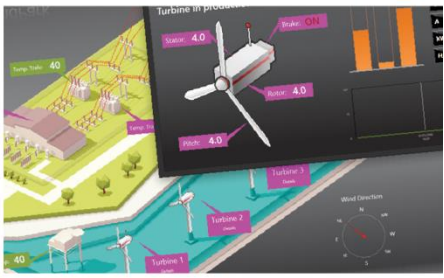
INDUSTRIAL AUTOMATION SOFTWARE
progea

Movicon.next™
Automation Platform.next generation



Movicon NExT

20.0 Tools

Ver.3.4

Sommario

1. Tools

Movicon.NExT utilizza alcuni tool, sviluppati sempre da Progea, per eseguire determinate operazioni o funzionalità. Di seguito viene riportato l'elenco di questi tool, con una breve descrizione del loro scopo di utilizzo. Per maggiori informazioni sul funzionamento ed eventuale configurazione di questi applicativi si consiglia di consultare l'help relativo all'applicativo stesso.

Project Builder

E' un Wizard in grado di modificare un progetto base Movicon.NExT su cui poter personalizzare alcune delle funzionalità principali.
Per maggiori dettagli vedi i capitoli relativi al Project Builder.

SQL DB configuration

Strumento per gestire le seguenti Operazioni sulle tabelle di un progetto Movicon.NExT:

- Aggregazione Tabelle Data Logger
- Utilizzo Tabelle Partizionate

Per maggiori dettagli vedi i capitoli relativi al Tool SQL Database Configurator.

Alarm Dispatcher

In questo caso non si tratta di un vero e proprio tool ma di un modulo indipendente dalla parte client di Movicon.NExT, in grado di essere avviato e arrestato tramite riga di comando, con la funzione di notifica degli allarmi e degli eventi tramite diversi moduli configurabili. Per maggiori dettagli vedi i capitoli relativi all' Alarm Dispatcher.

2. Project Builder

2.1. Introduzione

I progetti di Movicon.NExT possono essere creati anche utilizzando procedure automatiche, completamente personalizzabili. Ad esempio, è possibile realizzare autonomamente dei "wizard" in grado di creare o modificare i progetti di Movicon.NExT, in molte delle proprie componenti.
Questa possibilità, per utenti esperti, permette di velocizzare enormemente le procedure di sviluppo di progetti o parti di progetto ripetitive, creando wizard personalizzati che permettono all'utente di ridurre drasticamente i tempi di sviluppo.
Ad esempio è possibile creare automaticamente progetti con sinottici, variabili, allarmi, Historian e numerose altre funzionalità di progetto, semplicemente creando le regole per realizzare automaticamente le procedure di creazione automatica.
Questa potente funzionalità si basa su un componente appositamente preposto allo scopo, gestibile da uno script VB.NET di Movicon.NExT oppure creando autonomamente un tool esterno tramite Visual Studio. Il componente di Movicon si chiama Project Builder di Movicon.NExT.
Ad esempio, alcuni utenti lo utilizzano per creare procedure automatizzate di creazione di progetti o parti di progetto, semplicemente selezionando le fonti di importazione (esempio file di Excel o database di dati esterni) o mediante wizard di configurazione che permettono all'utente meno esperto di definire che cosa vuole creare, in modo che il Project Builder esegua quanto richiesto creando il progetto e tutte le risorse già debitamente configurate.

Il Componente Project Builder

Il componente Project Builder è costituito da un oggetto (.DLL) da richiamare opportunamente mediante codice, e fornisce la possibilità di creare o modificare numerose risorse di un progetto Movicon.NExT, mediante l'utilizzo di codice script VB.NET del progetto stesso, da mettere in esecuzione, oppure mediante la realizzazione autonoma di un tool eseguibile creato da Visual Studio. In entrambi i casi, il componente MoviconNextBuilder.dll , potrà essere opportunamente gestito dal proprio codice per realizzare le procedure automatiche di creazione o modifica di un progetto di Movicon.NExT, oppure di richiedere una procedura guidata (wizard) per l'utente, secondo la quale poi verrà realizzato e configurato il progetto o parte di esso.
Il componente Project Builder offre le seguenti funzionalità:

I/O Data Server

Per quanto riguarda i Tag e gli allarmi è possibile modificare/personalizzare tutte le proprietà.
- Creare/modificare/eliminare un tag
- Associare/rimuovere un allarme a un tag
- Associare/rimuovere un historian a un tag
- Creare/rinominare/eliminare un folder nella lista tag
- Creare/modificare/eliminare un datalogger
- Aggiungere/rimuovere una colonna a un datalogger
- Creare/rinominare/eliminare un'area allarmi
- Creare/rinominare/eliminare una sorgente allarmi

Per quanto riguarda gli allarmi sarà possibile modificare/personalizzare tutte le proprietà.

- Creare/modificare/eliminare un allarme
- Creare/modificare/eliminare un Prototipo
- Creare/modificare/eliminare un Engineering Unit
- Modificare i Settings del IO server (Application Name, ecc)
- Aggiungere/configurare/rimuovere un driver di comunicazione

Screens
- Creare/modificare/eliminare uno screen
- Inserire/modificare/eliminare un oggetto toolbox dallo screen
- Inserire/modificare/eliminare un simbolo di libreria dallo screen

Texts
- Aggiungere/modificare/rimuovere una stringa
- Aggiungere/rimuovere una lingua

Parameters
- Creare/eliminare file di parametrizzazione
- Creare/eliminare un parametro (coppia alias/variabile) da un file di parametrizzazione

2.2. Impostazione Progetto Visual Studio

Per quanto riguarda il progetto Visual Studio, esso dovrà essere impostato per Net framework 4.6.1 o successivo e dovrà avere come percorso di output la cartella di installazione di Movicon.NExT (C:\Program Files\Progea\Movicon.NExT).

Per potere salvare file nella cartella di destinazione, occorrerà probabilmente aprire VisualStudio come amministratore del pc. Ciò dipende sostanzialmente dal percorso in cui è stato installato precedentemente di Movicon NeXT.

All'interno del progetto visual studio dovranno poi essere presenti le dichiarazioni **using System.Reflection**, **using CommandManager** e i seguenti riferimenti (**References**) :

- **CommandManager.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT\Managers
- **DataLoggerModel.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT
- **DevExpress.Xpo.Vx.x.dll** si trova nel percorso di default: %windir%\Microsoft.NET\assembly\GAC_MSIL
- **MoviconNextBuilder.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT
- **OPCUAViewModel.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT
- **ScreenParameterSettings.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT
- **ScreenSettings.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT
- **StringModel.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT
- **UFInterfaces.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT

- **UFUAModel.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT
- **ViewModelBase.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT
- **WPFUtilities.dll** si trova nel percorso di default: C:\Program Files\Progea\Movicon.NExT

infine all'interno del file **App.config** dovrà essere aggiunto il seguente nodo :

```
<runtime>
 <assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">
        <probing
        privatePath="DocumentManagers;DocumentManagers\LogicExtensions;Managers;
        Drivers; Toolbox;DataSinks;CommonPlugins;DesignPlugins" />
 </assemblyBinding>
</runtime>
```

2.3. Istanza Gestore Progetto

Per potere agire su di un progetto Movicon.NeXT mediante la libreria di classi descritta in seguito nel presente documento, occorrerà preventivamente ottenere un'istanza dell'oggetto ProjectBuilder, della classe MoviconNextBuilder. A tale scopo occorrerà inserire, nella fase di inizializzazione dell'applicazione VisualStudio, il codice opportuno, come nell'esempio seguente:

```
MoviconNextBuilder.ProjectBuilder Builder;
Uri fileprj;
try {
   Builder = new MoviconNExTBuilder.ProjectBuilder();
   // get the Movicon NeXT project path
   fileprj = "ProjectPath\\ProjectName.UFProject"
   // initialize the ProjectBuilder instance
   Builder.Init(fileprj);
 } catch (Exception eX) {
   MessageBox.Show("Error in initializing MoviconNextBuilder dll: " + eX.Message,
"MovNextBuilderEx", MessageBoxButton.OK, MessageBoxImage.Error);
```

A questo punto avremo la possibilità di utilizzare gli oggetti gestori del progetto Movicon NeXT. Gli oggetti da utilizzare sono:

- **IODataServer**: istanza della classe omonima, che gestisce tutti gli aspetti del server dei dati.
- **ParametersContainer**: istanza della classe Parameters per la parametrizzazione dei sinottici.
- **ScreenContainer**: istanza della classe omonima, per gestire i sinottici in modalità creazione, modifica ecc...
- **StringsResource:** istanza della classe TextResource, per la gestione dei testi e delle lingue.

Tali oggetti sono accessibili come proprietà dell'oggetto ProjectBuilder.

2.4. TextResource

2.4.1. AddLanguage, TexResource Method

Syntax System.Globalization.CultureInfo AddLanguage(string language)

Description Adds the indicated language in the project.

Parameter	Description
string language	name of the language/culture to add

Result ScreenParametersSettings.Documents.ScreenParametersDocument (instance of an object that represents the created parameter file. Returns null if in error.

Example:

```
// defining a Project Builder string resource
var texts = Builder.StringsResource;
// add a new en-US language definition
texts.AddLanguage("en-US");
// add a new it-IT language definition
texts.AddLanguage("it-IT");
// saving text configuration change
texts.Save();
```

2.4.2. AddString, TexResource Method

Syntax System.Collections.Generic.List<StringModel.UFStringLocaleText> AddString(string stringid)

Description Adds with indicated id.

Parameter	Description
string stringid	string id to be added

Result System.Collections.Generic.List<StringModel.UFStringLocaleText>: List of objects that represent the string ids just inserted. Returns null when in error.

Example:

```
// defining a Project Builder string resource
var texts = Builder.StringsResource;
// add a new en-US language definition
```

```
texts.AddLanguage("en-US");
// add a new it-IT language definition
texts.AddLanguage("it-IT");
// add a new stringId and Locale string definition for each language
var str = texts.AddString("first_Id");
if (str.Count == 2) {
  str[0].Locale = "Open";
  str[1].Locale = "Apri";
}
// add a new stringId and Locale string definition for each language
str = texts.AddString("second_Id");
if (str.Count == 2) {
  str[0].Locale = "Close";
  str[1].Locale = "Chiudi";
}
// add a new stringId and Locale string definition for each language
str = texts.AddString("third_Id");
if (str.Count == 2) {
  str[0].Locale = "Up";
  str[1].Locale = "Su";
}
// saving text configuration change
texts.Save();
```

2.4.3. DeleteLanguage, TexResource Method

Syntax bool DeleteString(string stringId)

Description Deletes the indicated string from the project.

Parameter	Description
string stringId	Name of the string id to be deleted.

Result Boolean

Example:

```
// defining a Project Builder string resource
var texts = Builder.StringsResource;
// delete the en-US language definition
texts.DeleteString("second_Id");
// saving text configuration change
texts.Save();
```

2.4.4. DeleteString, TexResource Method

Syntax bool DeleteLanguage(string language)

Description Deletes the indicated language from the project.

Parameter	Description
string language	Name of the language/culture to be deleted.

Result Boolean

Example:

```
// defining a Project Builder string resource
var texts = Builder.StringsResource;
// delete the en-US language definition
texts.DeleteLanguage("en-US");
// saving text configuration change
texts.Save();
```

2.4.5. GetString, TextResources Metod

Syntax System.Collections.Generic.List<StringModel.UFStringLocaleText> GetString(string stringid)

Description Retrieves the string indicated.

Parameter	Description
string stringId	name of id string to retrieve.

Result System.Collections.Generic.List<StringModel.UFStringLocaleText>: List of objects that represent the strings of the id just inserted. When in error returns null.

Example:

```
// defining a Project Builder string resource
var texts = Builder.StringsResource;
// retrieve the en-US locale string
var retStrings = texts.GetString("first_Id");
if (retStrings != null) {
  foreach(StringModel.UFStringLocaleText rs in retStrings) {
    if (rs.Culture = "en-US"){
```

```
      MessageBox.Show("String from " + "'first_Id'" + " in " + rs.Culture + " is: " +
rs.Locale);
    }
  }
}
```

2.4.6. Save, TextResource Method

Syntax Void Save()

Description Saves all the changes pending in the screen container

Parameter	Description
-	-

Result -

Example:

2.4.7. SetString, TexResource Method

Syntax bool SetString(string stringid, string language, string newvalue)

Description Changes the indicated string.

Parameter	Description
string language	Language which string is changed to.
string stringId	Name of the string id to be changed.
string newvalue	new string value

Result Boolean

Example:

```
// defining a Project Builder string resource
var texts = Builder.StringsResource;
// delete the en-US language definition
texts.SetString("second_Id","en-US","New string value");
// saving text configuration change
```

texts.Save();

2.4.8. TextResource, TexResource Method

Syntax TextResource(DocumentManager.ComponentService.IDocument parent, StringEditorManagerComponent editormanager)

Description This is the class builder. An object instance of the class that is already built and created with the initialization procedure describedin initialization phase (see MoviconNextBuilder.ProjectBuilder project instance builder)

Parameter	Description
-	-

Result -

Example:

2.5. ScreenContainer

2.5.1. Screen Container Examples

You can cast an added screen object with the desired properties in the following way as shown in this example:

Button

Content Property:

If the object is the return value from the **AddToolboxItem** function:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreenContainer;
// add a new toolbox item to the screen
var button = screenCollection.AddToolboxItem("ScreenName", "Rectangular
CommandButton  D", "ButtonName", 100, 100, 100, 50);
// to manage some properties of the added object you can use a type casting
((System.Windows.Controls.Button)((System.Windows.Controls.ContentControl)button.El
ement).Content).Content = "Button Text";
Nel caso in cui si debba intervenire sulle proprietà di un oggetto aggiunto in
precedenza ad uno screen allora si deve agire in questo modo:
// instance of ScreenContainer object
var screenCollection = Builder.ScreenContainer;
// get instance of ScreenDocument object
```

```
var screenDoc = screencollection.GetScreen("ScreenName");
// get instance of ScreenEntity object
var btnEntity = (screenDoc.MapScreenEntities)["ButtonName"];
// get access to the content property by mean of Element object with a cast to the
appropriate type
((System.Windows.Controls.Button)((System.Windows.Controls.ContentControl)btnEntity
.Element).Content).Content = "Button Text";
```

TextBox

FontSize and Text Property:

If the object is the return value from the **AddToolboxItem** function:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreenContainer;
// add a new toolbox item to the screen
var button = screenCollection.AddToolboxItem("ScreenName", "Text", "TextName", 100,
100, 100, 50);
// to manage some properties of the added object you can use a type casting
((System.Windows.Controls.TextBox)text.Element).FontSize = 15;
((System.Windows.Controls.TextBox)text.Element).Text = "Text Content";
```

2.5.2. AddFolder, ScreenContainer Method

Syntax bool AddFolder(string folder)

Description Adds a folder by the name indicated in the screen tree.

Parameter	Description
string name	name of screen folder to be added. Diverse folder levels can be inserted simply by indicating them in the parameter eg: "FirstFolder\\LastFolder" adds the LastFolder folder content in the FirstFolder folder

Result Bool: operation result.

Example:

```
// instance of ScrenContainer object
var screenCollection = Builder.ScreenContainer;
// adding screen folder
screenCollection.AddFolder("NewFolder");

// saving ScreenContainer change
screenCollection.Save();
```

2.5.3. AddGeoData, ScreenContainer Method

Syntax bool AddGeoData(string name, double latitude, double longitude, [OPCUAViewModel.OPCUAEntityReference longitudeTag = null], [OPCUAViewModel.OPCUAEntityReference latitudeTag = null], [string subfolder = null], [bool overwrite = False])

Description Adds a pair of geographical coordinates to the indicated screen.

Parameter	Description
string name	name of the screen in which to insert the references to the coordinates
double latitude	latitude coordinate
double longitude	longitude coordinate
[OPCUAViewModel.OPCUAEntityReference longitudeTag = null]	instance of an object that represents the tag from which to retrieve the value of the latitude, optional.
[OPCUAViewModel.OPCUAEntityReference latitudeTag = null]	instance of an object that represents the tag from which to retrieve the value of the longitude, optional.
[string subfolder = null]	folder in which the screen is inseted in the screen tree, optional.
[bool overwrite = False]	overwrite flag, optional

Result Bool: operation result.

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
// adding geo coordinates
screencollection.AddGeoData("NewScreen", 12.1, -35.5);
// saving ScreenContainer change
screenCollection.Save();
```

2.5.4. AddScreen, ScreenContainer Method

Syntax ScreenSettings.ScreenDocument AddScreen(string name, string modelname, [string subfolder = null])

Description Adds a screen with the name indicated based on the template modelname.

Parameter	Description
string name	name of screen to be added
string modelname	name of template to be used for the created screen. The template names are the names of the files contained in the folder (and subfolders) ProgramData\Progea\Movicon.NExT.3.0\NewScreenTypes\
string subfolder = null	name of the folder in which the function's screen object is contained.

Result ScreenSettings.ScreenDocument: instance of an object representing the created screen. Returns null if in error.

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreenContainer;
// adding screen
var screen = screenCollection.AddScreen("NewScreen","full_HD_anthracite");
// saving screenContainer change
screenCollection.Save();
```

2.5.5. AddSymbol, ScreenContainer Method

Syntax MoviconNextBuilder.ScreenElement AddSymbol(string screen, string item, string name, double x, double y, double width, double height, [string subfolder = null], [OPCUAViewModel.OPCUAEntityReference tag = null], [bool linkonly = True])

Description Adds an element from the symbol library to the indicated screen.

Parameter	Description
string name	element name added
string screen	name of screen to add element to
string item	name of library symbol to be used. The name of the symbols are the names of files contained folder (and subfolders) obtained with the NewScreenTypesFolder function of this class.
double x	x coordinate in pixels
double y	y coordinate in pixels
double width	element's width
double height	element's length

[string subfolder = null]	folder where screen is defined. Optional:
[OPCUAViewModel.OPCUAEntityReference tag = null]	object representing the tag to be connect to the added element. Optional.
[bool linkonly = True]	Insertion flag as link. Optional.

Result MoviconNextBuilder.ScreenElement: istanza di un oggetto che rappresenta l'elemento aggiunto allo screen. In caso di errore ritorna null.

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreenContainer;
// adding symbol
var screen = screenCollection.AddSymbol("NewScreen", "Acces_Traffic1"
              , "access"
             , 200, 200, 70, 70);
// saving screenContainer change
screenCollection.Save();
```

2.5.6. AddToolboxItem, ScreenContainer Method

Syntax MoviconNextBuilder.ScreenElement AddToolboxItem(string screen, string item, string name, double x, double y, double width, double height, [string subfolder = null], [OPCUAViewModel.OPCUAEntityReference tag = null])

Description Adds an element from the toolbox to the indicated screen.

Parameter	Description
string name	Name of added element.
string screen	Name of scrren to which to add element.
string item	Name of toolbox element. The names of toolbox elements are the names of files contained in the folder (and subfolders) obtained from the ToolBoxFolder function of this class.
double x	x coordinate in pixels
double y	y coordinate in pixels
double width	element's width
double height	element's height

[string subfolder = null]	folder in which screen is defined. Optional.
[OPCUAViewModel.OPCUAEntityReference tag = null]	Obect representing the tag to connect to the added object. Optional.

Result MoviconNextBuilder.ScreenElement: instance of an object representing the element added to the screen. Return null when in error.

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreenContainer;
// adding toolbox item
var screen = screenCollection.AddToolboxItem("NewScreen", "Rectangular
CommandButton  D"              , "Button", 200, 200, 70, 70);
// saving screenContainer change
screenCollection.Save();
```

2.5.7. DeleteScreen, ScreenContainer Method

Syntax bool DeleteScreen(string name, [string subfolder = null])

Description Deletes the indicated screen

Parameter	Description
string name	Name of the screen to be deleted.
[string subfolder = null]	Folder within which the screen is defined. Optional.

Result Boolean

Example:

```
Bool: esito dell'operazione
Esempio
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
// deleting element
screencollection.DeleteScreen("NewScreen");
// saving ScreenContainer change
screenCollection.Save();
```

2.5.8. DeleteElement, ScreenContainer Method

Syntax ScreenSettings.ScreenDocument GetScreen(string name, [string subfolder = null])

Description Gets the object instance representing the indicated screen.

Parameter	Description
string name	screen name
[string subfolder = null]	folder where screen is defined, optional

Result ScreenSettings.ScreenDocument: screen object instance. Returns null if in error.

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
// getting screen
screencollection.GetScreen("NewScreen");
```

2.5.9. GetScreen, ScreenContainer Method

Syntax bool DeleteElement(string screen, string elementname, [string subfolder = null])

Description Deletes the indicated element from screen.

Parameter	Description
string elementname	Name of element to be deleted.
string screen	Name of screen from which element is to be deleted.
[string subfolder = null]	folder in which screen is defined. Optional.

Result Boolean

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
// deleting element
screencollection.DeleteElement("NewScreen","Button");
// saving ScreenContainer change
```

```
screenCollection.Save();
```

2.5.10. GetScreenUri, ScreenContainer Method

Syntax System.Uri GetScreenUri(string name, [string subfolder = null])

Description Tets the inidcated screen's Uri

Parameter	Description
string name	name of screen
[string subfolder = null]	Folder within which the screen is defined. Optional.

Result System.Uri: Uri of the desired screen. Returns null if in error.

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
// getting screen Uri
screencollection.GetScreenUri("NewScreen");
```

2.5.11. NewScreenTypesFolder, ScreenContainer Method

Syntax string NewScreenTypesFolder()

Description Gets the path containing the symbol file contents.

Parameter	Description
-	-

Result String

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
// getting screen Uri
var typesFolder = screencollection.NewScreenTypesFolder ();
```

2.5.12. Save, ScreenContainer Method

Syntax void Save()

Description Saves all the changes pending in the ScreenContainer.

Parameter	Description
-	-

Result -

2.5.13. ScreenContainer, ScreenContainer Method

Syntax ScreenContainer(DocumentManager.ComponentService.IDocument parent, UFProjectManagerComponent manager)

Description This is the class builder. A class instance object, that is therefore already build and is created with the initialization procedure described in the initialization phase (see MoviconNextBuilder.ProjectBuilder project instance manager)

Parameter	Description
-	-

Result -

2.5.14. SetScreenEntity, ScreenContainer Metod

Syntax bool SetScreenEntity(string screen, string name, OPCUAViewModel.OPCUAEntityReference tag, [string subfolder = null])

Description sets the Tag Item for the nameobject name in the screenname screen.

Parameter	Description
String screen	name of screen

String name	name of object in screen
OPCUAViewModel.OPCUAEntityReference tag	refers to the tag to be used in the object
[string subfolder = null]	folder within which the optional screen is defined.

Result Boolean

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
var server = Builder.IODataServer
var tagscreen = server.GetTagEntityReference("NomeTag");

// setting screen element tag
screenCollection.SetScreenEntity(screenName, "editVar", tagscreen, "screenFolder");
// saving ScreenContainer change
screenCollection.Save();
```

2.5.15. SearchXamlItem, ScreenContainer Method

Syntax string SearchXamlItem(string itemname, string path)

Description Searches for an .xaml file in start folder in a starting folder. This is needed, for example, to get the complete path of an object from the toolbox or symbol library.

Parameter	Description
string itemname	Name of file to search for.
string path	Start path.

Result String: complete path of the object searched for.

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
// getting screen Uri
var itemPath = screencollection.SearchXamlItem("AlarmWindowControl",
"C:\\ProgramData\\Progea\\Movicon.NExT.3.1")
```

2.5.16. SetBackground, ScreenContainer Method

Syntax bool SetBackground(string name, System.Windows.Media.Brush background, [string subfolder = null])

Description Sets the indicated screen background.

Parameter	Description
string name	Name of screen.
System.Windows.Media.Brush background	System.Window.Media.Brushes enumeration element.
[string subfolder = null]	Folder in which screen is defined. Optional.

Result Boolean

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
// deleting element
screencollection.SetBackground("NewScreen" , Brushes.Black);
// saving ScreenContainer change
screenCollection.Save();
```

2.5.17. ToolBoxFolder, ScreenContainer Method

Syntax string ToolBoxFolder()

Description Gets the path in which the toolbox element files are contained.

Parameter	Description
-	-

Result String: Toolbox file path

Example:

```
// instance of ScreenContainer object
var screenCollection = Builder.ScreensContainer;
// getting screen Uri
var typesFolder = screencollection.ToolBoxFolder();
```

2.6. Parameters

2.6.1. AddParameterFile, Parameter Method

Syntax ScreenParametersSettings.Documents.ScreenParametersDocument AddParameterFile(string name)

Description Adds a parameter file with the specified name.

Parameter	Description
string name	name of the parameter file to be added

Result ScreenParametersSettings.Documents.ScreenParametersDocument (instance of an object representing the created parameter file. Returns null if in error)

Example:

```
// instance of Parameters object
var paramCollection = Builder.ParametersContainer;
var parmFile = paramCollection.AddParameterFile("NewParamFile")
// saving Parameters change
paramCollection.Save();
```

2.6.2. DeleteParameterFile, Parameter Method

Syntax ScreenParametersSettings.Documents.ScreenParametersDocument GetParameterFile(string name)

Description Gets the instance of an object representing the indicated parameter files.

Parameter	Description
string name	Name of parameter file desired.

Result Boolean

Example:

```
// instance of Parameters object
var paramCollection = Builder.ParametersContainer;
// deleting parameter file
paramCollection.DeleteParameterFile("NewParamFile")
// saving Parameters change
paramCollection.Save();
```

2.6.3. GetParameterFile, Parameter Method

Syntax System.Uri GetParameterUri(string name)

Description Gets the indicated parameter file's Uri.

Parameter	Description
string name	name of desired parameter file

Result Parameter file's Uri. Returns null when in error.

Example:

```
// instance of Parameters object
var paramCollection = Builder.ParametersContainer;
// getting parameter file
var parameters = paramCollection.GetParameterFile("NewParamFile")
```

2.6.4. GetParameterUri, Parameter Method

Syntax bool DeleteParameterFile(string name)

Description Deletes the indicated parameter file.

Parameter	Description
string name	Name of parameter file to delete

Result ScreenParametersSettings.Documents.ScreenParametersDocument (instance of an object representing the parameter file. Returns null when in error).

Example:

```
// instance of Parameters object
var paramCollection = Builder.ParametersContainer;
// getting parameter file
var parameters = paramCollection.GetParameterFile("NewParamFile")
```

2.6.5. Parameters, Parameter Method

Syntax Parameters(DocumentManager.ComponentService.IDocument parent, UFProjectManagerComponent editormanager)

Description This is the class builder. A class object instance which is already built and created with the initialization procedure during the initialization phase (see MoviconNextBuilder.ProjectBuilder project instance manager)

Parameter	Description
-	-

Result -

Example:

2.6.6. Save, Parameter Method

Syntax Void Save()

Description Saves all the changes pending in the Parameters

Parameter	Description
-	-

Result -

Example:

2.7. IODataServer

2.7.1. AddAlarmArea, IODataServer Method

Syntax UFUAModel.UFUAArea AddAlarmArea(string name, [UFUAModel.UFUAArea parent = null])

Description Adds an Alarm Area with name in the parent Alarm area.

Parameter	Description
string name	name of new alarm area
UFUAModel.UFUAArea parent	reference to eventual parent alarm area (optional).

Result UFUAModel.UFUAArea (object representing the alarm area just added)

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// add a new alarm prototype
// add alarm area
var alarmArea = server.AddAlarmArea("NewAlarmArea");
// add a new alarm prototype in the area
var subarea = server.AddAlarmArea("NewAlarmSubArea", alarmArea);
// saving IOServer
```

2.7.2. AddAlarmDefinition, IODataServer Method

Syntax UFUAModel.UFUAAlarmDefinition AddAlarmDefinition(string name, UFUAModel.UFUAAlarmSource parent, [bool overwrite = False])

Description Adds a new definition to the alarm with name of 'name' within the source. .

Parameter	Description
string name	name of the new alarm definition
UFUAModel.UFUAAlarmSource parent	reference to the alarm source in which to define the new alarm
bool overwrite	overwrites an existing alarm

Result UFUAModel.UFUAAlarmDefinition (object representing the alarm definition just added)

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// add a new alarm prototype
// add alarm area
var alarmArea = server.AddAlarmArea("NewAlarmArea");
// add alarm source in the area
var source = server.AddAlarmSource("NewAlarmSource", alarmArea);
```

```
// add alarm edfinition for the source
var alarm = server.AddAlarmDefinition("NewAlarm", source);
// saving IOServer configuration change
server.Save();
```

2.7.3. AddAlarmSource, IODataServer Method

Syntax UFUAModel.UFUAAlarmSource AddAlarmSource(string name, UFUAModel.UFUAArea parent)

Description Adds a new alarm name definition within the source.

Parameter	Description
string name	name of the new alarm source
UFUAModel.UFUAArea parent	reference to the area in which to define new source

Result UFUAModel.UFUAAlarmSource (object represening the alarm source just added)

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// add a new alarm prototype
// add alarm area
var alarmArea = server.AddAlarmArea("NewAlarmArea");
// add alarm source in the area
var source = server.AddAlarmSource("NewAlarmSource", alarmArea);
// saving IOServer configuration change
server.Save();
```

2.7.4. AddBaseAddress, IODataServer Method

Syntax UFUAModel.UFUABaseAddress AddBaseAddress([string transport = net.pipe])

Description Adds tranport type.

Parameter	Description
string transport	name of new transport, possible values: • net.pipe • net.tcp • opc.tcp

	• http • https • nosecurityhttp

Result UFUAModel.UFUABaseAddress: object representing the transport just added.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// add the transport net.tcp to the IOServer
var baseAddress = server.AddBaseAddress("net.tcp");
// changing a property of the transport object
baseAddress.Port = 62847;
// saving IOServer configuration change
server.Save();
```

2.7.5. AddDatalogger, IODataServer Method

Syntax DataLoggerModel.DataLoggerSettings AddDatalogger(string name, [bool overwrite = False])

Description Adds a DataLogger prototype with name as name

Parameter	Description
string name	name of DataLogger prototype to be added.
[bool overwrite = False]	Overwrites an existing prototype, optional. In the presense of a datalogger homonym, the return value will be null if no overwrite is requested.

Result DataLoggerModel.DataLoggerSettings: object that consents access to the various properties of the Datalogger prototype just inserted.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting aa existing tag reference
var tag = server.GetTag("TagName");
if (tag != null) {
  // adding a DataLogger
  var dl = server.AddDatalogger("DataLoggerName");

  if (dl != null) {
    // enabling the DataLogger
    dl.Enable = true;
```

```
  // setting the sampling time (in this example the interval time is represented in
hundred nanoseconds (10000 ticks in a millisecond)
   dl.RecordingTimeInterval = new TimeSpan(10000000); // 1 sec of interval
  // adding a DataLogger New column
  var col = server.AddDataLoggerColumn("DataLoggerColumn", dl);
  // adding a tag reference to the new added column
  if (tag != null)
  col.ColumnTag = new UFUAModel.TagEntityReference(tag);
}
// saving IOServer configuration change
server.Save();
```

2.7.6. AddDataLoggerColumn, IODataServer Method

Syntax DataLoggerModel.DataLoggerColumn AddDataLoggerColumn(string name, DataLoggerModel.DataLoggerSettings datalogger, [bool overwrite = False])

Description Consents to adding a new column definition in the datalogger

Parameter	Description
string name	name of the Column to be added
DataLoggerModel.DataLoggerSettings datalogger	datalogger to which the new column definition is to be added
[bool overwrite = False]	oeverwrites an existing column, optional. In cases of honomous columns, the return value will be null unless an overwrite is requested.

Result DataLoggerModel.DataLoggerColumn: object which consents acced to the various added column's properties.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting aa existing tag reference
var tag = server.GetTag("TagName");
if (tag != null) {
 // adding a DataLogger
 var dl = server.AddDatalogger("DataLoggerName");

 if (dl != null) {
  // enabling the DataLogger
  dl.Enable = true;
 // setting the sampling time (in this example the interval time is represented in
hundred nanoseconds (10000 ticks in a millisecond)
   dl.RecordingTimeInterval = new TimeSpan(10000000); // 1 sec of interval
```

```
  // adding a DataLogger New column
  var col = server.AddDataLoggerColumn("DataLoggerColumn", dl);
  // adding a tag reference to the new added column
  if (tag != null)
  col.ColumnTag = new UFUAModel.TagEntityReference(tag);
}
// saving IOServer configuration change
server.Save();
```

2.7.7. AddEngineeringUnit, IODataServer Method

Syntax UFUAModel.UFUAEngineeringUnit AddEngineeringUnit(string name, [bool overwrite = False])

Description Adds the engineering unit name

Parameter	Description
string name	name of the engineering unit to be added
[bool overwrite = False]	overwrites existing unit, optional. In cases of an homonymous unit the return value will be null if overwrite is not requested.

Result UFUAModel.UFUAEngineeringUnit: object that consents access to the various properties of the added engineering unit.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// engineering unit creation
var cust = server.AddEngineeringUnit("customUnit");
if (cust != null) {
  cust.EURangeHigh = 1000;
  cust.EURangeLow = 0;
  cust.InstrumentRangeHigh = 10000;
  cust.InstrumentRangeLow = 10;
  cust.UnitName = "twix";
}
// saving IOServer configuration change
server.Save();
```

2.7.8. AddFolder, IODataServer Method

Syntax UFUAModel.UFUAFolder AddFolder(string name, [UFUAModel.UFUAFolder folder = null])

Description Used to add a folder to a specific tree level of the variables in the IO DataServer.

Parameter	Description
string name	name of the Folder to be added
[bool overwrite = False]	folder in which to insert the new folder. Optional, if omitted the folder will be added at the root of the tag tree.

Result UFUAModel.UFUAFolder: object that consents access to the various added folder's properties.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// add a folder in the tag tree root
var tagFolder = server.AddFolder("Folder");
// add a subfolder in the tag tree
tagFolder = server.AddFolder("Folder2", tagFolder);
// saving IOServer configuration change
server.Save();
```

2.7.9. AddHistorian, IODataServer Method

Syntax UFUAModel.UFUAHistorianSettings AddHistorian(string name, [bool overwrite = False])

Description Used to add a new Historian prototype definition.

Parameter	Description
string name	name of Historian prototype to be added
[bool overwrite = False]	overwrites an existing prototype, optional. In cases of honomyous prototypes, the return value will be null if no overwrite is requested.

Result UFUAModel.UFUAHistorianSettings: object which allows access to the various properties of the added Historian prototype.

In the example which follows, you will also see how to add a tag to the Historian just created.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting an existing tag reference
var tag = server.GetTag("TagName");
if (tag != null) {
  var historianName = "NewHistorian";
  // new Historian Prototype
  var historian = server.AddHistorian(historianName);
  if (historian != null) {
    // some properties of Historian Prototype
    historian.ExceptionDeviationFormat = UFUAModel.DeviationType.AbsoluteValue;
    historian.ExceptionDeviation = 1.0;
    historian.MaxTimeInterval = new TimeSpan(0, 0, 2); // 1 sec of inreval
    historian.MinTimeInterval = new TimeSpan(0, 0, 2); // 1 sec of inreval
  }
// assign historian reference to the tag
tag.HistorianSettings = historianName;
// saving IOServer configuration change
server.Save();
```

2.7.10. AddNewDriver, IODataServer Method

Syntax bool AddNewDriver(string assemblyname, string friendlyname, string factory)

Description Used to add a driver to the IO DataServer.

Parameter	Description
String assemblyname	name of driver dll
String friendlyname	mnemonic reference name to driver in the Movicon NeXT project
String factory	name of builder

Result Boolean

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// add the ModbusTcp IODriver
server.AddNewDriver("ModbusTCP.dll", "ModbusTcp", "Modbus");
// saving IOServer configuration change
```

2.7.11. AddPrototype, IODataServer Method

Syntax UFUAModel.UFUATagPrototype AddPrototype(string name, [bool overwrite = False])

Description Adds a data model prototype to the IO DataServer.

Parameter	Description
String name	name of the data model prototype to be added
[bool overwrite = False]	overwrites an existing prototype, optional. In the presense of an homonymous prototype, the value will return null if not requested to overwrite.

Result UFUAModel. UFUATagPrototype : object that allows access to the various properties of the added data model prototype.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// prototype creation
string prototypeName = "structVar";
var proto = server.AddPrototype(prototypeName);
// saving IOServer configuration change
server.Save();
```

2.7.12. AddPrototypeMember, IODataServer Method

Syntax UFUAModel.UFUATag AddPrototypeMember(string name, UFUAModel.UFUATagPrototype proto, [UFUAModel.DataType type = 2], [bool overwrite = False])

Description Adds a member to an existing data model prototype.

Parameter	Description
String name	name of member to be added.
UFUAModel.UFUATagPrototype proto	data model prototype to add member to.
[UFUAModel.DataType type = 2]	member's data type. The data types allowed are those deinge in the UFUAModel.DataType enumeration: • Boolean • Byte • Double • Float • Int16

	• Int32 • Int64 • Sbyte • String • Uint16 • Uint32 • Uint64
[bool overwrite = False]	overwrites an existing member, optional. In cases where a prototype of the same name exists, the value will return null if not requested to overwrite.

Result UFUAModel. UFUATag : object allowing access to the various properties of the added member.

In the following example you will also see how to a create a tag from the data model prototype just created.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// prototype creation
string prototypeName = "structVar";
var proto = server.AddPrototype(prototypeName);
// add prototype members
if (proto != null) {
  server.AddPrototypeMember("Indication", proto, UFUAModel.DataType.Int16);
  server.AddPrototypeMember("Label", proto, UFUAModel.DataType.String);
  server.AddPrototypeMember("Distance", proto, UFUAModel.DataType.Double);
  server.AddPrototypeMember("Present", proto, UFUAModel.DataType.Boolean);
  server.AddPrototypeMember("Quantity", proto, UFUAModel.DataType.Int32);
}
// prototype element tag creation
var tag = server.AddTag("Element");
if (tag != null) {
  tag.ModelType = UFUAModel.ModelType.ObjectType;
  tag.PrototypeModel = prototypeName;
  tag.Description = "Production element";
}
// saving IOServer configuration change
server.Save();
```

2.7.13. AddTag, IODataServer Method

Syntax UFUAModel.UFUATag AddTag(string name, [UFUAModel.UFUAFolder folder = null], [UFUAModel.DataType type = 2], [bool overwrite = False])

Description Used to define a new tag and to add it to the IO DataServer

Parameter	Description
String name	Name of tag to be added.
UFUAModel. UFUAFolder folder	Folder in which to add tag, optional.
[UFUAModel.DataType type = 2]	Tag's data type, optional. The data types allows are those defined in the UFUAModel.DataType enumeration: • Boolean • Byte • Double • Float • Int16 • Int32 • Int64 • Sbyte • String • Uint16 • Uint32 • Uint64
[bool overwrite = False]	Overwrites an existing tag, optional. When a tag with the same name exists already, the value will return null unless requested to overwrite it.

Result UFUAModel.UFUATag: object allowing access to the various added tag's properties.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// integer tag creation
tag = server.AddTag("NewIntegerTag", null, UFUAModel.DataType.UInt16, true);
  if (tag != null) {
    tag.ArrayDimension = 0;
    tag.Description = "New integer tag";
    tag.InitialValue = "0";
  }
// add a folder in the tag tree root
var tagFolder = server.AddFolder("Folder");
// boolean tag creation into the new folder
  tag = server.AddTag("NewBooleanTag", tagFolder, UFUAModel.DataType.Boolean,
true);
  if (tag != null) {
    tag.ArrayDimension = 0;
    tag.Description = "New boolean tag";
    tag.InitialValue = "false";
  }
// saving IOServer configuration change
server.Save();
```

2.7.14. AssignAlarmToTag, IODataServer Method

Syntax bool AssignAlarmToTag(UFUAModel.UFUATag tag, UFUAModel.UFUAAlarmDefinition alarm, [int type = 0], [string text =])

Description Assigns an existing alarm prototype to the tag.

Parameter	Description
UFUAModel.UFUATag tag	Tag to which the alarm prototype is to be assigned.
UFUAModel.UFUAAlarmDefinition alarm	Alarm prototype to be assigned.
[int type = 0]	Assignment mode, optional • 0: Single • 1: AnyTagBit • 2: AntTagElement (for tag array)
[string text =]	alarm text, optional

Result -

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting a tag reference from IOServer
var tag = server.GetTag("TagName");
// getting an alarm reference from IOServer
var alarm = server.GetAlarmDefinition("NewAlarm",
server.GetAlarmSource("NewAlarmSource", server.GetAlarmArea("NewAlarmArea")));
if (tag != null && alarm != null)
  // assign an alarm to the tag
  server.AssignAlarmToTag(tag, alarm, 0, "New Alarm text");
// saving IOServer configuration change
server.Save();
```

2.7.15. DeleteAlarmArea, IODataServer Method

Syntax bool DeleteAlarmArea(string name, [UFUAModel.UFUAArea parent = null])

Description Used to delete alarm area definition

Parameter	Description
string name	Name of alarm area to delete.
[UFUAModel.UFUAArea parent = null]	Any area in which the area to be deleted is defined, optional.

Result Boolean

This function will delete the alarm area even when empty.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// delete alarm area
server.DeleteAlarmArea("NewAlarmArea");
// saving IOServer configuration change
server.Save();
```

2.7.16. DeleteAlarmDefinition, IODataServer Method

Syntax bool DeleteAlarmDefinition(string name, UFUAModel.UFUAAlarmSource parent)

Description Used to delete alarm definition

Parameter	Description
string name	name of alarm definition to be deleted
UFUAModel.UFUAAlarmSource parent	name of the alarm source containing the alarm definition

Result Boolean

This function will delete the alarm definition even when already assigned a tag.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// get the alarm area instance
var area = server.GetAlarmArea("NewAlarmArea");
// get the alarm source instance
var source = server.GetAlarmSource("NewAlarmSource", area);
// delete the alarm definition
server.DeleteAlarmDefinition("NewAlarm", source);
// saving IOServer configuration change
server.Save();
```

2.7.17. DeleteAlarmSource, IODataServer Method

Syntax bool DeleteAlarmSource(string name, UFUAModel.UFUAArea parent)

Description Deletes the definition of the alarm source

Parameter	Description
string name	name of the alarm source to be deleted
UFUAModel.UFUAArea parent	alarm area containing the source to be deleted

Result Boolean

This function will delete the alarm source even when empty.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// get the alarm area instance
var area = server.GetAlarmArea("NewAlarmArea");
// delete alarm source
server.DeleteAlarmSource("NewAlarmSource", area);
// saving IOServer configuration change
server.Save();
```

2.7.18. DeleteDatalogger, IODataServer Method

Syntax bool DeleteDatalogger(string name)

Description Deletes a DataLogger

Parameter	Description
string name	name of DataLogger to be deleted

Result Boolean

This function will delete data logger even when empty.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
```

```
// delete DalaLogger
server.DeleteDatalogger("DataLoggerName");
// saving IOServer configuration change
server.Save();
```

2.7.19. DeleteDataloggerColumn, IODataServer Method

Syntax bool DeleteDataloggerColumn(string name, DataLoggerModel.DataLoggerSettings datalogger)

Description Deletes the definition of a column in the indicated DataLogger

Parameter	Description
string name	name of column to be deleted
DataLoggerModel.DataLoggerSettings datalogger	DataLogger from which column is to be deleted

Result Boolean

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting DataLogger instance
var dataLogger = server.GetDatalogger("DataLoggerName");
// delete DataLogger column
server.DeleteDataloggerColumn("DataLoggerColumnName", dataLogger);
// saving IOServer configuration change
server.Save();
```

2.7.20. GetDataloggerList, IODataServer Method

Syntax System.Collections.Generic.List<string> GetDataloggerList()

Description Get the list of all Dataloggers configured in the project.

Parameter	Description
-	-

Result System.Collections.Generic.List<string>: DataLogger list.

Example:

```
// instance of IODataServer variable
```

```
var server = Builder.IODataServer;

// getting the data logger
var DataloggerList server.GetDataloggerList();
```

2.7.21. DeleteEngineeringUnit, IODataServer Method

Syntax bool DeleteEngineeringUnit(string name)

Description Deletes indicated engineering unit

Parameter	Description
string name	name of engineering unit to be deleted

Result Boolean

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// delete Engineering Unit
server.DeleteEngineeringUnit("customUnit");
// saving IOServer configuration change
server.Save();
```

2.7.22. DeleteFolder, IODataServer Method

Syntax bool DeleteFolder(string name, [UFUAModel.UFUAFolder folder = null])

Description Deletes the folder indicated by the folder passed as second parameter. If the second parameter is not indicated, the folder will be cancelled from the root.

Parameter	Description
string name	Name of folder to be deleted.
[UFUAModel.UFUAFolder folder = null]	Name of any eventual folder containing the folder to be deleted, if allowed the folder will be deleted from the root. To obtain the folder object instance, use IODataServer.GetFolder, optional.

Result Boolean

This function will delete the folder even when empty.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// delete Folder
server.DeleteFolder("Folder2",server.GetFolder("Folder"));
// saving IOServer configuration change
server.Save();
```

2.7.23. DeleteHistorian, IODataServer Method

Syntax bool DeleteHistorian(string name, [bool removefromtag = False])

Description Deletes the indicated Historian prototype removing any tag associations.

Parameter	Description
string name	Name of Historian prototype to be deleted.
[bool removefromtag = False]	When set to True, removes any associations to the Historian of previously assigned tags. Optional.

Result Boolean

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// delete Historian
server.DeleteHistorian("NewHistorian");
// saving IOServer configuration change
server.Save();
```

2.7.24. GetHistorianList, IODataServer Method

Syntax System.Collections.Generic.List<string> GetHistorianList()

Description Get the list of all the Historians configured in the project.

Parameter	Description
-	-

Result System.Collections.Generic.List<string>: Historian list.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;

// getting the historian list
var HistorianList server.GetHistorianList();
```

2.7.25. DeletePrototype, IODataServer Method

Syntax bool DeletePrototype(string name)

Description Deletes the indicated tag prototype.

Parameter	Description
string name	Name of prototype to be deleted.

Result Boolean

This function deletes the prototype even when empty and/or if there are tags based on it.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// delete Prototype
server.DeletePrototype("structVar");
// saving IOServer configuration change
server.Save();
```

2.7.26. DeleteTag, IODataServer Method

Syntax bool DeleteTag(string name, [UFUAModel.UFUAFolder folder = null])

Description Deletes indicated Tag.

Parameter	Description
string name	Name of tag to be deleted.
[UFUAModel.UFUAFolder folder = null]	Instance of the folder object containing the tag. If allowed, it will deleted from the root. To get the

	folder object's instance you must use IODataServer.GetFolder. Optional.

Result Boolean

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the tag folder
var tagFolder server.GetFolder("tagFolder");
// delete Tag
server.DeleteTag("tagName", tagFolder);
// saving IOServer configuration change
server.Save();
```

2.7.27. GetAlarmArea, IODataServer Method

Syntax UFUAModel.UFUAArea GetAlarmArea(string name, [UFUAModel.UFUAArea parent = null])

Description Gets the instance of a UFUAModel.UFUAArea type object represening the indicated alarm area.

Parameter	Description
string name	Name of Alarm Area to retrieve.
[UFUAModel.UFUAFolder folder = null]	Instance of the alarm area containing the area to be retrieved. If the alarm area has been added, it will be contained at the root. Optional.

Result UFUAModel.UFUAArea: instance of the desired AlarmArea object. When in error, will return null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the alarm area
var area server.GetAlarmArea("NewAlarmArea");
```

2.7.28. GetAlarmDefinition, IODataServer Method

Syntax UFUAModel.UFUAAlarmDefinition GetAlarmDefinition(string name, UFUAModel.UFUAAlarmSource parent)

Description Gets the instance of an UFUAModel.UFUAAlarmDefinition object representing the indicated alarm definition.

Parameter	Description
string name	Name of the alarm definition to be retrieved.
UFUAModel.UFUAAlarmSource parent	Instance of the Alarm Source object in which the alarm is defined.

Result UFUAModel.UFUAAlarmDefinition: Instance of the desired alarm definition. When in error returns null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the alarm
var alarm server.GetAlarmDefinition("NewAlarm",
server.GetAlarmSource("NewAlarmSource", server.GetAlarmArea("NewAlarmArea")));
```

2.7.29. GetAlarmSource, IODataServer Method

Syntax UFUAModel.UFUAAlarmSource GetAlarmSource(string name, UFUAModel.UFUAArea parent)

Description Gets the instance of an UFUAModel.UFUAAlarmSource object represening the indicated alarm source.

Parameter	Description
string name	Name of the desired alarm source.
UFUAModel.UFUAArea parent	Instance of the alarm area in which source is defined.

Result UFUAModel.UFUAAlarmSource: Instance of the alarm source desired. Returns null when in error.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the alarm source
var source server.GetAlarmSource("NewAlarmSource",
server.GetAlarmArea("NewAlarmArea"));
```

2.7.30. GetBaseAddress, IODataServer Method

Syntax UFUAModel.UFUABaseAddress GetBaseAddress(string transport)

Description Gets the instance of the UFUAModel.UFUABaseAddress object representing the indicated transport.

Parameter	Description
string transport	transport type to retrieve.

Result UFUAModel. UFUABaseAddress: indicated transport object instance. When in error, returns null.

Returned object can be used to delete transport type.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the base address
var transport server.GetBaseAddress("net.tcp");
// deleting transport object
transport.Delete();
// saving IOServer configuration change
server.Save();
```

2.7.31. GetDatalogger, IODataServer Method

Syntax DataLoggerModel.DataLoggerSettings GetDatalogger(string name)

Description Gets the indicated DataLoggerModel.DataLoggerSettings object instance.

Parameter	Description
string name	Name of DataLogger to retrieve.

Result DataLoggerModel.DataLoggerSettings: indicated DataLogger object instance. When in error returns Null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the data logger
var dataLogger server.GetDatalogger("DataLoggerName");
```

2.7.32. GetDataloggerColumn, IODataServer Method

Syntax DataLoggerModel.DataLoggerColumn GetDataloggerColumn(string name, DataLoggerModel.DataLoggerSettings datalogger)

Description Gets instance of the indicated DataLoggerModel.DataLoggerColumn column object beloning to the indicated DataLoggerModel.DataLoggerSettings Datalogger.

Parameter	Description
string name	Name of the column to be retrieved
DataLoggerModel.DataLoggerSettings datalogger	Instance of the Datalogger object which column belongs to.

Result DataLoggerModel.DataLoggerColumn: indicated olumn object instance. When in error returns null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the data logger
var dataLogger server.GetDatalogger("DataLoggerName");
// getting the data logger column
var dataLoggerColumn = server.GetDataloggerColumn("DataLoggerName",
dataLogger);
```

2.7.33. GetEngineeringUnit, IODataServer Metod

Syntax UFUAModel.UFUAEngineeringUnit GetEngineeringUnit(string name)

Description Gets instance of the desired UFUAModel.UFUAEngineeringUnit object.

Parameter	Description
string name	name of engineering unit to be retrieved.

Result DataLoggerModel.DataLoggerColumn: indicated column object instance. When in error, returns null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the engineering unit
var engUnit server.GetEngineeringUnit("customUnit");
```

2.7.34. GetFolder, IODataServer Metod

Syntax UFUAModel.UFUAFolder GetFolder(string name, [UFUAModel.UFUAFolder folder = null])

Description Gets an instance of the desired UFUAModel.UFUAFolder object if contained in another folder.

Parameter	Description
string name	Name of folder to retrieve.
[UFUAModel.UFUAFolder folder = null]	Any eventual object folder instance containing the desired folder.

Result UFUAModel.UFUAFolder: instance object of indicated folder. Returns null when in error.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// get folder
var folder = server.GetFolder("Folder2",server.GetFolder("Folder"));
// saving IOServer configuration change
server.Save();
```

2.7.35. GetHistorian, IODataServer Metod

Syntax UFUAModel.UFUAHistorianSettings GetHistorian(string name)

Description Gets an instance from the indicated UFUAModel.UFUAHistorianSettings object.

Parameter	Description
string name	name of historian to be retrieved

Result UFUAModel. UFUAHistorianSettings: indicated Historian's instance object. Returns null when in error.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting Historian
var historian = server.GetHistorian("NewHistorian");
```

2.7.36. GetPrototype, IODataServer Method

Syntax UFUAModel.UFUATagPrototype GetPrototype(string name)

Description Gets the instance of the indicated UFUAModel.UFUATagPrototype object.

Parameter	Description
string name	name of prototype to retrieve.

Result UFUAModel.UFUATagPrototype : instance object of indicated prototype. When in error, returns null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting Prototype
var proto = server.GetPrototype("structVar");
```

2.7.37. GetServerConfiguration, IODataServer Method

Syntax UFUAModel.UFUAConfiguration GetServerConfiguration()

Description gets an instance from the UFUAModel.UFUAConfiguration object of the IODataServer server.

Parameter	Description
-	-

Result UFUAModel.UFUAConfiguration: instance object of the IODataServer server. When in error returns null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting server configuration
var serverConfig = server.GetServerConfiguration();
```

2.7.38. GetServerEntityReference, IODataServer Method

Syntax OPCUAViewModel.OPCUAEntityReference GetServerEntityReference()

Description Gets an instance from the OPCUAViewModel.OPCUAEntityReference object of the IODataServer server.

Parameter	Description
-	-

Result OPCUAViewModel.OPCUAEntityReference: instance object of the IODataServer server. In case of error returns null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting server entity reference
var serverReference = server.GetServerEntityReference();
```

2.7.39. GetTag, IODataServer Method

Syntax UFUAModel.UFUATag GetTag(string name, [UFUAModel.UFUAFolder folder = null])

Description Gets the UFUAModel.UFUATag object's instance of the indicated tag in the folder it belongs to.

If some property of returned object is modified, the metod Save of IODataServer class must be called in order to see the modified properties also in a subsequent call to others method of this class.

Parameter	Description
string name	name of tag to be retrieved
[UFUAModel.UFUAFolder folder = null]	any eventual folder object instance containing the desired tag.

Result UFUAModel.UFUATag: the desired tag's instance object. Returns null when in error.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the tag folder
var tagFolder server.GetFolder("tagFolder");
// getting Tag
var tag = server.GetTag("tagName", tagFolder);
```

2.7.40. GetTagEntityReference, IODataServer Method

Syntax OPCUAViewModel.OPCUAEntityReference GetTagEntityReference(string name, [string instance = null])

Description Gets an instance of the indicated tag's OPCUAViewModel.OPCUAEntityReference object. Attention, this method only functions when the Save method has been called after having added the tag.

Parameter	Description
string name	name of tag to retrieve, possibly composed according to the folder in which it is contained (eg. Folder\varname)
[string instance = null]	instance name when tag is a prototype type.

Result OPCUAViewModel.OPCUAEntityReference: desired tag's instance object. Return null when in error.

The object returned by the server function as parameter in objects belonging to the toolbox which have been inserted in a screen.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting Tag
var tagReference = server.GetTagEntityReference("tagName");
// getting Proto Tag
var tagReference = server.GetTagEntityReference("memberName","tagName");
```

Syntax (**overloaded**) OPCUAViewModel.OPCUAEntityReference GetTagEntityReference(UFUAModel.UFUATag tag)

Description Ottiene un'istanza dell'oggetto OPCUAViewModel.OPCUAEntityReference della tag indicata.

Parameter	Description
UFUAModel.UFUATag Tag:	UFUAModel.UFUATag object type that represents the tag. An object of this type can be retrieved by calling the GetTag, or as a result of an Addtag. This method also functions for tag recently added to the server.

Result OPCUAViewModel.OPCUAEntityReference: instance object of the tag desired. When in error returns null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the tag folder
var tagFolder server.GetFolder("tagFolder");
// getting Tag
var tag = server.GetTag("tagName", tagFolder);
// getting Tag
var tagReference = server.GetTagEntityReference(tag);
// getting Proto Tag
tag = server.GetUFUATag("tagName", "memberName");
// getting Proto Tag
tagReference = server.GetTagEntityReference(tag);
```

2.7.41. GetUFUATag, IODataServer Metod

Syntax UFUAModel.UFUATag GetUFUATag(string tagname, [string membername = null])

Description Gets an UFUAModel.UFUATag object's instance of the tag indicated, possibly structure type.

If some property of returned object is modified, the metod Save of IODataServer class must be called in order to see the modified properties also in a subsequent call to others method of this class.

Parameter	Description
string name:	name of tag to retrieve, possibly composed according to the folders in which it is containted (eg. Folder\varname)
[string memberinstance = null]	structure member name if tag is structure type. The syntax must reflect the prototype structure (eg. nomember or folder/nomember or substructure/nomember).

Result UFUAModel.UFUATag: object instance of the desired tag. When in error returns null.

The object returned by the function is needed as a parameter in objects beloning to the toolbox inserted on screen.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting Tag in a folder
var tag = server.GetUFUATag("folderName\\tagName");
// getting prototype member Tag
var tag = server.GetUFUATag("protoTagName","memberName");
```

2.7.42. IODataServer, IODataServer Method

Syntax IODataServer(DocumentManager.ComponentService.IDocument parent, UFUAEditorManagerComponent editormanager)

Description This is the class builder. An already built class instance object that is created with the initialization procedure described in initialization phase (see the MoviconNextBuilder.ProjectBuilder project instance manager)

Parameter	Description
-	-

Result -

Example:

2.7.43. RemoveAlarmFromTag, IODataServer Method

Syntax bool RemoveAlarmFromTag(UFUAModel.UFUATag tag, UFUAModel.UFUAAlarmDefinition alarm)

Description Removes the assignment of a tag to an alarm.

Parameter	Description
UFUAModel.UFUATag tag	Object instance that represents the tag from which to remove the assignment to the alarm.
UFUAModel.UFUAAlarmDefinition alarm	Object instance representing the alarm from which to remove the assignment.

Result Boolean

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;
// getting the tag object
var tag server.GetTag("tagName");
// getting the alarm object
var alarm = server.GetAlarmDefinition("NewAlarm",
server.GetAlarmSource("NewAlarmSource", server.GetAlarmArea("NewAlarmArea")));
// remove alarm from tag
server.RemoveAlarmFromTag(tag, alarm);
```

```
// saving IOServer configuration change
server.Save();
```

2.7.44. Save, IODataServer Method

Syntax Void Save()

Description Saves all the changes pending in the IODataServer server.

Parameter	Description
-	-

Result -

Example:

2.7.45. GetTagOPCUAEntityReference, IODataServer Metod

Syntax OPCUAViewModel.OPCUAEntityReference GetTagOPCUAEntityReference(string tagname, [string membername = null])

Description Gets an instance from the OPCUAViewModel.OPCUAEntityReference object of the tag indicated, if structure type.

Parameter	Description
string tagname	name of tag to be retrieved, eventually composed according to the folder in which it is contained. (eg. Folder\varname)
[string memberinstance = null]	eventual structure member name, if the tag is structure type. The syntax must mirror the prototype structure (eg. membername or folder\membername or substructure\membername)

Result OPCUAViewModel.OPCUAEntityReference: object instance of the desired tag. When in error will return null.

The object returned by the function is needed as a parameter in those objects inserted on screen and that belong to the toolbox.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;

// getting Tag in a folder
var tagReference = server.GetTagOPCUAEntityReference("folderName\\tagName");

// getting prototype member Tag
tagReference = server.GetTagOPCUAEntityReference("protoTagName","memberName");
```

2.7.46. GetVarTagEntityReference, IODataServer Metod

Syntax UFUAModel.TagEntityReference GetVarTagEntityReference(string tagname, [string membername = null])

Description Gets an instance from the UFUAModel.TagEntityReference object of the tag indicated, if structure type.

Attention: This method only functions when the Save method has been called after adding the tag.

Parameter	Description
string tagname	name of tag to be retrieved, eventually composed according to the folder in which it is contained. (eg. Folder\varname)
[string memberinstance = null]	eventual structure member name, if the tag is structure type. The syntax must mirror the prototype structure (eg. membername or folder\membername or substructure\membername)

Result UFUAModel.TagEntityReference: object instance of the desired tag. When in error will return null.

The object returned by the function is needed as a parameter in datalogger column objects.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;

// getting Tag in a folder
var tagReference = server.GetVarTagEntityReference("folderName\\tagName");

// getting prototype member Tag
tagReference = server.GetVarTagEntityReference("protoTagName","memberName");
```

Syntax (Overloaded) UFUAModel.TagEntityReference GetVarTagEntityReference(UFUAModel.UFUATag tag)

Description Obtains an instance of the UFUAModel.TagEntityReference object of the specified tag, possibly structure type.

Parameter	Description
UFUAModel.UFUATag tag:	UFUAModel.UFUATag object type that represents the tag. An object of this type can be obtained by calling the GetTag, or as a result of an Addtag. This method also functions for tags recently added in the server.

Result UFUAModel.TagEntityReference: instance object of the desired tag. When in error returns null.

Example:

```
// instance of IODataServer variable
var server = Builder.IODataServer;

// getting the tag folder
var tagFolder server.GetFolder("tagFolder");

// getting Tag
var tag = server.GetTag("tagName", tagFolder);

// getting Tag
var tagReference = server.GetVarTagEntityReference(tag);

// getting Proto Tag
tag = server.GetUFUATag("tagName", "memberName");

// getting Proto Tag
tagReference = server.GetVarTagEntityReference(tag);
```

3. SQL Database Configurator

3.1. Tool di configurazione database

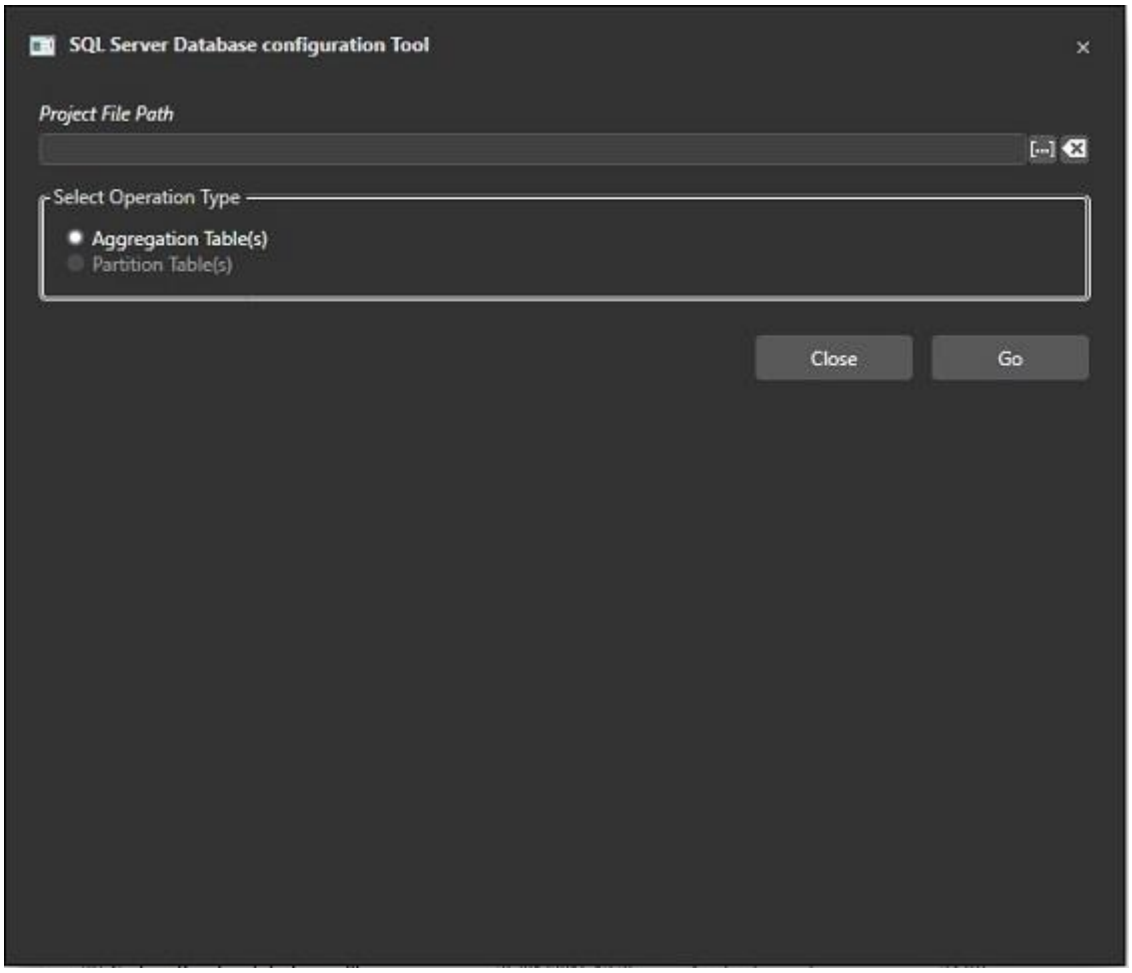
Tramite lo strumento "SQL Database Configuration Tool" sarà possibile creare delle tabelle derivate dalla tabella principale del Datalogger con aggregazione dati di tipo media, valore minimo , valore massimo, in base al minuto, ora, giorno. In pratica ogni tabella conterrà un record per ogni intervallo temporale di aggregazione (minuti, ore, giorni) e ogni colonna del Datalogger di origine genererà 3 colonne una col valore medio una col valore minimo e una col valore massimo di riferimento.

Aggregazione tabelle DataLogger

L'aggregazione delle tabelle del DataLogger può avvenire sostanzialmente in due modi:

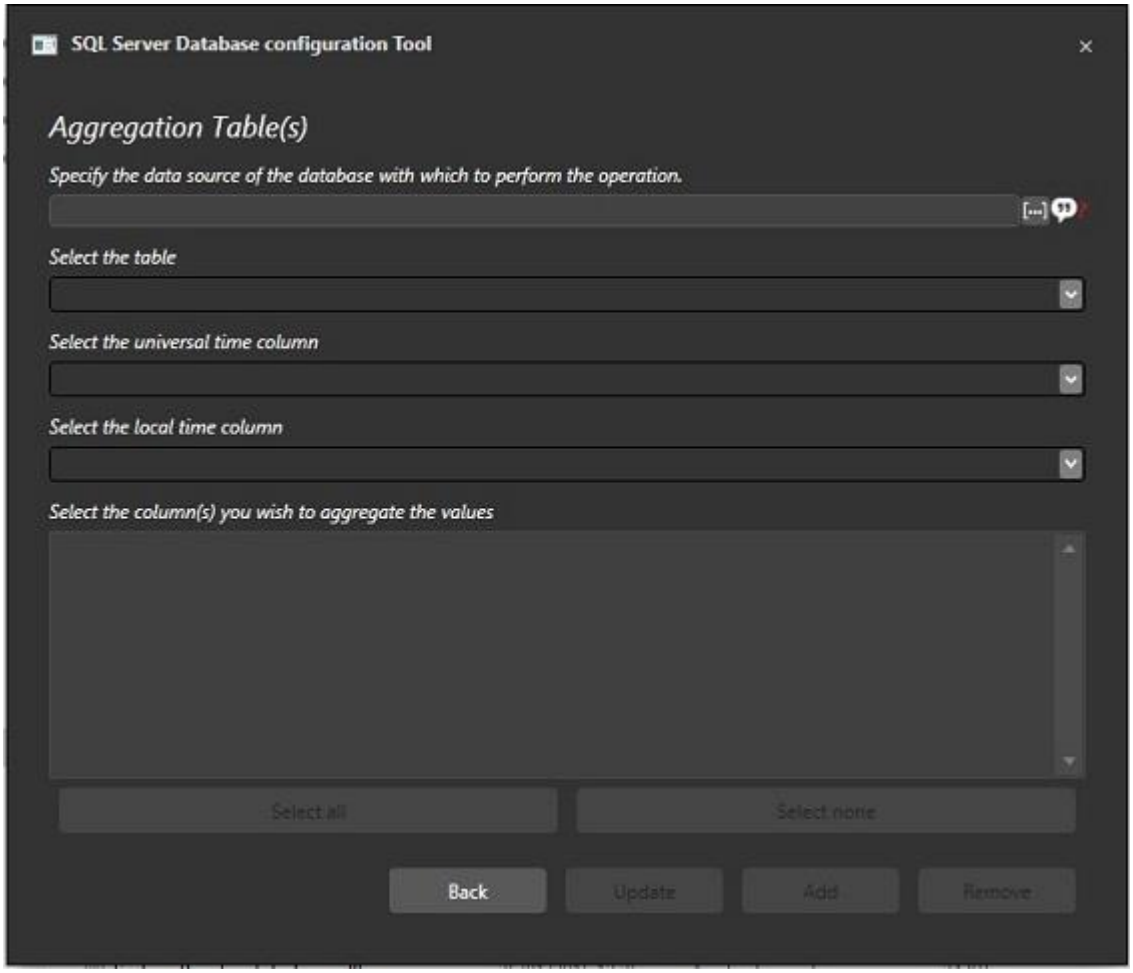
Utilizzo interfaccia utente

Lanciare con un doppio click l'eseguibile C:\Program Files\Progea\Movicon.NExT x.y\SQLDatabaseConfiguration.exe, verrà aperta l'interfaccia:



Selezionando un progetto nel primo parametro e premendo il button Go, si avvierà la procedura di aggregazione delle tabelle dei DataLogger configurati nel progetto.

Se non si seleziona il progetto, premendo Go, potremo inserire uno ad uno i parametri per le aggregazioni, come evidenziato nell'immagine seguente:



- **Data Source:** occorre specificare il database in cui sono presenti i DataLogger da aggregare.
- **Table:** consente di specificare la tabella del DataLogger da aggregare.
- **Universal Time Column:** deve essere indicato il nome della colonna contenente il dato UTC.
- **Local Time Column:** deve essere indicato il nome della colonna contenente il dato Local Time.
- **Select columns:** Devono essere selezionate le colonne, numeriche, su cui effettuare l'aggregazione.

Una volta effettuate tutte le impostazioni, verrà abilitato il button "**Update**" che consente di aggiornare delle aggregazioni esistenti, il button "**Add**", per aggiungere le tabelle aggregate, le stored procedure necessarie e i trigger.
Se la tabella selezionata era già in precedenza stata oggetto di aggregazione sarà abilitato anche il button Update.

Utilizzo Linea di comando

Il tool in oggetto può anche essere richiamato a linea di comando con le seguenti opzioni:

/S: esecuzione silent
/F: percorso progetto NExT
/W: eventuale password di protezione progetto

/O: tipo operazione da eseguire: "1" per aggregazione tabelle

Esempio di parametri linea di comando:
/F"E:\MyDownloads\TestDatalogger1\TestDatalogger1\TestDatalogger1.UFProject"
/W"mypassword" /O"1" /S

Altre opzioni avanzate, che rispecchiano quanto visto nella descrizione dell'interfaccia utente:

/P: tipo comando: "A" (Add), "R" (Remove), "U" (Update), "C" (Check)
/D: stringa di connessione al database , in formato ADO.NET o DevExpress
/T: table name
/U: UTC column name
/L: Local time column name
/D: Data column names, colonne da aggregare
/H: Hide column names, se si vogliono escludere delle colonne dalla lista di selezione dell'interfaccia

INDUSTRIAL AUTOMATION SOFTWARE

progea

Progea Srl
Via D'Annunzio, 295
I-41123 Modena
info@progea.com
Tel +39 059 451060

Progea International SA
via Sottobisio, 28
6828 Balerna (CH)
international@progea.com
Tel +41 91 96 76 610

Progea Deutschland GmbH
Marie-Curie Str., 12
D-78048 VS Villingen
info@progea.de
Tel +49 (0)7721 99838 0

Progea North America Corp.
2380 State Road 44, Suite C
Oshkosh, WI 54904
info@progea.us
Tel. +1 (888) 305-2999