D/	ATAFLOW)	
CAT_V111	IT1:DCAT_AP_IT_METADATAFLOW111(1.0)	
REP1_V111_JUS	IT1:DF_JUS2_DOWNL(1.0)	

Shows the metadataset data passed as a parameter and the list of reports associated with it.

2.7.1.3.3 Widget report

<BASE_URL>/static/referenceMetadata/template/GenericMetadataTemplate.html? metadataSetId=<ID_METADATASET>&reportId =<ID_REPORT>& lang=<LINGUA(it,en)>#

	ID:REPI-VIII.ALE Farget DATA-ICAN TANGET IO Audioner TIT-DF JUSZ DOWNEL(1.0)
Metadata	
Reference metadata	
1. Oxtanet	
Download Report	
1.Dataset	Tee
1.1. Dataset identifier	
DF_JUS2_DOWNL+IT1+1.0	
12 Dataset title	
gusta cownosa	
1.3. Dataset description	
descrang	
1.4. Dataset modified 2021-03-11	
1.5 Dataset theme	
Justice, legal system and public safety	
Cataset theme	
Government and public sector	
17. Dataset rights holder	
T S. Albert Mersteller	
6	
17.2. Agent name	
-	
1.1. Dataset accrual periodicity	
bennal	
1.9. Dataset distribution	
1.3.1. Distribution format	
13.2 Distribution access un	
http://www.appoint.it	
1.5.3 Distribution license	
13.3.1. License type	
Rea	
1.10. Dataset contact point	
1.72.1. Name	
decontatto	
1.15.2 Email	
dddd assas @tiscali.it	
1.10.3 Website	
http://www.doogle.it	

It shows all the report data divided by section, the field name in gray and its value in white.

Data display

Change the message for the theme selection:

Seleziona un tema dall'elenco

Add a new div into:



And finally add the part with the report data found in the selected theme:



Adding a new script tag like the following for the Italian language:



Modifying it with the labels and identifiers for the new language.

2.8 The first time that the application is used and upgrade to newer versions

The default credentials are:

- Administrator of the node (each node can have a different administrator): **admin**/[empty string]
- Superadmin (at the level of the application): superadmin/superadmin
- 1. Run the URL of the client module (e.g. *https://localhost/client*). The 'welcome' page is shown. The first time the application is used, it is necessary to configure at least one Node.

In this case a pop-up alerts that no Nodes are configured is shown, and the application suggests a link that allows to configure Nodes.

2. If you click on the link or if you select the suitable menu on the left side, the credentials of the superadmin is required

		🔒 Super User Login 🛛 🗙
٥.	🄀 Application	Username: superadmin
	🔀 Nodes	Password:
		Go to homepage 🕘 Login

- 3. The configuration consists in specifying the endpoint of the web services:
 - 1. SDMX WS Endpoint: https://localhost/NSI_WS/SdmxRegistryService
 - 2. MA Endpoint: https://localhost/MA_WS
 - 3. DM Endpoint: https://localhost/DM_API_WS/api/DMApi
 - 4. Base Url Metadata Api: https://localhost/METADATA_API

General	* SDMX WS Endpoint type :	
Agencies	SOAP	\sim
Ū	* SDMX WS Endpoint :	
Endpoint	https://localhost/NSI_WS/SdmxRegistryService	Ping
Custom annotations	Remote SDMX WS username:	
Annotations		
Dress	Remote SDMX WS password:	
PIOXy		
Search	Initial WSDL:	
DCAT-AP_IT		
	* Ping Artefact:	
Data Browser	Concept Scheme	\vee
Plugin	MA Endpoint:	
	https://localhost/MA_WS	Ping
	Post filters support :	
	DM Endpoint:	
	https://localhost/DM_API_WS/api/DMApi	Ping
	LDAP Endpoint:	
	Active Directory Endpoint :	
	Metadata API base url:	
	https://localhost/METADATA_API	Ping

Endpoints configuration for a specific Node

Each endpoint configuration can be checked clicking on the button [Ping].

When the configuration is saved the credential of the administrator of the Node are required.

- 4. Through the menu "Import structure", import the files contained in the folder *main/files/ReferenceMetadata*, that contains the artefacts used for DCAT_AP_IT
- 5. Through the menu "Import structure", import at least a Category Scheme (or create one interactively) that will be used internally by the application to categorize data cubes.
- 6. Through the menu "User management" add new users, and through the menu "Set permissions" assign the suitable authorizations to the new users.

For software version upgrades, in addition to updating the ws and possibly the db, you must refer to the file *main/app/readme.txt*.

2.9 DCAT-AP_IT report creation

Below you can find attributes (listed by id) that are mandatory for creating reports according to the last (10.0) version of the MSD for DCAT-AP_IT standard. Attributes are divided by typology:

- Catalogue
 - DCAT_AP_IT_CATALOGUE_TITLE
 - DCAT_AP_IT_CATALOGUE_DESCRIPTION
 - DCAT_AP_IT_CATALOGUE_AGENT_IDENTIFIER
 - DCAT_AP_IT_CATALOGUE_AGENT_NAME
 - DCAT_AP_IT_CATALOGUE_LAST_UPDATE
- Report
 - DCAT_AP_IT_DATASET_IDENTIFIER
 - DCAT_AP_IT_DATASET_TITLE
 - DCAT_AP_IT_DATASET_DESCRIPTION
 - DCAT_AP_IT_DATASET_MODIFIED
 - DCAT_AP_IT_DATASET_THEME
 - DCAT_AP_IT_DATASET_RIGHTS_HOLDER_AGENT_IDENTIFIER
 - DCAT_AP_IT_DATASET_RIGHTS_HOLDER_AGENT_NAME
 - DCAT_AP_IT_DATASET_ACCRUAL_PERIODICITY
 - DCAT_AP_IT_DATASET_DISTRIBUTION_FORMAT
 - DCAT_AP_IT_DATASET_DISTRIBUTION_ACCESS_URL

If you do not indicate the values for all the above attributes, you can only create reports in DRAFT state.

2.10 Appendix

2.10.1 Languages management

To localize the GUI in a specific language, perform the following steps:

- 1. Enter the folder main/app/client/static/locales
- 2. Duplicate the folder **en** and rename it with the ISO letters of the language (e.g. **es** for Spanish)
- 3. Inside the new folder edit the file **translation.json** and translate all the labels and messages. In the 'languages' section add the translation for the language you want to add (eg. "ar": "Arabic"). This last operation must be for the translation.json file of each folder in path: *main/app/client/static/locales*
- 4. Access to the page http://localhost/client/#/configurations/app and add in the *User Interface* section the code of the language for the inserted ID (eg. *ar* per Arabic) in the *Languages* section and the code for the flag to be shown for the language in the field 'Country Code' (eg. sa for South Arabia).

X Application				
User Interface	Maximum tree nodes for allowing tree visualization :			
Agencies	100000			
	 Maximum showable tree nodes using 'Show more' in tree: 			
Data Management	10000			
Default header submit structure	Minimum nodes number to enable tree pagination :			
Superuser credentials	1000			
Superase eredentiats	* Maximum tree nodes for allowing tree total expansion :			
Endpoint settings	1000			
	* Tree page size:			
	100			
	Default sidebar collapsed : 🔽			
* Languages:				
	✓ Collapse			
	* ID: en * Country code: gb ①			
	* ID: it * Country code: it ①			
	+ Add language			

• Add a new entry in the field Languages in order to localize the GUI*

To add a new data language:

- Access the page: http://localhost/client/#/configurations/app and in the tab *Data Management* add the new language as described at step 4 above
- If you want to associate a label to the new added language, access to the *transla-tion.json* file of each folder in the path: *main/app/client/static/locales* for whom you want to add a label and add in the *Languages* section the translation for the code of the language you want to translate (eg. "ar": "Arabic").

2.10.2 Download formats support

In order to support all the available formats for download first of all is necessary to define the corresponding FormatMapping in the following file:

main/app/ws/MA_WS/Estat.Sri.Mapping.Ws.ServiceCore.dll.config.

<formatmapping></formatmapping>
<mappings></mappings>
<pre><mapping acceptheader="application/vnd.sdmx.genericdata+xml" format="genericdata"></mapping></pre>
<mapping acceptheader="application/vnd.sdmx.data+json" format="jsondata"></mapping>
<mapping acceptheader="application/vnd.sdmx.structure+xml" format="structure"></mapping>
<pre><mapping acceptheader="application/vnd.sdmx.structurespecificdata+xml" format="structurespecificdata"></mapping></pre>
<mapping acceptheader="application/vnd.sdmx.data+csv" format="csv"></mapping>
<system.data
<dbproviderfactories></dbproviderfactories>

Supported formats for download

The list of the formats that can be supported by the Eurostat's web services includes the following formats:

Format	AcceptHeader
genericdata	application/vnd.sdmx.genericdata+xml
genericdata20	application/vnd.sdmx.genericdata+xml;
	version=2.0; charset=utf-8
jsondata	application/vnd.sdmx.data+json
structurespecific-	application/vnd.sdmx.structurespecificdata+xml
data	
csv	application/vnd.sdmx.data+csv
rdf	application/rdf+xml
compactdata20	application/vnd.sdmx.compactdata+xml
edidata	application/vnd.sdmx.edidata
crosssectionaldata	application/vnd.sdmx.crosssectionaldata+xml
structure	application/vnd.sdmx.structure+xml
xml	application/xml

For each format not originally included that has to be supported for download, is necessary to add such type of row:

<Mapping Format="NomeFormato" AcceptHeader="application/..."/>.

The name of the format can be not standard: in the developed functions has been made a mapping among the download format requested by the user and the corresponding AcceptHeader, that is inserted in the header of the related query to the web service.

Finally, if not present, the file main/files/Estat.SdmxSource.Extension.RDFPlugin.dll has to be copied in the respective folders of the NSI WS (main/app/ws/NSI_WS/Plugins) and of the MA WS (main/app/ws/MA_WS/Plugins) in order to support the RDF formatted download.

2.10.3 Superadmin password change

In order to change the password of the "superadmin" user, the following tasks have to be performed:

- 1. Access the *Configuration/Application* page with the current superadmin user's credentials
- 2. Access the Superuser Credentials section
- 3. Fill in the new password in the *Set New Password* and *Confirm New Password* text boxes

User Interface	* Superuser credentials:
Agencies	✓ Collapse
Data Management	* Username :
Default header submit structure	superadmin
Superuser credentials	Set new password :
Endpoint settings	Confirm new password :
	+ Add superuser

Change superadmin credentials

2.10.4 Scenario: access to a remote node in reading and writing mode

Let's consider a scenario in which there's a remote SDMX endpoint to which it is necessary to access in reading and writing mode. In order to access in writing mode to the node, it is necessary to install and configure the DM API service together with the AUTHDB database opportunely configured.

If the SDMX endpoint is "open" (Authentication Middlware disabled, see the "estat.nsi.ws.config.auth" property inside the app.config file of the SDMX WS endpoint), authentication by using the credentials of a registered user into that AU-THDB database is enough. If instead the SDMX endpoint has the Authentication Middlware enabled (and configured with its own AUTHDB database, known as AUTHDB_SDMX database), it is necessary to insert in the AUTHDB database a user (with the related permissions) with the same credentials stored in the AU-THDB_SDMX database that has to be used.

The node configuration then needs to foresee:

- SdmxWS: the endpoint to which to connect
- MA WS: empty
- DM API WS: url of the ws used for the authentication

2.10.5 Permission rules management

The AuthDb database foresees the use of a set of AccessRules that regulate the access of the users to the methods exposed by the web service.

In order to activate this middleware, the following configuration parameters have to be set in the *app.config* file of the NSI WS or in the *Estat.Sri.Mapping.Ws.ServiceCore.dll.config* file of the MA WS.



Configuration parameters for activating the management of the permissions rules

- Estat.nsi.ws.config.auth = true
- Estat.sri.ws.policymodule = true
- anonymousUser = *

For each method of the NSI WS, in the *nsiws.xml* file inside the *App_Data* folder, are defined which rules the user has to have in order to access the various methods exposed by the web service.

For instance the rule:



says that in order to access paths as "Envelope/Body/QueryStructure" the "CarRead-StrucuturalMetadata" permission is needed and that the access to that path is forbidden to the anonymous user (allowAnonymous = "false"). That file can be manually edited on the base of the specific needs.

The assignment of the rules to the users can be performed through the interface of the section Permissions/Set permissions/Rules.

Set permissions -	[admin]					×
Functionality	Rules	Agencies	Cubes	Category Schemes	(MH) DDB Connections	
Search	٩				16 selected rows	Deselect all
CanReadStruc	turalMetadata					
CanUpdateDa	ta					
CanUpdateStr	ucturalMetadata					
DataImporter	Role					
DataImporter	Role_U					
DataImporter	Role_UD					
DomainUserR	ole					
-					f	rom 11 to 18 of 21 rows
						Close Save

Management of the rules for the users

Some permissions are hierarchical and then if for instance the 'AdminRole' rule is assigned to a user, he implicitly receives all the other rules on cascade.

If, for instance, a user hasn't got the "*CanImportStructures*" right or a rule (role) that indirectly implies that permission (as for example "DataImporterRole") he will not be able to access the 'Import Structure' function and will receive an error response as 'Forbidden'.

2.10.6 Welcome Page, Footer and Logo configuration

It is possible to make configurable the following elements of the application (via appropriate configuration files):

- the application footer information (text and logo) by adding a file *index.html* to the path static/footer;
- the image (logo) that is displayed when the application is loaded by adding a file named *loading-logo.png* to the path static/png;
- the introductory text of the home-page, also managing localization, by moving the *homePage.html* file to the static/homepage path and renaming it according to the desired language in the format {lang}.html (for example it.html, en.html, etc.);
- the image placed in the top left corner, above the main menu. For header images, the files header-logo.png and header-logo-mini.png must be added to the path static/png.

2.10.7 Configuration server Smtp

To send an e-mail for the Recovery Password service, it is necessary to configure the SMTP server in the *main/app/ws/DM_API_WS/appsetting.json* file.

"AuthCore": {
"AlgorithmDefault": "SHA-512",
"AuthenticationProvider": "BASIC",
"DbAuthenticationProvider": "MSSQL",
//Connection to the AUTHDB
"CONN STR": "Data Source=src; Initial Catalog=AUTHDB; Persist Security Info=True; User ID=user; Password=pw",
"Cattor": [
"Rost": "mail.domain.it",
"Port": 25,
"Uzername": "user",
"Password": "pw",
"UseSSL": false,
"FromAddress": "user@domain.it",
"FromAlias": "Name Surname",
"TemplateMail": "\\config\\TemplateMail"
I Compared and Com
),

SMTP Server configuration

The fields to be modified are those between the brackets highlighted in the figure. For security reasons, the password must be entered already encrypted. To encrypt a password, a special tool is available in *main/files/crypt*:

- insert in the encriptKey.txt file the secret encryption key (which must be the same one used in DMApi (see ENCRYPTION_PASSW key in the *appsettings.json* file mentioned above))
- enter the password you wish to encrypt in the *input.txt* file
- double click on CriptUtilityApp.exe
- an *output.txt* file with the encrypted password to be entered in the Password field in the figure will be generated in the folder

2.10.8 Configurations and contexts Metadata API

The operation and configuration of the module in question can be analyzed in two distinct contexts:

2.10.8.1 Integrated context

The following figure describes the system where the server modules are installed on a single host and the HTML Metadata API widgets are integrated into the MDM client.



In this case, the system must be configured as follows:

- METADATA_API, in the appsettings.json file edit the fields:
 - "NodeBaseUrl": NodeAPI URL. MANDATORY because:
 - * the internal URL may be different from the external URL;
 - * The CKAN standard has a well-defined and not editable format that does not allow information to be retrieved except from configuration.

- "NodeId": Node identifier; MANDATORY for safety reasons. If valorized this NodeId value is always used to contact the NodeAPI; this behavior is adopted for security reasons, that is to avoid that the client can request information of other nodes simply by passing a different NodeId as a parameter in the URLs.
- **DM_API**, in the appsettings.json file edit the fields:
 - "IMPORT_REFERENCE_METADATA_BASE_DIR": directory dedicated to uploading files dedicated to referential metadata
- CLIENT (MDM, from interface)
 - Fill in (**MANDATORY** if not done in the following point), in the node configuration, the "Metadata API base url" field with the URL of the Metadata API
 - WIDGET HTML, in the /static/referenceMetadata/metadataapi.json file edit
 - * "baseUrl": Metadata API URL. **OPTIONAL** because specified by the MDM client

2.10.8.2 Decoupled context

The following figure describes the system with the Metadata API module on a different server from the rest of the components:



In this case, the system must be configured as follows:

- METADATA_API (appsettings.json, as an integrated context)
 - "NodeBaseUrl": URL delle NodeAPI. MANDATORY because:
 - * the internal URL may be different from the external URL
 - * The CKAN standard has a well-defined and not editable format that does not allow information to be retrieved except from configuration.

- "NodeId": Node identifier; MANDATORY for safety reasons. If valorized this NodeId value is always used to contact the NodeAPI; this behavior is adopted for security reasons, that is to avoid that the client can request information of other nodes simply by passing a different NodeId as a parameter in the URLs.
- DM_API (appsettings.json , as an integrated context)
 - "IMPORT_REFERENCE_METADATA_BASE_DIR": directory dedicated to the upload of referential metadata files
 - CLIENT (MDM, from interface)
 - Fill in (OPTIONAL), in the node configuration, the "Metadata API base url" field with the Metadata API URL
 - WIDGET HTML (/static/referenceMetadata/metadataapi.json)
 - * "baseUrl": Metadata API URL. MANDATORY because on a different server

2.11 Quick steps

This paragraph contains the synthetic summary of the steps needed for installing and configuring the application, starting from the point that the prerequisites have been already satisfied.

2.11.1 IIS Configuration

- Create 5 IIS pools for.NET and call them as follows: **POOL_NSIWS, POOL_MAWS, POOL_DMWS, POOL_METAWS** e **POOL_NODEWS**.
- Create an https binding using the SSL certificate present on the install server.

2.11.2 Creation of the DBs

- AUTHDB: create a new db and call it AUTHDB;
- MSDB: create a new db and call it MASTORE;
- **DDB**: create a new db and call it **DDB**;
- **RMDB**: create a new db and call it **RMDB**;
- Create a user with Administrator rights and with read/write permissions on the above dbs.

2.11.3 Web services deploy

• Assign to the IIS_IUSRS e IUSERS users read/write grants to the main/app folder.

2.11.3.1 NSI WS

- Create under the IIS Default Web Site a new application having "NSI_WS" alias, POOL_NSIWS application pool and path: *main/app/ws/NSI_WS*;
- Modify the *main/app/ws/NSI_WS/config/app.config* file in order to allow it to point to the **AUTHDB** and to the **MSDB** databases previously created.

2.11.3.2 MA API WS

- Create under the IIS Default Web Site a new application with "MA_WS" alias, **POOL_MAWS** application pool and path: *main/app/ws/MA_WS*;
- Modify the: *main/app/ws/MA_WS/AppData/ConnectionString* file in order to allow it to point to the **AUTHDB** and to the **MSDB** databases previously created.

2.11.3.3 DM API WS

- Create under the IIS Default Web Site a new application with "**DM_API_WS**" alias, **POOL_DMAPIWS** application pool and path: *main/app/ws/DM_API_WS*;
- Modify as follows the main/app/ws/DM_API_WS/appsetting.json file:
 - AuthCore/CONN_STR must point to the previously created AUTHDB database
 - DATA_PROVIDER_NAME/DEFAULT_DATA/CONN_STR must point to the previously created DDB database
 - DATA_PROVIDER_NAME/RM_DATA/CONN_STR must point to the previously created RMDB database
 - **DMApiSettings/IMPORT_FILE_BASE_DIR** must indicate the base filesystem path in which the loaded data files will be saved
 - **DMApiSettings/XML_MAPPING_BASE_DIR** must indicate the base filesystem path in which the loaded xml mapping for excel files will be saved

2.11.3.4 METADATA API

- Create under the IIS Default Web Site a new application with "METADATA_API" alias, POOL_METAWS application pool and path *main/app/ws/METADATA_API*;
- Modify the *main/app/ws/METADATA_API/appsetting.json* file in order to allow it to point to the **RMDB** previously created.
 - The value of the **NodeBaseUrl** key, to the url of the **NodeApi** module, described in the next paragraph.
 - The value of the NodeId key, its value is always used to contact the NodeAPI.
 - The value of the **Cache.Dir** key, so that it points to the path where the user wants cache files to be stored.
 - The value of the **Cache.Enable** key, with the value true or false for use or not the cache component.
 - The value of the **AllowedHosts** key, with a list of hostname addresses, for change the default host filtering middleware.

2.11.3.5 NodeApi

- Create under the IIS Default Web Site a new application with "NODE_API" alias, POOL_NODEWS application pool and path *main/app/ws/NODE_API*.
- In the **appsettings.json** file it is also possible to customize the name of the SENDER present in the json and xml messages created by the data exports. Just add or configure the entry **EXPORT_RM_SDMX_SENDER_ID**:

```
{
    "EXPORT_RM_SDMX_SENDER_ID": "MDM_SENDER"
}
```

Configuration SENDER ID for export

• In the **appsettings.json** file it is also possible to customize the name of the dataset agency and date format present in the xml messages created by the data exports. Just add or configure the **EXPORT_RM_SDMX_DATASET_AGENCY** and **GREGO-RIAN_DAY_FORMAT_SDMX_ML** entries as shown in the following example:

```
{
    "EXPORT_RM_SDMX_DATASET_AGENCY": null,
    "GREGORIAN_DAY_FORMAT_SDMX_ML": "dd/MM/yyyy",
}
```

Other Configurations for export

In this case dataset agency (EXPORT_RM_SDMX_DATASET_AGENCY) is not specified, so the metadataflow agency will be used as the default value.

2.11.4 DBs initialization

2.11.4.1 Initialization Wizard

- Inizialize AuthDB
- Extend AuthDb
- · Check Mapping Store
- Inizialize Mapping Store
- Inizialize DDB
- Inizialize RMDB

2.11.4.2 Disable the Wizard

2.11.5 Client deploy

- Create under the IIS Default Web Site a new virtual directory with "client" alias and path: *main/app/client*;
- Modify the *main/app/client/static/config.json* file by setting the fetchUrl field to *https://localhost/NODE_API*.
- Configure the **baseUrl** entry of the file **metadataapi.json** file in the folder **referenceMeta-data** of the client with the MetadataApi url.

2.11.6 First access to the application

- Access to: *https://localhost/client/#/configurations/nodes* with the "superadmin" credentials, click on the '*Add item*' button and create a new node with Id: '*N1*', Name: '*Test*' and the following Endpoints:
 - SDMX WS Endpoint: https://localhost/NSI_WS/SdmxRegistryService
 - MA Endpoint: https://localhost/MA_WS
 - DM Endpoint: https://localhost/DM_API_WS/api/DMApi
 - Base Url Metadata Api: https://localhost/METADATA_API
- Verify the correct definition of the endpoints by clicking on the related 'Ping' buttons.
- *Warning!* After the import of the CategoryScheme for categorizing cubes, access, from the main menu, the *Manage users/Set permissions* and assign to the "admin" user the permissions on all the categories cubes.
- Import through the *Import structures* function from the *Utilities* menu, the files contained in the *main/files/ReferenceMetadata* folder after having logged in.