

Instructions for the Installation and Configuration of requisis_MiX 1.9

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1 Introduction

requisis_MiX is an extension for IBM Rational DOORS 9 to migrate and synchronize modules between IBM DOORS and IBM DOORS Next Generation (DNG). This document provides detailed information for administrators and experienced users about the installation and configuration of the tool.

2 Requirements

To run requisis_MiX the following requirements need to be met before installing and running the tool:

- > IBM DOORS 9.6 or later
- > IBM DOORS Next Generation 6.0.5 or later
- > We recommend using *requisis_MiX* with at least 1920x1080 resolution (full HD). Especially if you want to use the Migration Manager.
- > Microsoft Visual C++ Runtime 2019 Redistributable must be installed.

You can download the latest Visual C++ Runtime packages directly from Microsoft: https://learn.microsoft.com/en-us/cpp/windows/latest-suppoPHPrted-vc-redist?view=msvc-170

3 Installation

The default installation of *requisis_MiX* requires 5 steps:

- 1) Run the installer.
- 2) Create a project named "requisis_MiX" in your DOORS database.
- 3) Restore the DMA-File containing a template module.
- 4) Create OAuth consumer key from the JTS application of the JAZZ platform.
- 5) Enter server details and OAuth consumer key in the requisis_MiX server configuration file.

In the chapters below each step is described in detail, together with some optional configuration steps.

3.1 Installation of requisis_MiX

3.1.1 Local Installation

requisis_MiX comes with an installer that installs the tool as a DOORS-Extension by setting the Current-User Registry-Key for DOORS-Addins.

3.1.2 Update of a local installation

To update a local installation, proceed as follows.

- > Perform an installation with the new requisis_MiX.exe and adjust the installation path to your current installation path if necessary. The path should correspond to the current installation path.
- > Navigate to the requisis_MiX main directory the default path is c:\REQUISIS\DXL\addins\REQUISIS\.

- > Change to the php\conf subfolder and copy the contents of the configuration.json.bak file to the configuration.json file. Removing the configuration.json file and renaming the configuration.json.bak files to configuration.json is also possible here.
- > Change to the config subfolder and copy the contents of the settings.inc.bak file to the settings.inc file. Removing the settings.inc file and renaming the settings.inc.bak files to settings.inc is also possible here.

Now the newly installed *requisis_MiX* version should start from the menu items in DOORS. If there are any problems or if you have any questions, please contact our product support via the corresponding menu in *requisis_MiX*.

3.1.3 Network installation

If you want to make *requisis_MiX* available to multiple uses, you can make an installation on a network share. Unzip the exe (e.g. using 7zip) to the desired location and create the registry keys to add *requisis_MiX* as DOORS-Extensions manually.

For DOORS 9.6 the key "Addins" located in "HKEY_CURRENT_USER\Software\ Telelogic\DOORS\9.6\Config" or in "HKEY_LOCAL_MACHINE\Software\ Telelogic\DOORS\9.6\Config" must be set the installation path.

Also change the value of the variable MIX_INSTALL_PATH in the configuration file ("config\settings.inc") to the correct network path. Please note that Backslashes need to be escaped as \\.

```
Example: string MIX_INSTALL_PATH=
"\\\myserver\\myAddinsShare\\addins\\REQUISIS\\requisis MiX";
```

3.1.4 Update of a network installation

To update a network installation, proceed as follows:

- > Create a backup copy of the file mixroot\php\configuration.json file outside the requisis_MiX root directory.
- > Create a backup copy of the file mixroot\config\settings.inc file outside the requisis_MiX root directory.
- > Unzip the new mix.exe (e.g. using 7zip) and replace the content with your previous requisis_MiX main directory.
- > Copy the backuped configuration.json file back to the php\conf subdirectory.
- Copy the backuped settings.inc file back to the config subdirectory.

Now the newly installed *requisis_MiX* version should start from the menu items in DOORS. If there are any problems or if you have any questions, please contact our product support via the corresponding menu in *requisis_MiX*.

3.2 Importing and setting up a Mapping Rule Module

To use a mapping rule module, that contains default mapping rules, a template must be imported to the DOORS Database. Therefore, the DMA-File in "addins\REQUISIS\REQUISIS_MiX\moduleTemplates" must be restored into a DOORS-Project named "requisis_MiX".

Selecting another location for the mapping rule module (optional):

If the mapping rule module should be stored at another location, the variable MIX_MAPPING_RULE_MODULE in the settings file ("config\settings.inc") must be adjusted accordingly to contain the path to the DOORS module.

Disabling the auto mapping functionality (optional):

To deactivate the automapping functionality, simply set the variable MIX_MAPPING_RULE_MODULE in the settings file ("config\settings.inc") to an empty string. In this case no template module is required.

3.3 **Setting up the Logging Module (optional)**

By default, all migrations are logged into a logging module named "Logging Module" located in the project "requisis_MiX". The module will be created the first time a migration is started. To use another location for the logging module simply adjust the variable MIX LOGGING MODULE in the settings file ("config\settings.inc"), the corresponding module will be created automatically.

3.4 **Configuration of DOORS Next Generation**

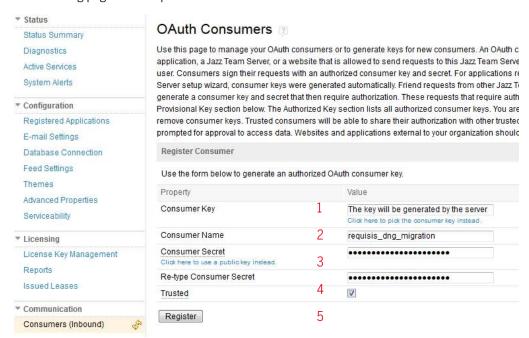
IMPORTANT: To make requisis MiX work with DNG you need to setup an OAuth Consumer Key and Secret in the JTS Application of the Jazz Platform.

Do not setup the oAuth Consumer Key and Secret in the RM Application!

Instructions:

Open "https://(your-server:your-port)/jts/admin#action=com.ibm.team.repository.admin.configureOAuth".

The following page should open:



1) Set Consumer Key:

Either choose one or note down the key generated by the server.

2) Set Consumer Name:

Set to "requisis_MiX" (or whatever you like)

3) Set Secret Key:

Choose a Secret from upper- and lower-case letters and numbers.

Special characters are not supported!

Activate checkbox

4) Set Trusted:

5) Click on Register

3.5 Configure Server Details and OAuth Consumer Key

Open the file "addins/REQUISIS/REQUISIS_MiX/php/conf/configuration.json" in the *requisis_MiX* installation folder.

Name in Jazz Platform	Parameter in configuration.json
Consumer Key	oauth_clientId
Secret Key	oauth clientSecret

Place your DNG server URL and OAuth consumer key here. You can configure multiple servers. The file should then look like the image below. (In this case 2 servers were configured)

```
"serverTargets": [
  {
    "targetUrl": "https:\/\/your-server1:9443",
    "oauth_autoLogin": true,
    "oauth_clientId": "tbd",
    "oauth clientSecret": "tbd",
    "maxSynchronousCurlRequests": 5
  },
    "targetUrl": [
        "https:\/\/your-DNGserver2.net",
        "https:\/\/your-JTSserver.net"
    "oauth autoLogin": true,
    "oauth clientId": "tbd",
    "oauth clientSecret": "tbd",
    "maxSynchronousCurlRequests": 5
],
"maxSynchronousCurlRequestsDefault": 5,
"proxy": "",
"indexerCheckInterval": 100,
"preferPublicApi": true,
"oleExtractionEnable": true,
"zipBinaryData": true,
"curlTimeout": 120,
"curlConnectionTimeout": 60
```

Please note that / needs to be escaped with an \setminus in the json format.

You can also specify two different URLs for DNG/RM and JTS. To do this, create an array for the different URLs. The URLs in the array *do not* require a specific order. Note the configuration of the second server in the example above this text.

3.5.1 Settings in the configuration.json file

Under the ServerTargets section are the following options that apply to any connection to the above targets.

> maxSynchronousCurlRequestsDefault:

Number of synchronously executed requests to the server. Defaultvalue: 5

> proxy:

If necessary, an IP address and port for a proxy server can be entered here specify as (hostname/ip address): (port) for the connections to the JAZZ server. No default value

> indexerCheckInterval:

Interval in seconds while waiting for tasks on the JAZZ server Defaultvalue: 100

> preferPublicApi:

Prefers to use the DNG public API before the private API Defaultvalue: true

> oleExtractionEnable:

When disabled, all OLE containers are migrated as binary data. Defaultvalue: true

> zipBinaryData:

Zips non-extractable OLE container. Defaultvalue: true

> curlTimeout:

Timeout while waiting for a response from the JAZZ server in seconds. Defaultvalue: 120

> curlConnectionTimeout:

Timeout while waiting for the connection to the JAZZ server in seconds. Defaultvalue: 60

3.5.2 SSL-client certificates for DNG Server Connections (optional)

This configuration step is only necessary if *SSL* <u>client</u> <u>certificates</u> are required for communication with the DNG server. To set up SSL <u>client</u> certificates for a specific server you need to edit the <u>configuration.json</u> file.

```
In the relevant section of the server concerned, insert the lines ssl_client_cert_file,
ssl_client_cert_keyfile and ssl_client_cert_keyfile_password.
As shown here:
{
    "targetUrl": "https:\/\/your-server1:9443",
    "oauth_autoLogin": true,
    "oauth_clientId": "123ab12a",
    "oauth_clientSecret": "123ab12a",
    "ssl_client_cert_file": "conf/certs/ssl-client-cert.pem",
    "ssl_client_cert_keyfile": "conf/certs/ssl-client-cert.key.pem",
    "ssl_client_cert_keyfile_password": "yourSecretPassword",
    "maxSynchronousCurlRequests": 5
},
```

Put your SSL public and private certificates for the connection to your DNG server in this subfolder:

```
php\conf\certs
```

3.5.3 Configure Auto Login

It is possible to add the two parameters *autologinUsername* and *autologinPassword* to a server target to enable an Auto Login for a DNG server. This Auto Login does not work together with the OIDC login.

The user used here must first be created in DNG.

```
"targetUrl": "https:\/\/ your-server1:9443",
    "oauth_autoLogin": true,
    "oauth_clientId": "123ab12a ",
    "oauth_clientSecret": "specialSecret",
    "maxSynchronousCurlRequests": 20,
    "databaseCreatedPriorToVersion7": false,
    "autologinUsername": "dng-auto-user",
    "autologinPassword": "autosecret"
},
```

3.6 Start requisis_MiX

To use *requisis_MiX* use menu "**REQUISIS/REQUISIS_MiX**" from within a module. During the first use you will be asked for license information or to request an evaluation license.

NOTE: Evaluation licenses are limited to migrate 500 objects per module.

A user manual that describes the usage of *requisis_MiX* can be found in "addins/REQUISIS/REQUISIS_MiX/manual" within the installation folder. The user manual can also be opened by clicking on any *Help* button in the UI.

3.6.1 PHP settings and usage in terminal server environments (Citrix etc.)

If you run *requisis_MiX* in a terminal server environment such as Citrix. You must release the following files for execution in your Terminal Server environment:

- > php.exe
- > launcher.exe
- > php-win.exe

You will find these files in the *php/bin* subfolder of your *requisis_MiX* installation folder. You can test whether your terminal server environment allows execution by double-clicking the corresponding exe file. If you want to use your own PHP installation, you can specify this in the *settings.inc* file in the *config* subfolder under the parameters MIX_PHP_CALLER and MIX_PATH_TO_PHP. If the exe files are not released for execution, you will receive a DXL error message that looks something like this when executing a migration with *requisis_MiX*:

```
-R-E- DXL: <REQUISIS/requisis_MiX/lib/Shell.inc:75> SHELL: executing command failed with following error - OLE problem: Access is denied.

, OLE error code: 0x%08x
Backtrace:

<REQUISIS/requisis_MiX/lib/Shell.inc:290>

<REQUISIS/requisis_MiX/lib/helpFunctions.inc:1793>

<REQUISIS/requisis_MiX/lib/helpFunctions.inc:1824>

<REQUISIS/requisis_MiX/controller/phpCaller.inc:26>

<REQUISIS/requisis_MiX/controller/callbackFunctions.inc:30>

<REQUISIS/requisis_MiX/controller/callbackFunctions.inc:98>

<REQUISIS/requisis_MiX/controller/callbackFunctions.inc:104>

<REQUISIS/requisis_MiX/gui/gui.inc:872>

<\\RBGS064A

ADAS_RM_Toolbox

NonPublic/addins/REQUISIS/requisis_MiX/doorsToDng.dx1:25>
```

4 Advanced Configuration

For most use cases *requisis_MiX* should work well with its default behavior and the settings provided by the UI. However, in some special use cases the user may want to adjust a certain behavior of the tool. Therefore, the file "settings.inc" offers additional parameters to adjust. You find this file in the subfolder "config" of your *requisis_MiX* installation. It is recommended creating a backup of this file before making any changes. This section gives a short overview over the available parameter.

4.1 Allow Objects without Type

Variable Name: MIX ALLOW OBJECTS WITHOUT TYPE

Description: Determines how to handle objects whose type is not defined. The object type is defined by setting a value for the object type definition attribute (Can be chosen in the UI).

<u>If set to false (default)</u>: To start a migration the user has to set a value for the object type definition attribute for each object.

<u>If set to **true**</u>: In the "Type Mapping" dialog a new entry will become available in the list of DOORS types ("[[Object Type not set]]"). The type mapping of all objects with no value in their object type definition attribute will be determined by this entry.

BE CAREFUL: In this case all objects with undefined object type are mapped to the same DNG type!

4.2 Customization for merged attributes

If you merge multiple Doors attributes into one DNG attribute, these attributes are separated by a line break. Each new line starts with the attribute name of the Doors attribute. Attribute value and attribute name are separated by a colon and a space. It is possible to customize this behavior. For example, that each line after the attribute value ends with a semicolon. In the "config" folder, navigate to the "userFunctions.inc" file. There you will find the following addAttributeLabel function, which controls the output.

```
void addAttributeLabel (Buffer resultBuffer, Buffer textBuffer, string
attributeName, bool bShowAttributeLabelsInCollection, bool isHtml)
{
  if (bShowAttributeLabelsInCollection) {
    if (isHtml) {
      //add label only if not Object Text and Object Heading
      if (attributeName != "Object Text" && attributeName != "Object
Heading") {
        resultBuffer += "<b>" attributeName ":</b>";
      } else { //stop here, no \n or space
        return;
    } else {
      resultBuffer += attributeName":";
    //MIX ATTRIBUTE FLOATING AMOUNT defined in settings.inc default:20;
    if (length(textBuffer) > MIX ATTRIBUTE FLOATING AMOUNT) {
      resultBuffer += "\n";
    } else {
      resultBuffer += " ";
```

4.3 Deactivate the Check for Unsupported Fonts

Variable Name: MIX CHECK FOR UNSUPPORTED FONTS

Description: By default, *requisis_MiX* will check for unsupported fonts when preparing the migration. Setting this variable to "false" will deactivate this check.

4.4 Set the Default Choice for the Object Type Attribute

Variable Name: MIX DEFAULT MAPPING ATTRIBUTE

Description: On the first page of the *requisis_MiX* GUI, the user can specify which DOORS attribute determines the object type of each object. This attribute determines which DOORS attribute is preselected when *requisis_MiX* is started for the first time in a module. If there is no attribute with this name in the module, the selection is empty.

4.5 Save OLE-Objects as .ole instead of .rtf

Variable Name: MIX EXPORT GUI OLE RTF OPTION

Description: This parameter determines if DOORS OLE-Objects are embedded in RTF-files (Rich Text) before they are transferred to DNG. This has the advantage, that the files can be opened with MS-Word from DNG. The functionality is activated by default. If the parameter is set to false, all OLE-Objects are transferred as .ole files instead.

4.6 Show Empty Attributes in Collations (Merged Attributes)

Variable Name: MIX EMPTY ATTRIBUTES IN COLLECTION

Description: If several DOORS attributes are mapped to the same DNG attribute in the attribute mapping dialog, the values are merged. Thereby entries in the shape of "**<attribute name>: <attribute value>**" are concatenated. The parameter below decides what happens, if one of the values to merge is empty.

If set to **true**: An entry "**<attribute name>:**" is added for empty values.

If set to false (default): Nothing is added for empty values.

4.7 Adjust the LOG-Level

Variable Name: MIX LOGLEVEL

Description: Defines how detailed the log messages are. The default is **WARN**, increase to **INFO** or **DEBUG** to create more detailed logs that can be provided to the support.

Choices are (In order of decreasing amount of information provided): **DEBUG**, **INFO**, **WARN**, **ERROR**, **FATAL_ERROR**, **PROGRESS**

4.8 Set the Default Link Type for external links

Variable Name: MIX EXTERNAL LINK TYPE ALIAS

Description: Defines the Default DNG link type alias for external link creation. To change this type copy a URI from the *link types* tab of the *components properties* of your target module.

Default setting: "http://www.ibm.com/xmlns/rdm/types/Link" (Link to)

4.9 Use operating systems default browser for DNG Login

Variable Name: MIX_EXTERNAL_LOGIN

Description: In some network environments or when using terminal server environments, it is possible that the browser configured in Doors cannot be used for logging into DNG.

If set to true: requisis_MiX uses the standard browser of the operating system on the host.

If set to false (default): requisis_MiX uses the browser configured in the Doors client.

4.10 Encryption of oauth keys in configuration.json

It is possible to encrypt the keys oauth_clientId and oauth_clientSecret as well as all values with the index ssl client cert keyfile password in the configuration.json file.

To do this,

- > Open the php/config subfolder of your requisis_MiX installation and locate the file configuration.json.
- > Copy configuration.json into the php subfolder of the same installation.
- > Start encryption by dragging configuration.json onto encrypt_configuration.cmd in the php subfolder.
- When the console window opens, confirm with a key press. A new encrypted file named configuration.encrypted.json is then created, with the keys oauth_clientId and oauth_clientSecret, as well as all values with the index ssl_client_cert_keyfile_password, encrypted.
- > Copy configuration.encrypted.json back into the php/config subfolder so that requisis_MiX uses it.
- > Keep the original unencrypted configuration.json in a secure location outside the installation directory.

If you want to disable encryption, copy the unencrypted file back into the php/config subfolder and remove the file configuration.encrypted.json.

4.11 Support for changing the DNG server domain

requisis_MiX supports you when you move your DNG server to another domain. To ensure that modules that have already been migrated can still be updated, you will find the DXL script changeDomain.dxl in the tools subfolder of your requisis_MiX installation directory. The script can rewrite all MIX attributes of the current module from your old DNG domain to the new domain. Before you run the script, you must fill in the two parameters OLD_DOMAIN and NEW DOMAIN with the respective domain.

Example:

```
OLD_DOMAIN = "my.old-jazz.com"
NEW DOMAIN = "the.new-jazz.com"
```

To make the fully configured script available from the *Tools* menu in the *requisis_MiX* entry of the corresponding DOORS module, you also need to edit the tools.idx file. Add the following line to the file:

```
changeDomain _ _ Change DNG Server Domain for current module
```

You can customize the text after the two underscores () as needed.

In order for requisis_MiX to connect to the new DNG domain, the configuration.json file must also be adjusted. For more information, see chapter 3.5 Configure Server Details and OAuth Consumer Key of this manual.

It is also possible to transfer this script to your own DXL script to migrate more than one module to the new domain.

5 API

It is possible to control *requisis_MiX* also via API. Before you start the migration via API, the modules to be migrated must be configured accordingly via GUI for the migration. To use the API you have to include the file *mixBatchIncludes.inc* from the subfolder *dxl/config* into your script. In the subfolder *dxl/api* you will find further examples for the use of the API.

5.1 API Functions

syncToDng(string sFullModuleName, bool bShowGui)

Function to migrate a DOORS formal module into a DNG module artifact.

Parameters:

- > sFullModuleName: DXL fullname of the formal module you want to migrate.
- > bShowGui: true shows progressbar and result window, false shows nothing

syncLinksToDng(string sLinkSyncModuleName, bool bShowGui)

Function to migration links configured in a requisis_MiX link module to DNG.

Parameters:

- > sLinkSyncModuleName: DXL fullname of the *requisis_MiX* link module. The module from which you start the *requisis_MiX* link migrations gui.
- > bShowGui: true shows progressbar and result window, false shows nothing

syncMigrationManagerToDng(string sMigrationManagerModuleName, bool bShowGui)

Function to migration formal modules configured in a requisis_MiX migration manager module to DNG.

Parameters:

- > sMigrationManagerModuleName: DXL fullname of the *requisis_MiX* migration manager module. The module from which you start the *requisis_MiX* migration manager.
- bShowGui: true shows progress bar and result window, false shows nothing

5.2 DXL Example

Code example for DXL users: Migration/synchronization of a module with preparation steps.

```
#include <//addins/REQUISIS/requisis MiX/config/mixIncludes.inc>
pragma encoding, "UTF-8"
pragma runLim, 0;
Regexp resultIsError
                           = regexp2 "ERROR:.*"
Regexp resultLogFileName
                           = regexp2 "syncResult:(.*)"
string modNameDC = "/ImportantProject/Specifications"
string viewName = "Migration"
string attrType = "ObjectType
string TargetFolderURI = "https://myDNGServer.de/rm/folders/FR_ABC"
string dngModuri = "newModcheck"
string dngModType = "Requirements Document"
//should only be run once per module
string modcheck = initNewModule(modNameDC, TargetFolderURI, dngModuri, dngModType, viewName,
attrType, true, true)
print modcheck "\n"
//init module data and run automapping
Buffer bError = create();
//important! variable name must be mCurrent
mCurrent= edit(modName, true, true, true);
syncConfiguration = getSyncConfiguration(mCurrent);
initObjectMapping(mCurrent, objectMapping);
//load Datamodel
artifactMapping = getDngDatamodel(getDngModuleUrl(), uniqueID(mCurrent), false);
purifyArtifactMapping(artifactMapping);
```

```
//run automapping
bool hasUnmappedElements = runAutomapping(mCurrent, bError)
//save data
saveSyncConfiguration(mCurrent);
saveCurrentModule(mCurrent);
if (hasUnmappedElements ) {
    print stringOf(bError)
} else {
    //try to sync module to dng
    string result = syncToDng(modName , true)
    print result
}
delete(bError)
```



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