



TRANSITIONS TO
THE URBAN
WATER SERVICES
OF TOMORROW

[Centre for Water Systems, University of Exeter]

WaterMet² Toolkit Functions

(Draft Version)

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Table of Contents

Toolkits Namespace	5
Toolkit Class	5
Toolkit.AddTotalDailyCapitalCost Method	7
Toolkit.CreateNewDevelopment Method	8
Toolkit.DisposeAsset Method	9
Toolkit.DisposeTopologyWSS Method	10
Toolkit.FileStream Method	11
Toolkit.GetAnnualDemandVariation Method	12
Toolkit.GetAssetNo Method	13
Toolkit.GetAssetWSS (Int32, Int32, Int32) Method	13
Toolkit.GetAssetWSS (Int32, String, Int32) Method	15
Toolkit.GetAssetWastewater (Int32, String, Int32) Method	16
Toolkit.GetAssetWastewater (Int32, Int32, Int32) Method	17
Toolkit.GetChemicalsandContaminantNo Method	18
Toolkit.GetChemicalsandContaminantSpec Method	19
Toolkit.GetConnectingAssetNo Method	20
Toolkit.GetContaminantTankLocalArea Method	21
Toolkit.GetContaminantTankSubcatchment Method	22
Toolkit.GetContaminantsConcentration Method	23
Toolkit.GetContaminantsName Method	24
Toolkit.GetDailyDemandVariation Method	25
Toolkit.GetInflowtoWaterResources Method	26
Toolkit.GetKPIValue Method	27
Toolkit.GetKPIsTimeSeries Method	28
Toolkit.GetKPIsTimeSeriesUWS Method	31
Toolkit.GetLocalAreaWD Method	33
Toolkit.GetMonthlyDemandVariation Method	34
Toolkit.GetNoandResizeSubcatchmentWD Method	35
Toolkit.GetNoandResizeWastewater Method	36
Toolkit.GetOptionGeneral Method	37
Toolkit.GetOptionsMaterials Method	39
Toolkit.GetPipelineData Method	40

Toolkit.GetRehabilitationMethods Method	41
Toolkit.GetSubcatchmentWD Method	42
Toolkit.GetTankLocalArea Method	43
Toolkit.GetTankLocalAreaBool Method	44
Toolkit.GetTankSubcatchment Method	45
Toolkit.GetTankSubcatchmentBool Method	46
Toolkit.GetTopologyWSS Method	47
Toolkit.GetTopologyWSSDownstreamNo Method	48
Toolkit.GetTopologyWSSUpstreamNo Method	49
Toolkit.GetTopologyandOperationWWS Method	50
Toolkit.GetWaterRecoveryAllocation Method	51
Toolkit.GetWeatherData Method	52
Toolkit.PreparingFillTimeStep Method	53
Toolkit.ResizeAsset Method	54
Toolkit.ResizeChemicalsandContaminantNo Method	55
Toolkit.ResizeTopologyWSSDownstreamNo Method	56
Toolkit.ResizeTopologyWSSUpstreamNo Method	57
Toolkit.SetAnnualDemandVariation Method	58
Toolkit.SetAssetNo Method	59
Toolkit.SetAssetWSS (Int32, String, Int32, String) Method	60
Toolkit.SetAssetWSS (Int32, Int32, Int32, Double) Method	62
Toolkit.SetAssetWastewater (Int32, Int32, Int32, Double) Method	63
Toolkit.SetAssetWastewater (Int32, String, Int32, String) Method	64
Toolkit.SetChemicalsandContaminantSpec Method	65
Toolkit.SetChemicalsandPollutantSpec Method	67
Toolkit.SetContaminantTankLocalArea Method	68
Toolkit.SetContaminantTankSubcatchment Method	69
Toolkit.SetContaminantsConcentration Method	70
Toolkit.SetContaminantsName Method	71
Toolkit.SetDailyDemandVariation Method	72
Toolkit.SetInflowtoWaterResources Method	73
Toolkit.SetLocalAreaWD Method	74
Toolkit.SetMonthlyDemandVariation Method	75
Toolkit.SetOptionGeneral Method	76

Toolkit.SetOptionsMaterials Method.....	77
Toolkit.SetPipelineData Method.....	79
Toolkit.SetRehabilitationMethods Method.....	80
Toolkit.SetSubcatchmentWD Method.....	81
Toolkit.SetTankLocalArea (Int32, Int32, Int32, Int32, Boolean) Method.....	82
Toolkit.SetTankLocalArea (Int32, Int32, Int32, Int32, Double) Method.....	83
Toolkit.SetTankSubcatchment (Int32, Int32, Int32, Double) Method.....	85
Toolkit.SetTankSubcatchment (Int32, Int32, Int32, Boolean) Method.....	86
Toolkit.SetTopologyWSS Method.....	87
Toolkit.SetTopologyandOperationWWS Method.....	88
Toolkit.SetWaterRecoveryAllocation Method.....	89
Toolkit.SetWeatherData Method.....	90
Toolkit.SimulateFull Method.....	92
Toolkit.SimulateInitial Method.....	92
Toolkit.SimulateTimeStep Method.....	93
Toolkit.UpdatePipeline Method.....	94
Index.....	95

Toolkits Namespace

WaterMet2 Toolkit Functions updated 06/01/2014

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Remarks

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Classes

[Toolkit₅](#)

Toolkit Class

WaterMet2 Toolkit Functions including all functions required for opening the model, setting and retrieving the parameters,

running the model and retrieving the results through Toolkit.dll

Note that in order to employ toolkit functions, Toolkit.dll is required to be added to the project in .NET framework and the other two dlls including structure.dll and GlobalData.dll are in the same folder of the Toolkit.dll

Toolkits.Toolkit

VB

```
Public Class Toolkit
```

C#

```
public class Toolkit
```

[C++]

```
public class Toolkit
```

Remarks

For more information and any enquiry please contact Dr Kourosh Behzadian (k.behzadian-moghadam@exeter.ac.uk) or Prof Zoran Kapelan (z.kapelan@exeter.ac.uk)

Requirements

Namespace: [Toolkits₅](#)

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

Assembly: Toolkit (in Toolkit.dll)

Methods

[AddTotalDailyCapitalCost](#)⁷, [CreateNewDevelopment](#)⁸, [DisposeAsset](#)⁹, [DisposeTopologyWSS](#)¹⁰, [Equals](#) (inherited from [Object](#)), [FileStream](#)¹¹, [GetAnnualDemandVariation](#)¹², [GetAssetNo](#)¹³, [GetAssetWSS](#)¹³, [GetAssetWastewater](#)¹⁷, [GetChemicalsandContaminantNo](#)¹⁸, [GetChemicalsandContaminantSpec](#)¹⁹, [GetConnectingAssetNo](#)²⁰, [GetContaminantTankLocalArea](#)²¹, [GetContaminantTankSubcatchment](#)²², [GetContaminantsConcentration](#)²³, [GetContaminantsName](#)²⁴, [GetDailyDemandVariation](#)²⁵, [GetHashCode](#) (inherited from [Object](#)), [GetInflowtoWaterResources](#)²⁶, [GetKPIValue](#)²⁷, [GetKPIsTimeSeries](#)²⁸, [GetKPIsTimeSeriesUWS](#)³¹, [GetLocalAreaWD](#)³³, [GetMonthlyDemandVariation](#)³⁴, [GetNoandResizeSubcatchmentWD](#)³⁵, [GetNoandResizeWastewater](#)³⁶, [GetOptionGeneral](#)³⁷, [GetOptionsMaterials](#)³⁹, [GetPipelineData](#)⁴⁰, [GetRehabilitationMethods](#)⁴¹, [GetSubcatchmentWD](#)⁴², [GetTankLocalArea](#)⁴³, [GetTankLocalAreaBool](#)⁴⁴, [GetTankSubcatchment](#)⁴⁵, [GetTankSubcatchmentBool](#)⁴⁶, [GetTopologyWSS](#)⁴⁷, [GetTopologyWSSDownstreamNo](#)⁴⁸, [GetTopologyWSSUpstreamNo](#)⁴⁹, [GetTopologyandOperationWWS](#)⁵⁰, [GetType](#) (inherited from [Object](#)), [GetWaterRecoveryAllocation](#)⁵¹, [GetWeatherData](#)⁵², [PreparingFillTimeStep](#)⁵³, [ReferenceEquals](#) (inherited from [Object](#)), [ResizeAsset](#)⁵⁴, [ResizeChemicalsandContaminantNo](#)⁵⁵, [ResizeTopologyWSSDownstreamNo](#)⁵⁶, [ResizeTopologyWSSUpstreamNo](#)⁵⁷, [SetAnnualDemandVariation](#)⁵⁸, [SetAssetNo](#)⁵⁹, [SetAssetWSS](#)⁶⁰, [SetAssetWastewater](#)⁶³, [SetChemicalsandContaminantSpec](#)⁶⁵, [SetChemicalsandPollutantSpec](#)⁶⁷, [SetContaminantTankLocalArea](#)⁶⁸, [SetContaminantTankSubcatchment](#)⁶⁹, [SetContaminantsConcentration](#)⁷⁰, [SetContaminantsName](#)⁷¹, [SetDailyDemandVariation](#)⁷², [SetInflowtoWaterResources](#)⁷³, [SetLocalAreaWD](#)⁷⁴, [SetMonthlyDemandVariation](#)⁷⁵, [SetOptionGeneral](#)⁷⁶, [SetOptionsMaterials](#)⁷⁷, [SetPipelineData](#)⁷⁹, [SetRehabilitationMethods](#)⁸⁰, [SetSubcatchmentWD](#)⁸¹, [SetTankLocalArea](#)⁸³, [SetTankSubcatchment](#)⁸⁶, [SetTopologyWSS](#)⁸⁷, [SetTopologyandOperationWWS](#)⁸⁸, [SetWaterRecoveryAllocation](#)⁸⁹, [SetWeatherData](#)⁹⁰, [SimulateFull](#)⁹², [SimulateInitial](#)⁹², [SimulateTimeStep](#)⁹³, [ToString](#) (inherited from [Object](#)), [UpdatePipeline](#)⁹⁴

Toolkit.AddTotalDailyCapitalCost Method

Add daily capital cost to total capital cost

VB

```
Public Shared Function AddTotalDailyCapitalCost( _  
    ByVal iday As Integer, _  
    ByVal value As Double _  
) As String
```

C#

```
public static string AddTotalDailyCapitalCost(  
    int iday,  
    double value  
)
```

```
[C++]  
public static string AddTotalDailyCapitalCost(  
    int iday,  
    double value  
)
```

Parameters

iday

day ID starting from 1

value

value of interest

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.CreateNewDevelopment Method

Create/Resize the new development

VB

```
Public Shared Function CreateNewDevelopment( _  
    ByVal nSubcatchment As Integer, _  
    ByVal nLocalArea As Integer, _  
    ByVal Createtype As Integer _  
) As String
```

C#

```
public static string CreateNewDevelopment(  
    int nSubcatchment,  
    int nLocalArea,  
    int Createtype  
)
```

```
[C++]  
public static string CreateNewDevelopment(  
    int nSubcatchment,  
    int nLocalArea,  
    int Createtype  
)
```

Parameters

nSubcatchment

number of subcatchments

nLocalArea

number of local areas

Createtype

1-2: 1=create a new development; 2=resize a previously created development

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.DisposeAsset Method

Dispose the asset of component in WSS

VB

```
Public Shared Function DisposeAsset( _  
    ByVal assetCode As Integer _  
) As Integer
```

C#

```
public static int DisposeAsset(  
    int assetCode  
)
```

[C++]

```
public static int DisposeAsset(  
    int assetCode  
)
```

Parameters

assetCode

Asset Code (1-8): 1=Resources; 2=Water Supply Conduits; 3-WTWs; 4=Mains;
5=Reservoirs;6=DistrNetwork; 7=WWTWs; 8=Receiving Water;

Returns

Returns an error code: 0=No error; otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.DisposeTopologyWSS Method

Dispose the Topology of component in WSS

VB

```
Public Shared Function DisposeTopologyWSS( _  
    ByVal connectCode As Integer _  
) As Integer
```

C#

```
public static int DisposeTopologyWSS(  
    int connectCode  
)
```

```
[C++]  
public static int DisposeTopologyWSS(  
    int connectCode  
)
```

Parameters

connectCode

Connection Code (1-3): 1=Subcatchments vs Service Reservoirs; 2=Service Reservoir vs WTWs; 3=WTWs vs Raw Water Sources

Returns

Returns an error code: 0=No error otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.FileStream Method

Opens/Save the WaterMet2 Toolkit to analyze an urban water system.

VB

```
Public Shared Function FileStream( _  
    ByVal FileName As String, _  
    ByVal FilePath As String, _  
    ByVal StreamType As Integer _  
) As String
```

C#

```
public static string FileStream(  
    string FileName,  
    string FilePath,  
    int StreamType  
)
```

```
[C++]  
public static string FileStream(  
    string FileName,  
    string FilePath,  
    int StreamType  
)
```

Parameters

FileName

WaterMet2 input file name as xml file e.g. OsloWaterMet2Model.xml

FilePath

File path (Directory) e.g. C:\\WaterMet2 Model-30-7-13\\WM2\\bin\\Debug\\

StreamType

Type of stream 1-2: 1=Open; 2=Save

Returns

Returns an error code: ""=No error; otherwise there is error message either related to serialisation (UnknownAttribute, UnknownNode) or Toolkit function error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetAnnualDemandVariation Method

Retrieves the parameters of Annual Water Demand Variation

VB

```
Public Shared Function GetAnnualDemandVariation( _  
    ByVal optionCode As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal parameterCode As Integer _  
) As Double
```

C#

```
public static double GetAnnualDemandVariation(  
    int optionCode,  
    int localAreaNo,  
    int parameterCode  
)
```

[C++]

```
public static double GetAnnualDemandVariation(  
    int optionCode,  
    int localAreaNo,  
    int parameterCode  
)
```

Parameters

optionCode

option Code (1-5): 1=Number of years; 2=Annual Population Growth; 3=Annual Industrial Growth; 4=Annual Irrigation Growth; 5=Annual Frost Tapping Growth;

localAreaNo

Number of local area starting from 1

parameterCode

parameter Code (optionCode=2,3,4,5: year of interest, expressed as an integer value starting from 1 up to the number of year.) (Note that for optionCode=1, this parameter is not used)

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.GetAssetNo Method

Retrieves the asset number of a specific asset. Note that Asset numbers equal to zero means no asset is available.

VB

```
Public Shared Function GetAssetNo( _  
    ByVal assetCode As Integer _  
) As Integer
```

C#

```
public static int GetAssetNo(  
    int assetCode  
)
```

```
[C++]  
public static int GetAssetNo(  
    int assetCode  
)
```

Parameters

assetCode

Asset Code (1-11): 1=Resources; 2=Water Supply Conduits; 3-WTWs; 4=mains; 5=Reservoirs; 6=DistrNetwork; 7=Subcatchment; 8=Local Area; 9=WWTWs; 10=Receiving Water; 11=Inflow[0]

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetAssetWSS (Int32, Int32, Int32) Method

Retrieves the double value of a specific asset parameter in Water Supply Systems

VB

```
Public Shared Function GetAssetWSS( _  
    ByVal assetCode As Integer, _  
    ByVal characterCode As Integer, _  
    ByVal assetNo As Integer _  
) As Double
```

C#

```
public static double GetAssetWSS(
    int assetCode,
    int characterCode,
    int assetNo
)
```

[C++]

```
public static double GetAssetWSS(
    int assetCode,
    int characterCode,
    int assetNo
)
```

Parameters

assetCode

Asset Code (1-6): 1=Resources; 2=Water Supply Conduits; 3=WTWs; 4=mains; 5=Reservoirs;6=DistrNetwork;

characterCode

Character Code

(1=Resources: 1-6: 1=Water Loss; 2=Electricity; 3=Fossil; 4=Capacity; 5=Initial Volume; 6=Operational Cost);

(2=Water Supply Conduits: 1-8: 1=Capacity; 2=Leakage; 3=Electricity; 4=Fossil; 5=Operational Cost; 6=Coefficient of split; 7=From WTWs(starting from 1); 8=To Resource(starting from 1));

(3=WTWs: 1-10: 1=Capacity; 2=Physical Electricity; 3=Physical Fossil; 4=Physical Operational Cost; 5=Chemical Electricity; 6=Chemical Fossil; 7=Chemical Operational Cost; 8=Average Chemical Cost; 9=Sludge Generated; 10=water loss rate;);

(4=mains: 1-8: 1=Capacity; 2=Leakage; 3=Electricity; 4=Fossil; 5=Operational Cost; 6=Coefficient of split; 7=From SReservoir(starting from 1); 8=To WTWs(starting from 1));

(5=Reservoirs; 1-5: 1=Capacity; 2=Peaking factor; 3=Operational Cost; 4=Average Chemical Cost; 5=water loss rate;);

(6=DistrNetwork; 1-9: 1=capacity; 2=Leakage; 3=Annual Rehabilitation; 4=Electricity; 5=Fossil; 6=Operational Cost; 7=Coefficient of split; 8=From Subcatchment(starting from 1); 9=To SReservoir(starting from 1));

assetNo

Asset No; Note that Asses numbers are consecutive integers starting from 1.

Returns

Returns the value of interest. In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#);

Toolkit.GetAssetWSS (Int32, String, Int32) Method

Retrieves the string value of a specific asset parameter in Water Supply Systems

VB

```
Public Shared Function GetAssetWSS( _  
    ByVal assetCode As Integer, _  
    ByVal characterCode As String, _  
    ByVal assetNo As Integer _  
) As String
```

C#

```
public static string GetAssetWSS(  
    int assetCode,  
    string characterCode,  
    int assetNo  
)
```

```
[C++]  
public static string GetAssetWSS(  
    int assetCode,  
    string characterCode,  
    int assetNo  
)
```

Parameters

assetCode

Asset Code (1-6): 1=Resources; 2=Water Supply Conduits; 3-WTWs; 4=mains; 5=Reservoirs;6=DistrNetwork;

characterCode

Character Code (1=Resources: 1-2: 1=Name; 2=Type); (2=Water Supply Conduits: 1: 1=Name); (3=WTWs: 1: 1=Name); (4=mains: 1: 1=Name); (5=Reservoirs; 1: 1=Name); (6=DistrNetwork; 1: 1=Name);

assetNo

Asset No; Note that Asses numbers are consecutive integers starting from 1.

Returns

Returns the string value of interest. In case of error returns report the error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetAssetWastewater (Int32, String, Int32) Method

Retrieves the value of a specific parameter in Wastewater systems

VB

```
Public Shared Function GetAssetWastewater( _  
    ByVal assetCode As Integer, _  
    ByVal characterCode As String, _  
    ByVal assetNo As Integer _  
) As String
```

C#

```
public static string GetAssetWastewater(  
    int assetCode,  
    string characterCode,  
    int assetNo  
)
```

[C++]

```
public static string GetAssetWastewater(  
    int assetCode,  
    string characterCode,  
    int assetNo  
)
```

Parameters

assetCode

Asset Code (1-4): 1=Subcatchment Pipelines in Wastewater Systems; 2=Subcatchment Pipelines in Stormwater Systems; 3=WWTWs; 4=Receiving water

characterCode

Character Code (1=Subcatchment Pipelines in Wastewater Systems: 1: 1="StorageType"); (2=Subcatchment Pipelines in Stormwater Systems: 1: 1="StorageType"); (3=WWTWs: 1: 1="Name"); (4=Receiving waters: 1: 1="Name");

assetNo

Asset No; Note that Asses numbers are consecutive integers starting from 1.

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetAssetWastewater (Int32, Int32, Int32) Method

Retrieves the value of a specific parameter in Wastewater systems

VB

```
Public Shared Function GetAssetWastewater( _  
    ByVal assetCode As Integer, _  
    ByVal characterCode As Integer, _  
    ByVal assetNo As Integer _  
) As Double
```

C#

```
public static double GetAssetWastewater(  
    int assetCode,  
    int characterCode,  
    int assetNo  
)
```

[C++]

```
public static double GetAssetWastewater(  
    int assetCode,  
    int characterCode,  
    int assetNo  
)
```

Parameters

assetCode

Asset Code (1-3): 1=Subcatchment Pipelines in Wastewater Systems; 2=Subcatchment Pipelines in Stormwater Systems; 3-WWTWs;

characterCode

Character Code

(1=Subcatchment Pipelines in Wastewater Systems: 1-13: 1=Infiltration[%:Value=0-100]; 2=Exfiltration[%:Value=0-100]; 3=Rehabilitation[%:Value=0-100]; 4=Electricity; 5=Fossil; 6=Operational Cost; 7=CSO structure Capacity; 8=Combined/Separate System [0=Separate; 1=Combined]; 9=Downstream Subcatchment [Value=(0:Not Available; 1-Subcatchment number(except itself))]; 10=StorageCapacity; 11=coefficient a; 12=coefficient b; 13=TransmissionCapacity);

(2=Subcatchment Pipelines in Stormwater Systems: 1-12: 1=Infiltration[%:Value=0-100]; 2=Exfiltration[%:Value=0-100]; 3=Rehabilitation[%:Value=0-100]; 4=Electricity; 5=Fossil; 6=Operational Cost; 7=STO structure Capacity; 8=Downstream Subcatchment [Value=(0:Not Available; 1-Subcatchment number(except itself))]; 9=StorageCapacity; 10=coefficient a; 11=coefficient b; 12=TransmissionCapacity);

(3=WWTWs: 1-6: 1=Daily Treatment Capacity; 2=Storage Capacity; 3=Electricity; 4=Fossil; 5=Operational Cost; 6=Average Chemical Cost;)

assetNo

Asset No as consecutive integers starting from 1.

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#),

Toolkit.GetChemicalsandContaminantNo Method

Retrieves the total number of chemicals used in a treatment facility.

VB

```
Public Shared Function GetChemicalsandContaminantNo( _
    ByVal assetCode As Integer, _
    ByVal assetID As Integer _
) As Integer
```

C#

```
public static int GetChemicalsandContaminantNo(
    int assetCode,
    int assetID
)
```

[C++]

```
public static int GetChemicalsandContaminantNo(
    int assetCode,
    int assetID
)
```

Parameters

assetCode

Asset Code (1-3): 1=WTWs chemicals; 2=WWTWs chemicals; 3=Reservoirs chemicals;)

assetID

Asset number starting from 1;

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.GetChemicalsandContaminantSpec Method

Retreives the chemical/pollutant's Name associated with a chmical ID used in a treatment facility.

VB

```
Public Shared Function GetChemicalsandContaminantSpec( _  
    ByVal assetCode As Integer, _  
    ByVal assetID As Integer, _  
    ByVal datatype As Integer, _  
    ByVal datatypeID As Integer _  
) As String
```

C#

```
public static string GetChemicalsandContaminantSpec(  
    int assetCode,  
    int assetID,  
    int datatype,  
    int datatypeID  
)
```

[C++]

```
public static string GetChemicalsandContaminantSpec(  
    int assetCode,  
    int assetID,  
    int datatype,  
    int datatypeID  
)
```

Parameters

assetCode

Asset Code (1-5): 1=WTWs chemicals; 2=WWTWs chemicals; 3=Reservoirs chemicals;

4=WWTWs Contaminants; 5=Chemicals list)

assetID

Asset ID starting from 1; leave 0 for chemicals list

datatype

data type: 0-2: (Asset Code=1-3: 1="Chemicals Name"; 2="Chemicals Amount"); (Asset Code=4: 1="Pollutant Removal"); (Asset Code=5: leave 0 for chemicals list;)

datatypeID

chemical/Contaminant ID starting from 1

Returns

Returns the string value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.GetConnectingAssetNo Method

Retrieves the connecting asset number (starting from 1) with respect to upstream and downstream asset numbers

VB

```
Public Shared Function GetConnectingAssetNo( _  
    ByVal connectingAsset As Integer, _  
    ByVal UpstreamAssetNo As Integer, _  
    ByVal DownstreamAssetNo As Integer _  
) As Integer
```

C#

```
public static int GetConnectingAssetNo(  
    int connectingAsset,  
    int UpstreamAssetNo,  
    int DownstreamAssetNo  
)
```

[C++]

```
public static int GetConnectingAssetNo(  
    int connectingAsset,  
    int UpstreamAssetNo,  
    int DownstreamAssetNo  
)
```

Parameters

connectingAsset

1-3: 1=WS Conduit; 2=Distribution Network; 3=Distribution Network;

UpstreamAssetNo

UpstreamAsset No starting from 1

DownstreamAssetNo

DownstreamAsset No starting from 1

Returns

returns Connecting Asset No starting from 1; otherwise returns -1, -2 or -3

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetContaminantTankLocalArea Method

Retrieves the values of parameters in Local Area Tanks

VB

```
Public Shared Function GetContaminantTankLocalArea( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal tankCode As Integer, _  
    ByVal contaminantCode As Integer _  
) As Double
```

C#

```
public static double GetContaminantTankLocalArea(  
    int subcatchmentNo,  
    int localAreaNo,  
    int tankCode,  
    int contaminantCode  
)
```

[C++]

```
public static double GetContaminantTankLocalArea(  
    int subcatchmentNo,  
    int localAreaNo,  
    int tankCode,  
    int contaminantCode  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

contaminantCode

number of contaminant as consecutive integers starting from 1

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetContaminantTankSubcatchment Method

Retrieves the double values of contaminant parameters in Subcatchment Tanks

VB

```
Public Shared Function GetContaminantTankSubcatchment( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal tankCode As Integer, _  
    ByVal contaminantCode As Integer _  
) As Double
```

C#

```
public static double GetContaminantTankSubcatchment(  
    int subcatchmentNo,  
    int tankCode,  
    int contaminantCode  
)
```

[C++]

```
public static double GetContaminantTankSubcatchment(  
    int subcatchmentNo,  
    int tankCode,  
    int contaminantCode  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

contaminantCode

number of contaminant as consecutive integers starting from 1;

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetContaminantsConcentration Method

Retrieves the value of a contaminant

VB

```
Public Shared Function GetContaminantsConcentration( _  
    ByVal contaminantCode As Integer, _  
    ByVal parameterCode As Integer _  
) As Double
```

C#

```
public static double GetContaminantsConcentration(  
    int contaminantCode,  
    int parameterCode  
)
```

[C++]

```
public static double GetContaminantsConcentration(  
    int contaminantCode,  
    int parameterCode  
)
```

Parameters

contaminantCode

1-10: contaminant code between 1 and 10

parameterCode

1-11: 1=Potable water; 2=Dish Washer; 3=Hand Basin; 4=Kitchen Sink; 5=Washing Machine; 6=Shower; 7=Toilet; 8=Industrial; 9=Roof; 10=Road and Pavement; 11=Pervious area;

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetContaminantsName Method

Retrieves the name of Contaminants and if they are active.inactive

VB

```
Public Shared Function GetContaminantsName( _  
    ByVal parameterCode As Integer _  
) As String
```

C#

```
public static string GetContaminantsName(  
    int parameterCode  
)
```

[C++]

```
public static string GetContaminantsName(  
    int parameterCode  
)
```

Parameters

parameterCode

(number of Contaminant between 1 and the size of the pollutant array)

Returns

Returns the name of Contaminants; otherwise returns "Error in parameterCode"

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.GetDailyDemandVariation Method

Retrieves the parameters of daily water demand variation

VB

```
Public Shared Function GetDailyDemandVariation( _  
    ByVal optionCode As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal parameterCode As Integer _  
) As Double
```

C#

```
public static double GetDailyDemandVariation(  
    int optionCode,  
    int localAreaNo,  
    int parameterCode  
)
```

[C++]

```
public static double GetDailyDemandVariation(  
    int optionCode,  
    int localAreaNo,  
    int parameterCode  
)
```

Parameters

optionCode

option Code (1-5): 1=indoor variation; 2=Industrial variation; 3=Irrigation variation; 4=Frost Tapping variation; 5=Unregistered variation;

localAreaNo

Number of local area starting from 1

parameterCode

parameter Code (1-6): 1=Contribution of temperature to daily variation of water demand [%:0-100]; 2=Start date 1; 3=End date 1; 4=Start date 2; 5=End date 2; 6=Coefficient of Temperature Variation; All the dates are expressed as a number of day in year between 1 and 365, note that zero indicating no value set for start/end date

Returns

Returns the value of interest; In case of error returns -1, -2, -3

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetInflowtoWaterResources Method

Retreives daily value/ dimension of inflow time series

VB

```
Public Shared Function GetInflowtoWaterResources( _  
    ByVal setCode As Integer, _  
    ByVal waterResourceID As Integer, _  
    ByVal inflowDay As Integer _  
) As Double
```

C#

```
public static double GetInflowtoWaterResources(  
    int setCode,  
    int waterResourceID,  
    int inflowDay  
)
```

[C++]

```
public static double GetInflowtoWaterResources(  
    int setCode,  
    int waterResourceID,  
    int inflowDay  
)
```

Parameters

setCode

1-2: 1=Retreiving dimension of array for inflow time series; 2=Retreiving the daily value for inflow of a water resources

waterResourceID

(setCode=1: 0-1: 1=Retreives the total number of water reosources; 0=Otherwise; setCode=2: water reosource ID starting from 1)

inflowDay

(setCode=1: 0-1: 1=Retreives total number of inflow days; 0=Otherwise ; setCode=2: daily inflow ID starting from 1)

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetKPIValue Method

Retrieves the KPI values of specific component and days in UWS

VB

```
Public Shared Function GetKPIValue( _  
    ByVal KPICode As Integer, _  
    ByVal componentCode As Integer, _  
    ByVal iday As Integer _  
) As Double
```

C#

```
public static double GetKPIValue(  
    int KPICode,  
    int componentCode,  
    int iday  
)
```

[C++]

```
public static double GetKPIValue(  
    int KPICode,  
    int componentCode,  
    int iday  
)
```

Parameters

KPICode

KPI Code (1-18):

1=Leakage;

2=Electricity energy [KWh];

3=Fossil Fuel [L];

4=Embodied energy [KWh];

5=Total Energy[KWh];

5=Electricity GHG [Kg CO2-eq];

6=Fossil GHG [Kg CO2-eq];
 7=Embodied GHG [Kg CO2-eq];
 8=Total GHG [Kg CO2-eq];
 9=Electricity Acidification [Kg CO2-eq];
 10=Fossil Acidification [Kg CO2-eq];
 11=Embodied Acidification [Kg CO2-eq];
 12=Total Acidification [Kg CO2-eq];
 13=Electricity Eutrophication [Kg CO2-eq];
 14=Fossil Eutrophication [Kg CO2-eq];
 15=Embodied Eutrophication [Kg CO2-eq];
 16=Total Eutrophication [Kg CO2-eq];
 17=Capital Cost; 18=Operational Cost

componentCode

component Code (1-6):

1=Water Supply System;
 2=Subcatchment;
 3=Wastewater Systems;
 4=Stormwater Systems;
 5=WWTWs;
 6-Urban water system (Total)

iday

day number, expressed as cosequitive numbers starting from 1.

Returns

Get the KPI value of interest

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetKPIsTimeSeries Method

Retreives a single KPI in time series format

VB

```
Public Shared Function GetKPIsTimeSeries( _
    ByRef Array As Double(), _
    ByVal iComponentType As Integer, _
    ByVal iComponentNo As Integer, _
    ByVal iIndicatorType As Integer, _
```

```

    ByVal iContaminant As Integer _
) As String

```

C#

```

public static string GetKPIsTimeSeries(
    ref double[] Array,
    int icomponentType,
    int iComponentNo,
    int iIndicatorType,
    int iContaminant
)

```

```

[C++]
public static string GetKPIsTimeSeries(
    ref double[] Array,
    int icomponentType,
    int iComponentNo,
    int iIndicatorType,
    int iContaminant
)

```

Parameters*Array*

return KPI array in which the KPI result is saved

icomponentType

no of component type 0-9:

0=UWS;

1=Water Resource;

2=Water Supply Conduit;

3=WTWs;

4=Trunk Mains;

5=Service Reservoir;

6=Distribution Mains;

7=Subcachment;

8=WWTWs;

9=ReceivingWater;

iComponentNo

no of component

iIndicatorType

indicator type as follows for each icomponentType: (icomponentType=UWS: see indicator type in function GetKPIsTimeSeriesUWS;) (icomponentType=Water Resource and Service Reservoir ==> indicator type (0-19): 0=Inflow; 1=Volume; 2=Loss; 3=DeliveredOutflow; 4=UndeliveredOutflow; 5=Overflow; 6=TotalEnergy; 7=ElectricityEnergy; 8=FossilFuelEnergy;

9=EmbodiedEnergy; 10=TotalGHGEmission; 11=ElectricityGHGEmission;
 12=FossilFuelGHGEmission; 13=EmbodiedGHGEmission; 14=Acidification; 15=Eutrophication;
 16=TotalCost; 17=CapitalCost; 18=OperationalCost;)

(icomponentType=Water Supply Conduit, Trunk Mains and Distribution Mains ==> indicator type (0-17): 0=Inflow; 1=Leakage; 2=DeliveredOutflow; 3=UndeliveredOutflow(LackofInflow); 4=UndeliveredOutflow(ExceedingCapacity); 5=TotalEnergy; 6=ElectricityEnergy; 7=FossilFuelEnergy; 8=EmbodiedEnergy; 9=TotalGHGEmission; 10=ElectricityGHGEmission; 11=FossilFuelGHGEmission; 12=EmbodiedGHGEmission; 13=Acidification; 14=Eutrophication; 15=TotalCost; 16=CapitalCost; 17=OperationalCost;)

(icomponentType=WTWs ==> indicator type (0-19): 0=Inflow; 1=Loss; 2=DeliveredOutflow; 3=UndeliveredOutflow(LackofInflow); 4=UndeliveredOutflow(ExceedingCapacity); 5=Overflow; 6=TotalEnergy; 7=ElectricityEnergy; 8=FossilFuelEnergy; 9=EmbodiedEnergy; 10=TotalGHGEmission; 11=ElectricityGHGEmission; 12=FossilFuelGHGEmission; 13=EmbodiedGHGEmission; 14=Acidification; 15=Eutrophication; 16=TotalCost; 17=CapitalCost; 18=OperationalCost; 19=SludgeGeneration;)

(icomponentType=Subcatchment ==> indicator type (0-49): 0=TotalWaterDemand; 1=TotalDeliveredWaterDemand (Total Water Supply); 2=TotalPotablewaterDemand; 3=TotalDeliveredPotablewaterDemand (Total Potable Water Supply); 4=TotalUndeliveredPotablewaterDemand (Total Potable Water Failure); 5=TotalDeliveredRainwaterHarvesting (Total Rain Water Harvesting Supply); 6=TotalCollectedRainwaterHarvesting (Total Rain Water Harvesting Produced); 7=TotalDeliveredGreyWaterRecycling (Total Grey Water Recycling Supply); 8=TotalCollectedGreyWaterRecycling (Total Grey Water Recycling Produced); 9=PotableDomesticWaterDemand; 10=PotableIndustrialWaterDemand; 11=PotableIrrigationWaterDemand; 12=PotableFrostTappingWaterDemand; 13=PotableUnregisteredWaterDemand; 14=DeliveredRHWforDomesticWaterDemand (RWH Domestic Supply); 15=DeliveredRHWforIndustrialWaterDemand (RWH Industrial Supply); 16=DeliveredRHWforIrrigationWaterDemand (RWH Irrigation Supply); 17=DeliveredGWRforDomesticWaterDemand (GWR Domestic Supply); 18=DeliveredGWRforIndustrialWaterDemand (GWR Industrial Supply); 19=DeliveredGWRforIrrigationWaterDemand (GWR Irrigation Supply); 20=%ofWaterDemandDelivered; 21=StormwaterInflow; 22=ExcessStormwater; 23=StormwaterVolume; 24=SanitarySewageInflow; 25=ExcessWastewater; 26=WastewaterVolume; 27=STO; 28=CSO; 29=TotalEnergy; 30=ElectricityEnergy; 31=FossilFuelEnergy; 32=EmbodiedEnergy; 33=TotalGHGEmission; 34=ElectricityGHGEmission; 35=FossilFuelGHGEmission; 36=EmbodiedGHGEmission; 37=Acidification; 38=Eutrophication; 39=TotalCost; 40=CapitalCost; 41=OperationalCost; 42=InflowSewerSystemContaminantLoad; 43=InflowStormDrainageSystemContaminantLoad; 44=ExcesswastewaterContaminantLoad; 45=ExcessStormwaterContaminantLoad; 46=OutflowSewerSystemContaminantLoad; 47=OutflowStormDrainageSystemContaminantLoad; 48=CSOContaminantLoad; 49=STOContaminantLoad;)

(icomponentType=WWTWs ==> indicator type (0-21): 0=Inflow; 1=Volume; 2=Loss; 3=TreatedOutflow; 4=UntreatedOutflow(CSO) (Failure of Treatment); 5=TotalEnergy; 6=ElectricityEnergy; 7=FossilFuelEnergy; 8=EmbodiedEnergy; 9=TotalGHGEmission; 10=ElectricityGHGEmission; 11=FossilFuelGHGEmission; 12=EmbodiedGHGEmission;

13=Acidification; 14=Eutrophication; 15=TotalCost; 16=CapitalCost; 17=OperationalCost;
 18=InflowContaminantLoad; 19=OutflowContaminantLoad; 20=OverflowContaminantLoad;
 21=SludgeGeneration;

(icomponentType=ReceivingWater ==> indicator type (0-7): 0=TreatedInflow;
 1=TotalUntreatedInflow; 2=UntreatedInflowfromSewerSystems;
 3=UntreatedInflowfromWWTWs; 4=TotalContaminantLoad;
 5=TreatedWWTWsContaminantLoad; 6=UntreatedContaminantLoadfromWWTWs;
 7=UntreatedContaminantLoadfromSewerSystem;)

iContaminant

no of Contaminant

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.GetKPIsTimeSeriesUWS Method

Retreives a single KPI in time series format for Urban Water System

VB

```
Public Shared Function GetKPIsTimeSeriesUWS( _
    ByRef Array As Double(), _
    ByVal iIndicatorType As Integer, _
    ByVal iContaminant As Integer _
) As String
```

C#

```
public static string GetKPIsTimeSeriesUWS(
    ref double[] Array,
    int iIndicatorType,
    int iContaminant
)
```

[C++]

```
public static string GetKPIsTimeSeriesUWS(
    ref double[] Array,
    int iIndicatorType,
    int iContaminant
)
```

Parameters

Array

return KPI array in which the KPI result is saved

iIndicatorType

indicator type(0-57):

0=TotalWaterDemand; 1=TotalDeliveredWaterDemand (Total Water Supply);
 2=TotalPotablewaterDemand; 3=TotalDeliveredPotablewaterDemand (Total Potable Water Supply); 4=TotalUndeliveredPotablewaterDemand;
 5=TotalLeakage; 6=TotalDeliveredRainwaterHarvesting (Total Rain Water Harvesting Supply);
 7=TotalCollectedRainwaterHarvesting (Total Rain Water Harvesting Produced);
 8=TotalDeliveredGreyWaterRecycling (Total Grey Water Recycling Supply);
 9=TotalCollectedGreyWaterRecycling (Total Grey Water Recycling Produced);
 10=PotableDomesticWaterDemand; 11=PotableIndustrialWaterDemand;
 12=PotableIrrigationWaterDemand;
 13=PotableFrostTappingWaterDemand; 14=PotableUnregisteredWaterDemand;
 15=DeliveredRHWforDomesticWaterDemand (RWH Domestic Supply);
 16=DeliveredRHWforIndustrialWaterDemand (RWH Industrial Supply);
 17=DeliveredRHWforIrrigationWaterDemand (RWH Irrigation Supply);
 18=DeliveredGWRforDomesticWaterDemand (GWR Domestic Supply);
 19=DeliveredGWRforIndustrialWaterDemand (GWR Industrial Supply);
 20=DeliveredGWRforIrrigationWaterDemand (GWR Irrigation Supply);
 21=%ofWaterDemandDelivered; 22=StormwaterInflow;
 23=ExcessStormwater; 24=StormwaterVolume; 25=SanitarySewageInflow;
 26=ExcessWastewater; 27=WastewaterVolume; 28=STO; 29=TotalCSO;
 30=CSOinSewerSystem; 31=CSOinWWTWs; 32=TreatedWastewaterfromWWTWs;
 33=TotalEnergy; 34=ElectricityEnergy; 35=FossilFuelEnergy;
 36=EmbodiedEnergy; 37=TotalGHGEmission; 38=ElectricityGHGEmission;
 39=FossilFuelGHGEmission;
 40=EmbodiedGHGEmission; 41=Acidification; 42=Eutrophication; 43=TotalCost; 44=CapitalCost;
 45=OperationalCost;
 46=InflowSewerSystemContaminantLoad; 47=InflowStormDrainageSystemContaminantLoad;
 48=ExcesswastewaterContaminantLoad;
 49=ExcessStormwaterContaminantLoad; 50=OutflowSewerSystemContaminantLoad;
 51=OutflowStormDrainageSystemContaminantLoad;
 52=TotalCSOContaminantLoad; 53=CSOinSewerSystemContaminantLoad;
 54=CSOinWWTWsContaminantLoad; 55=STOContaminantLoad;
 56=ContaminantLoadTreatedOutflowfromWWTWs; 57=SludgeGeneration;

iContaminant

no of contaminant

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetLocalAreaWD Method

Retrieves the value of a specific parameter in Local Areas

VB

```
Public Shared Function GetLocalAreaWD( _  
    ByVal LocalAreaNo As Integer, _  
    ByVal characterCode As Integer _  
) As Double
```

C#

```
public static double GetLocalAreaWD(  
    int LocalAreaNo,  
    int characterCode  
)
```

[C++]

```
public static double GetLocalAreaWD(  
    int LocalAreaNo,  
    int characterCode  
)
```

Parameters

LocalAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

characterCode

Character Code (1-18):

1=Indoor water Demand per capita;

2=Industrial and commercial water demand;

3=Irrigation water demand;

4=FrostTapping water demand;

5=UnregisteredPublicUse water demand;

6=Occupancy;

7=Roof Area Percentage [%: 0-100];

8=Pervious Area Percentage [%: 0-100];
9=Pavement and Road Area Percentage [%: 0-100];
10=Runoff Coefficient [0-1];
11=Infiltration Coefficient [0-1];
12=WashingMachineAssgined;
13=ToiletAssgined;
14=ShowerAssgined;
15=DishWasherAssgined;
16=HandBasinAssgined;
17=KitchenSinkAssgined;
18=WaterDemandTypeID(value=1-5: 1=Conventional; 2=Efficient; 3=More Efficient; 4=Excellent Efficient; 5=Customised);

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetMonthlyDemandVariation Method

Retrieves the parameters of Monthly Water Demand Variation

VB

```
Public Shared Function GetMonthlyDemandVariation( _  
    ByVal optionCode As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal parameterCode As Integer _  
) As Double
```

C#

```
public static double GetMonthlyDemandVariation(  
    int optionCode,  
    int localAreaNo,  
    int parameterCode  
)
```

[C++]

```
public static double GetMonthlyDemandVariation(  

```

```
int optionCode,  
int localAreaNo,  
int parameterCode  
)
```

Parameters

optionCode

option Code (1-5): 1=Indoor Water Demand; 2=Industrial Water Demand; 3=Irrigation Water Demand; 4=Frost Tapping Water Demand; 5=Unregistered Public Water Demand;

localAreaNo

Number of local area starting from 1

parameterCode

parameter Code (1-12): number of month of year starting from Jan as 1 and finished with Dec as 12 (optionCode=1: number of year)

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.GetNoandResizeSubcatchmentWD Method

Retrieves/resizes the number of a specific parameter in Subcatchments

VB

```
Public Shared Function GetNoandResizeSubcatchmentWD( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal characterCode As Integer, _  
    ByVal localAreaNo As Integer _  
) As Double
```

C#

```
public static double GetNoandResizeSubcatchmentWD(  
    int subcatchmentNo,  
    int characterCode,  
    int localAreaNo  
)
```

```
[C++]
public static double GetNoandResizeSubcatchmentWD(
    int subcatchmentNo,
    int characterCode,
    int localAreaNo
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

characterCode

Character Code (1-6): 1=Gets the Number of 'AvialabilityLocalArea' parameters; 2=Gets the Number of 'NumberOfHousehold' parameters 3=Gets the Number of 'TotalArea' parameters; 4=Resizes 'AvialabilityLocalArea' parameters; 5=Resizes Number of 'NumberOfHousehold' parameters 6=Resizes Number of 'TotalArea' parameters;

localAreaNo

Number of Local Areas (used when resizing a specific parameter. leave 0 when retrieving the number of parameters)

Returns

Returns the number of a specific parameter when using get functions or 0 for the other function; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.GetNoandResizeWastewater Method

Retreives/resizes the number of assets in wastewater system

VB

```
Public Shared Function GetNoandResizeWastewater( _
    ByVal assetCode As Integer, _
    ByVal assetNo As Integer, _
    ByVal ResizeType As Integer, _
    ByVal ResizeValue As Integer _
) As Integer
```

C#

```
public static int GetNoandResizeWastewater(
```

```

int assetCode,
int assetNo,
int ResizeType,
int ResizeValue
)

```

```

[C++]
public static int GetNoandResizeWastewater(
int assetCode,
int assetNo,
int ResizeType,
int ResizeValue
)

```

Parameters

assetCode

1-3: 1=Get number of Wastewaters vs WWTWs; 2=Get number of Subcatchments vs Receiving water; 3=Get number of WWTWs vs Receiving water; 4=Resize number of Subcatchments vs WWTWs; 5=Resize number of Subcatchments vs Receiving water; 6=Resize number of WWTWs vs Receiving water;

assetNo

Asset No as consecutive integers starting from 1.

ResizeType

1-3: 1=connection (Topology); 2=Share (Operation); leave 0 in the state of Get number function

ResizeValue

resize value of interest; leave 0 in the state of Get number function

Returns

Returns the value of interest for GetNo, 0 for Resize; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#);

Toolkit.GetOptionGeneral Method

Retrieves the values of parameters in Options General (e.g. Cost; Location; wastewater conversion; water demand coefficient; time)

VB

```

Public Shared Function GetOptionGeneral( _
ByVal optionCode As Integer, _

```

```
ByVal parameterCode As Integer _
) As Double
```

C#

```
public static double GetOptionGeneral(
    int optionCode,
    int parameterCode
)
```

[C++]

```
public static double GetOptionGeneral(
    int optionCode,
    int parameterCode
)
```

Parameters*optionCode*

option Code (1-7): 1=Cost; 2=Location; 3=wastewater conversion; 4=water demand coefficient; 5=time; 6=general; 7=EnergyUseforAppliancesandFitting; 8=contaminant size;

parameterCode

parameter Code

(1=Cost: 1-4: 1=ElectricityCost; 2=FossilFuelCost; 3=interest rate; 4=CapCostWaterMeter)

(2=Location: 1-5: 1=Elevation; 2=LatitudeD; 3=LatitudeM; 4=LatitudeS; 5=LatitudeNorth(false=0; true=1))

(3=wastewater conversion: 1-9: 1=DishWasher; 2=HandBasin; 3=KitchenSink; 4=WashingMachine; 5=Shower; 6=Toilet; 7=Industrial; 8=FrostTapping; 9=UnregisteredPublicUse;)

(4=water demand coefficient and 7=EnergyUseforAppliancesandFitting: 1-6: 1=DishWasher; 2=HandBasin; 3=KitchenSink; 4=WashingMachine; 5=Shower; 6=Toilet;)

(5=time: 1-5: 1=No of years shown (between 0 and 30); 2=No of months shown (between 0 and 12); 3=No of Days shown (between 0 and 30); 4=Aggregated Time Step; 5=Total days)

(6=general: 1: 1=specific gravity of snow; 2=specific gravity of Diesel Fuel;)

(7=EnergyUseforAppliancesandFitting: 1-6: 1=DishWasher; 2=HandBasin; 3=KitchenSink; 4=WashingMachine; 5=Shower; 6=Toilet;)

(8=contaminant size: 1=number of contaminants)

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#);

Toolkit.GetOptionsMaterials Method

Retrieves the values of parameters in Options Materials

VB

```
Public Shared Function GetOptionsMaterials( _  
    ByVal categoryCode As Integer, _  
    ByVal parameterCode As Integer _  
) As Double
```

C#

```
public static double GetOptionsMaterials(  
    int categoryCode,  
    int parameterCode  
)
```

[C++]

```
public static double GetOptionsMaterials(  
    int categoryCode,  
    int parameterCode  
)
```

Parameters

categoryCode

category Code(1-4): 1=Embodied Energy; 2=Embodied GHG; 3=Acidification; 4=Eutrophication;

parameterCode

parameter Code(1-36): 1=Alum; 2=Carbondioxide; 3=Calciumhydroxide; 4=PAX; 5=NaoCl;
6=Chlorine; 7=FerricChloride; 8=FerricSulphate; 9=Nitricacid; 10=Methanol; 11=Ethanol;
12=Sodiumhydroxide; 13=PotassiumPermanganate; 14=Ozone; 15=SilicaSandandMicrosand;
16=Electricity; 17=Coal; 18=Diesel; 19=FuelOil; 20=Gasoline; 21=LPG; 22=NaturalGas; 23=Wood;
24=PVCpipe; 25=PEpipe; 26=MildSteelPipe; 27=DuctileIronPipe; 28=GreyCastIronPipe;
29=Concrete; 30=EpoxyResin; 31=Polyurethane; 32=Copper; 33=Polypropylene;
34=AmmoniumNitrate; 35=SingleSuperphosphate; 36=Urea;

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.GetPipelineData Method

Retreives the pipeline data

VB

```
Public Shared Function GetPipelineData( _  
    ByVal systemCode As Integer, _  
    ByVal subcatchmentID As Integer, _  
    ByVal pipelineID As Integer, _  
    ByVal pipelineSpec As Integer _  
) As String
```

C#

```
public static string GetPipelineData(  
    int systemCode,  
    int subcatchmentID,  
    int pipelineID,  
    int pipelineSpec  
)
```

[C++]

```
public static string GetPipelineData(  
    int systemCode,  
    int subcatchmentID,  
    int pipelineID,  
    int pipelineSpec  
)
```

Parameters

systemCode

1-4: 1=Retreiving the number of pipelines for distribution networks; 2=Retreiving a value of distribution network pipelines; 3=Retreiving the number of pipelines for sewer system; 4=Retreiving a value of sewer system pipeline

subcatchmentID

subcatchment ID starting from 1;

pipelineID

pipeline ID starting from 1; (leave 1 for systemCode=1 or 3 if the number of pipelines number of subcatchments of distributoin networks is of interest; otherwise leave 0)

pipelineSpec

(systemCode=1 or 3: leave zero) (systemCode=2 or 4: 1-5: 1=Material type; 2=Length[m]; 3=Diameter[m]; 4=Age average at the start of simulation[year]; 5=Updated age over the planning horizon[year])

Returns

Returns the string value of interest; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.GetRehabilitationMethods Method

Retrieves the parameters of rehabilitation technique in the urban water systems

VB

```
Public Shared Function GetRehabilitationMethods( _
    ByVal optionCode As Integer, _
    ByVal parameterCode As Integer _
) As Double
```

C#

```
public static double GetRehabilitationMethods(
    int optionCode,
    int parameterCode
)
```

[C++]

```
public static double GetRehabilitationMethods(
    int optionCode,
    int parameterCode
)
```

Parameters

optionCode

option Code (1-7): 1=Cost of detailed method; 2=Diesel of detailed method; 3=general data; 4=Lining with polyurethane (PU); 5=Slip-lining with PE pipe; 6=Pipe cracking + lining; 7=Rebuilding with ductile iron pipe;

parameterCode

parameter Code

(1=Cost of detailed method: 1-3: 1=small-size pipe; 2=medium-size pipe; 3=large-size pipe)

(2=Diesel of detailed method: 1-3: 1=small-size pipe; 2=medium-size pipe; 3=large-size pipe)

(3=general data: 1-2: 1=thickness of the pipe [Internal diameter of the pipe rehabilitated multiplied by]; 2=specific gravity of the pipe;)

(optionCode(4,5,6,7): 1-3: 1=% of total annual rehabilitation [0-100]; 2=Coefficient of Cost of

slip-lining with PE pipe; 3=Coefficient of GHG emissions of slip-lining with PE pipe;)

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetSubcatchmentWD Method

Retrieves the value of a specific parameter in Subcatchments

VB

```
Public Shared Function GetSubcatchmentWD( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal characterCode As Integer _  
) As Double
```

C#

```
public static double GetSubcatchmentWD(  
    int subcatchmentNo,  
    int localAreaNo,  
    int characterCode  
)
```

[C++]

```
public static double GetSubcatchmentWD(  
    int subcatchmentNo,  
    int localAreaNo,  
    int characterCode  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

characterCode

Character Code (1-3): 1=Local Area Availability of a specified local area[0=False; 1=True]; 2-

Number of properties of a specified local area 3=Total area of a specified local area;

Returns

Returns the value of interest (if Character Code=1:Availability of a specified local area [0=False; 1=True]). In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.GetTankLocalArea Method

Retrieves the values of parameters in Local Area Tanks

VB

```
Public Shared Function GetTankLocalArea( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal tankCode As Integer, _  
    ByVal characterCode As Integer _  
) As Double
```

C#

```
public static double GetTankLocalArea(  
    int subcatchmentNo,  
    int localAreaNo,  
    int tankCode,  
    int characterCode  
)
```

[C++]

```
public static double GetTankLocalArea(  
    int subcatchmentNo,  
    int localAreaNo,  
    int tankCode,  
    int characterCode  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

characterCode

Character Code (1-7): 1=Storage Capacity; 2=Initial volume; 3=exposed surface; 4=capital cost; 5=OandM cost; 6=Electricity; 7=FuelUsage;

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetTankLocalAreaBool Method

Retrieves the values of parameters in Subcatchment Tanks

VB

```
Public Shared Function GetTankLocalAreaBool( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal tankCode As Integer, _  
    ByVal characterCode As Integer _  
) As Boolean
```

C#

```
public static bool GetTankLocalAreaBool(  
    int subcatchmentNo,  
    int localAreaNo,  
    int tankCode,  
    int characterCode  
)
```

[C++]

```
public static bool GetTankLocalAreaBool(  
    int subcatchmentNo,  
    int localAreaNo,  
    int tankCode,  
    int characterCode  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

characterCode

Character Code (1-16):

(Tank Code=1: 1=Toilet; 2=DishWasher; 3=HandBasin; 4=KitchenSink; 5=Shower; 6=WashingMachine; 7=Industrial; 8=Irrigation; 10=CollectRoofRunoff; 11=CollectRoadPavementRunoff; 12=OverflowtoGreywaterRecyclingTank; 13=available)

(Tank Code=2: 1=Toilet; 2=DishWasher; 3=HandBasin; 4=KitchenSink; 5=Shower; 6=WashingMachine; 7=Industrial; 8=Irrigation; 10=CollectDishWasher; 11=CollectHandBasin; 12=CollectShower; 13=CollectWashingMachine; 14=CollectIndustrial; 15=CollectFrostTapping; 16=available)

Returns

Returns the value of interest (true: Allocation from Tank is available; false=Allocation from Tank is not available;); In case of error returns false

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#);

Toolkit.GetTankSubcatchment Method

Retrieves the double values of parameters in Subcatchment Tanks

VB

```
Public Shared Function GetTankSubcatchment( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal tankCode As Integer, _  
    ByVal characterCode As Integer _  
) As Double
```

C#

```
public static double GetTankSubcatchment(  
    int subcatchmentNo,  
    int tankCode,  
    int characterCode  
)
```

```
[C++]
public static double GetTankSubcatchment(
    int subcatchmentNo,
    int tankCode,
    int characterCode
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

characterCode

Character Code (1-7): 1=Storage Capacity; 2=Initial volume; 3=exposed surface; 4=capital cost; 5=OandM cost; 6=Electricity; 7=FuelUsage;

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.GetTankSubcatchmentBool Method

Retrieves the bool values of parameters in Subcatchment Tanks

VB

```
Public Shared Function GetTankSubcatchmentBool( _
    ByVal subcatchmentNo As Integer, _
    ByVal tankCode As Integer, _
    ByVal characterCode As Integer _
) As Boolean
```

C#

```
public static bool GetTankSubcatchmentBool(
    int subcatchmentNo,
    int tankCode,
    int characterCode
)
```

```
[C++]
public static bool GetTankSubcatchmentBool(
    int subcatchmentNo,
    int tankCode,
    int characterCode
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

characterCode

Character Code (1-12): (Tank Code=1: 1=Toilet; 2=DishWasher; 3=HandBasin; 4=KitchenSink; 5=Shower; 6=WashingMachine; 7=Industrial; 8=Irrigation; 10=CollectRunoffInsideSubcatchment; 11=CollectRunoffUpstreamSubcatchment; 12=OverflowtoGreywaterRecyclingTank; 13=Tank availability) (Tank Code=2: 1=Toilet; 2=DishWasher; 3=HandBasin; 4=KitchenSink; 5=Shower; 6=WashingMachine; 7=Industrial; 8=Irrigation; 10=Collect Greywater Overflow from Inside Subcatchment; 12=Tank availability)

Returns

Returns the value of interest (true: Allocation from Tank is available; false=Allocation from Tank is not available;); In case of error returns false

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetTopologyWSS Method

Retrieves how different components are connected to each other (interconnection) in Water Supply Systems

VB

```
Public Shared Function GetTopologyWSS( _
    ByVal connectCode As Integer, _
    ByVal upstreamNo As Integer, _
    ByVal downstreamNo As Integer _
) As Boolean
```

C#

```
public static bool GetTopologyWSS(  
    int connectCode,  
    int upstreamNo,  
    int downstreamNo  
)
```

```
[C++]  
public static bool GetTopologyWSS(  
    int connectCode,  
    int upstreamNo,  
    int downstreamNo  
)
```

Parameters

connectCode

Connection Code (1-3): 1=Subcatchments vs Service Reservoirs; 2=Service Reservoir vs WTWs; 3-WTWs vs Raw Water Sources

upstreamNo

Upstream component number;consecutive integers starting from 1

downstreamNo

Downstream component number;consecutive integers starting from 1

Returns

Returns the boolean value whether or not there is a connection between the components . In case of error returns false

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetTopologyWSSDownstreamNo Method

Retrieves the topology number of a specific asset; Note that Asses numbers are consecutive integers starting from 1.

VB

```
Public Shared Function GetTopologyWSSDownstreamNo( _  
    ByVal connectCode As Integer, _  
    ByVal UpstreamCode As Integer _  
) As Integer
```


C#

```
public static int GetTopologyWSSDownstreamNo(  
    int connectCode,  
    int UpstreamCode  
)
```

[C++]

```
public static int GetTopologyWSSDownstreamNo(  
    int connectCode,  
    int UpstreamCode  
)
```

Parameters

connectCode

Connection Code (1-3): 1=Subcatchments vs Service Reservoirs (Pipelines); 2=Service Reservoirs vs WTWs (Water Mains); 3=WTWs vs Raw Water Sources (Water Supply Conduits)

UpstreamCode

Upstream node of a Topology starting from 1

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.GetTopologyWSSUpstreamNo Method

Retrieves the topology number of a specific asset; Note that Asses numbers are consecutive integers starting from 1.

VB

```
Public Shared Function GetTopologyWSSUpstreamNo( _  
    ByVal connectCode As Integer _  
) As Integer
```

C#

```
public static int GetTopologyWSSUpstreamNo(  
    int connectCode  
)
```

```
[C++]
public static int GetTopologyWSSUpstreamNo(
    int connectCode
)
```

Parameters

connectCode

Connection Code (1-3): 1=Subcatchments vs Service Reservoirs (Pipelines); 2=Service Reservoirs vs WTWs (Water Mains); 3=WTWs vs Raw Water Sources (Water Supply Conduits)

Returns

Returns the value of interest; In case of error returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.GetTopologyandOperationWWS Method

Retrieves the topology/Operation of waste water systems

VB

```
Public Shared Function GetTopologyandOperationWWS( _
    ByVal connectCode As Integer, _
    ByVal functionType As Integer, _
    ByVal upstreamID As Integer, _
    ByVal downstreamID As Integer _
) As Double
```

C#

```
public static double GetTopologyandOperationWWS(
    int connectCode,
    int functionType,
    int upstreamID,
    int downstreamID
)
```

```
[C++]
public static double GetTopologyandOperationWWS(
    int connectCode,
```

```
int functionType,  
int upstreamID,  
int downstreamID  
)
```

Parameters

connectCode

1-3: 1=Sewer System vs WWTWs; 2=Subcatchment vs Receiving Water; 3=WWTWs vs Receiving Water

functionType

1-2: 1=Topology(connection is present or not)[0=No connection; 1=Connected];
2=Operation(Share) [0-100]

upstreamID

Upstream ID as consecutive integers starting from 1

downstreamID

Downstream ID as consecutive integers starting from 1

Returns

Returns the value of interest; In case of error returns -1 or -2

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#);

Toolkit.GetWaterRecoveryAllocation Method

Retrieves the value of the Water Recovery Allocation for different water demand types

VB

```
Public Shared Function GetWaterRecoveryAllocation( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal waterDemandCode As Integer _  
) As Boolean
```

C#

```
public static bool GetWaterRecoveryAllocation(  
    int subcatchmentNo,  
    int localAreaNo,  
    int waterDemandCode  
)
```

```
[C++]
public static bool GetWaterRecoveryAllocation(
    int subcatchmentNo,
    int localAreaNo,
    int waterDemandCode
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

waterDemandCode

Water Demand Code (1-8 and 11-19): 1=ToiletRWH; 2=DishWasherRWH; 3=HandBasinRWH; 4=KitchenSinkRWH; 5=ShowerRWH; 6=WashingMachineRWH; 7=IndustrialRWH; 8=IrrigationRWH; 11=ToiletGWR; 12=DishWasherGWR; 13=HandBasinGWR; 14=KitchenSinkGWR; 15=ShowerGWR; 16=WashingMachineGWR; 17=IndustrialGWR; 18=IrrigationGWR; 19=WaterSavingNeededLocalArea

Returns

Returns the value of interest (true: Allocation from Tank is available; false=Allocation from Tank is not available;); In case of error returns false

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.GetWeatherData Method

Retrieves the parameters (as string) of climate data over the planning horizon

VB

```
Public Shared Function GetWeatherData( _
    ByVal parameterCode As Integer, _
    ByVal iday As Integer _
) As String
```

C#

```
public static string GetWeatherData(
    int parameterCode,
    int iday
```

```
)
```

```
[C++]  
public static string GetWeatherData(  
    int parameterCode,  
    int iday  
)
```

Parameters

parameterCode

1-12:

1=Number of days in ClimateData ;

2=date;

3=Precipitation[m];

4=SnowDepth[m];

5=PrecipitationType;

6=MeanTemperature;

7=MinimumTemperature;

8=MaximumTemperature;

9=AverageWindSpeed(main observations)[m/s]

10=HoursofSunshine;

11=MeanRelativeHumidity[0-1];

12=VapourPressure[hPa];

iday

day of climate data starting from 1 (for parameterCode=1: leave 0)

Returns

Returns the parameter of interest as string otherwise it returns -1

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.PreparingFillTimeStep Method

Preparing for fill time step, internally used

```
VB
```

```
Public Shared Function PreparingFillTimeStep( _
    ByVal StartDay As Integer, _
    ByVal NoDay As Integer, _
    ByVal NTimeStep As Integer _
) As String
```

C#

```
public static string PreparingFillTimeStep(
    int StartDay,
    int NoDay,
    int NTimeStep
)
```

[C++]

```
public static string PreparingFillTimeStep(
    int StartDay,
    int NoDay,
    int NTimeStep
)
```

Parameters*StartDay*

start day between 1 and planning horizon

NoDay

number of days; if NoDay=0, it would be for the whole planning horizon

*NTimeStep*Interval of aggregated time step for indicators: 1=Daily; 7=Weekly; 30=Monthly;365=Annually;
0= one value aggregating the whole defined duration**Returns**

Returns an error code: ""=No error; otherwise there is error message

Requirements**Platforms:** Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2**See Also**Applies to: [Toolkit](#)**Toolkit.ResizeAsset Method**

Resizes the number of asset to a new number

VB

```
Public Shared Function ResizeAsset( _
    ByVal assetCode As Integer, _
    ByVal assetNo As Integer _
) As Integer
```

C#

```
public static int ResizeAsset(
    int assetCode,
    int assetNo
)
```

```
[C++]
public static int ResizeAsset(
    int assetCode,
    int assetNo
)
```

Parameters*assetCode*

Asset Code (1-8): 1=Resources; 2=Water Supply Conduits; 3-WTWs; 4=Mains; 5=Reservoirs;6=DistrNetwork; 7=WWTWs; 8=Receiving Water;

assetNo

The new number of asset starting from 1

Returns

Returns an error code: 0=No error; otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.ResizeChemicalsandContaminantNo Method

Resizes the number of chemicals used in a treatment facility.

VB

```
Public Shared Function ResizeChemicalsandContaminantNo( _
    ByVal assetCode As Integer, _
    ByVal assetID As Integer, _
    ByVal datatype As Integer, _
    ByVal value As Integer _
)
```

```
) As Integer
```

C#

```
public static int ResizeChemicalsandContaminantNo(  
    int assetCode,  
    int assetID,  
    int datatype,  
    int value  
)
```

[C++]

```
public static int ResizeChemicalsandContaminantNo(  
    int assetCode,  
    int assetID,  
    int datatype,  
    int value  
)
```

Parameters

assetCode

Asset Code (1-3): 1=WTWs chemicals; 2=WWTWs chemicals; 3=Reservoirs chemicals;

assetID

Asset ID starting from 1

datatype

data type of chemical 1-3: 1="ChemicalsName"; 2="ChemicalsAmount"; 3="ChemicalsID(only for WWTWs)"

value

number of chemicals(pollutant removals)

Returns

Returns an error code: 0=No error; otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.ResizeTopologyWSSDownstreamNo Method

Resizes the topology number of a specific asset; Note that Asses numbers are consecutive integers starting from 1.

VB

```
Public Shared Function ResizeTopologyWSSDownstreamNo( _  
    ByVal connectCode As Integer, _  
    ByVal upstreamCode As Integer, _  
    ByVal downstreamNo As Integer _  
) As Integer
```

C#

```
public static int ResizeTopologyWSSDownstreamNo(  
    int connectCode,  
    int upstreamCode,  
    int downstreamNo  
)
```

[C++]

```
public static int ResizeTopologyWSSDownstreamNo(  
    int connectCode,  
    int upstreamCode,  
    int downstreamNo  
)
```

Parameters

connectCode

Connection Code (1-3): 1=Subcatchments vs Service Reservoirs (Pipelines); 2=Service Reservoirs vs WTWs (Water Mains); 3=WTWs vs Raw Water Sources (Water Supply Conduits)

upstreamCode

Upstream code of the connection starting from 1

downstreamNo

Downstream code of the connection starting from 1

Returns

Returns an error code: 0=No error otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.ResizeTopologyWSSUpstreamNo Method

Resizes the topology number of a specific asset; Note that Asses numbers are consecutive integers starting from 1.

VB

```
Public Shared Function ResizeTopologyWSSUpstreamNo( _
    ByVal connectCode As Integer, _
    ByVal upstreamNo As Integer _
) As Integer
```

C#

```
public static int ResizeTopologyWSSUpstreamNo(
    int connectCode,
    int upstreamNo
)
```

[C++]

```
public static int ResizeTopologyWSSUpstreamNo(
    int connectCode,
    int upstreamNo
)
```

Parameters

connectCode

Connection Code (1-3): 1=Subcatchments vs Service Reservoirs (Pipelines); 2=Service Reservoirs vs WTWs (Water Mains); 3=WTWs vs Raw Water Sources (Water Supply Conduits)

upstreamNo

Upsream component number;consecutive integers starting from 1

Returns

Returns an error code: 0=No error otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetAnnualDemandVariation Method

Sets the parameters of Annual Water Demand Variation

VB

```
Public Shared Function SetAnnualDemandVariation( _
    ByVal optionCode As Integer, _
    ByVal localAreaNo As Integer, _
    ByVal parameterCode As Integer, _
```

```
    ByVal value As Double _  
) As String
```

C#

```
public static string SetAnnualDemandVariation(  
    int optionCode,  
    int localAreaNo,  
    int parameterCode,  
    double value  
)
```

[C++]

```
public static string SetAnnualDemandVariation(  
    int optionCode,  
    int localAreaNo,  
    int parameterCode,  
    double value  
)
```

Parameters

optionCode

option Code (1-5): 1=Number of years; 2=Annual Population Growth; 3=Annual Industrial Growth; 4=Annual Irrigation Growth; 5=Annual Frost Tapping Growth;

localAreaNo

Number of local area starting from 1

parameterCode

parameter Code (optionCode=2,3,4,5: year of interest, expressed as an integer value starting from 1 up to the number of years.) (optionCode=1: number of years)

value

parameter value (Note that for optionCode=1, only enter an arbitrary value)

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetAssetNo Method

Sets the total number of a specific asset.

VB

```
Public Shared Function SetAssetNo( _  
    ByVal assetCode As Integer, _  
    ByVal assetID As Integer _  
) As Integer
```

C#

```
public static int SetAssetNo(  
    int assetCode,  
    int assetID  
)
```

```
[C++]  
public static int SetAssetNo(  
    int assetCode,  
    int assetID  
)
```

Parameters

assetCode

Asset Code (1-10): 1=Resources; 2=Water Supply Conduits; 3=WTWs; 4=mains;
5=Reservoirs;6=DistrNetwork; 7=Subcatchment; 8=Local Area; 9=WWTWs; 10=Receiving Water

assetID

the asset number

Returns

Returns an error code: 0=No error; otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetAssetWSS (Int32, String, Int32, String) Method

Sets the string value of a specific asset parameter in Water Supply Systems

VB

```
Public Shared Function SetAssetWSS( _  
    ByVal assetCode As Integer, _  
    ByVal characterCode As String, _  
    ByVal assetNo As Integer, _
```

```
    ByVal value As String _  
) As String
```

C#

```
public static string SetAssetWSS(  
    int assetCode,  
    string characterCode,  
    int assetNo,  
    string value  
)
```

```
[C++]  
public static string SetAssetWSS(  
    int assetCode,  
    string characterCode,  
    int assetNo,  
    string value  
)
```

Parameters

assetCode

Asset Code (1-6): 1=Resources; 2=Water Supply Conduits; 3=WTWs; 4=mains;
5=Reservoirs;6=DistrNetwork;

characterCode

Character Code (1=Resources: 1-2: 1=Name; 2=Type); (2=Water Supply Conduits: 1: 1=Name);
(3=WTWs: 1: 1=Name); (4=mains: 1: 1=Name); (5=Reservoirs; 1: 1=Name); (6=DistrNetwork; 1:
1=Name);

assetNo

Asset No; Note that Asses numbers are consecutive integers starting from 1.

value

string value of parameter

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.SetAssetWSS (Int32, Int32, Int32, Double) Method

Sets the parameters of Asset in Water Supply Systems

VB

```
Public Shared Function SetAssetWSS( _
    ByVal assetCode As Integer, _
    ByVal characterCode As Integer, _
    ByVal assetNo As Integer, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetAssetWSS(
    int assetCode,
    int characterCode,
    int assetNo,
    double value
)
```

[C++]

```
public static string SetAssetWSS(
    int assetCode,
    int characterCode,
    int assetNo,
    double value
)
```

Parameters

assetCode

Asset Code (1-6): 1=Resources; 2=Water Supply Conduits; 3=WTWs; 4=mains; 5=Reservoirs;6=DistrNetwork;

characterCode

Character Code

(1=Resources: 1-6: 1=Infiltration; 2=Electricity; 3=Fossil; 4=Capacity; 5=Initial Volume; 6=Operational Cost);

(2=Water Supply Conduits: 1-8: 1=Capacity; 2=Leakage; 3=Electricity; 4=Fossil; 5=Operational Cost; 6=Coefficient of split; 7=From WTWs(starting from 1); 8=To Resource(starting from 1));

(3=WTWs: 1-10: 1=Capacity; 2=Physical Electricity; 3=Physical Fossil; 4=Physical Operational Cost; 5=Chemical Electricity; 6=Chemical Fossil; 7=Chemical Operational Cost; 8=Average Chemical Cost; 9=Sludge Generated; 10=water loss rate);

(4=mains: 1-8: 1=Capacity; 2=Leakage; 3=Electricity; 4=Fossil; 5=Operational Cost; 6=Coefficient of split; 7=From SReservoir(starting from 1); 8=To WTWs(starting from 1));

(5=Reservoirs; 1-5: 1=Capacity; 2=Peaking factor; 3=Operational Cost; 4=Average Chemical Cost; 5=water loss rate);

(6=DistrNetwork; 1-9: 1=capacity; 2=Leakage; 3=Annual Rehabilitation; 4=Electricity; 5=Fossil;

6=Operational Cost; 7=Coefficient of split; 8=From Subcatchment(starting from 1); 9=To SReservoir(starting from 1));

assetNo

Asset No; Note that Asses numbers are consecutive integers starting from 1.

value

double value of parameter

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetAssetWastewater (Int32, Int32, Int32, Double) Method

Sets the parameters of Asset in Wastewater systems

VB

```
Public Shared Function SetAssetWastewater( _
    ByVal assetCode As Integer, _
    ByVal characterCode As Integer, _
    ByVal assetNo As Integer, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetAssetWastewater(
    int assetCode,
    int characterCode,
    int assetNo,
    double value
)
```

[C++]

```
public static string SetAssetWastewater(
    int assetCode,
    int characterCode,
    int assetNo,
    double value
)
```

Parameters

assetCode

Asset Code (1-3): 1=Subcatchment Pipelines in Wastewater Systems; 2=Subcatchment Pipelines in Stormwater Systems; 3=WWTWs;

characterCode

Character Code

(1=Subcatchment Pipelines in Wastewater Systems: 1-13: 1=Infiltration[%:Value=0-100]; 2=Exfiltration[%:Value=0-100]; 3=Rehabilitation[%:Value=0-100]; 4=Electricity; 5=Fossil; 6=Operational Cost; 7=CSO structure Capacity; 8=Combined/Separate System [0=Separate; 1=Combined]; 9=Downstream Subcatchment [Value=(0:Not Available; 1-Subcatchment number(except itself))]; 10=StorageCapacity; 11=coefficient a; 12=coefficient b; 13=TransmissionCapacity;);

(2=Subcatchment Pipelines in Stormwater Systems: 1-12: 1=Infiltration[%:Value=0-100]; 2=Exfiltration[%:Value=0-100]; 3=Rehabilitation[%:Value=0-100]; 4=Electricity; 5=Fossil; 6=Operational Cost; 7=STO structure Capacity; 8=Downstream Subcatchment [Value=(0:Not Available; 1-Subcatchment number(except itself))]; 9=StorageCapacity; 10=coefficient a; 11=coefficient b; 12=TransmissionCapacity;);

(3=WWTWs: 1-6: 1=Daily Treatment Capacity; 2=Storage Capacity; 3=Electricity; 4=Fossil; 5=Operational Cost; 6=Average Chemical Cost;)

assetNo

Asset No; Note that Asses numbers are consecutive integers starting from 1.

value

parameter value

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetAssetWastewater (Int32, String, Int32, String) Method

Retrieves the value of a specific parameter in Wastewater systems

VB

```
Public Shared Function SetAssetWastewater( _
    ByVal assetCode As Integer, _
    ByVal characterCode As String, _
    ByVal assetNo As Integer, _
    ByVal value As String _
) As String
```

C#


```
public static string SetAssetWastewater(
    int assetCode,
    string characterCode,
    int assetNo,
    string value
)
```

```
[C++]
public static string SetAssetWastewater(
    int assetCode,
    string characterCode,
    int assetNo,
    string value
)
```

Parameters

assetCode

Asset Code (1-4): 1=Subcatchment Pipelines in Wastewater Systems; 2=Subcatchment Pipelines in Stormwater Systems; 3=WWTWs; 4=Receiving water

characterCode

Character Code (1=Subcatchment Pipelines in Wastewater Systems: 1: 1="StorageType"); (2=Subcatchment Pipelines in Stormwater Systems: 1: 1="StorageType"); (3=WWTWs: 1: 1="Name"); (4=Receiving water: 1: 1="Name");

assetNo

Asset No; Note that Asses numbers are consecutive integers starting from 1.

value

parameter value

Returns

Returns an error code: ""=No error otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.SetChemicalsandContaminantSpec Method

Sets the amount of the chemical/pollutant with a chemical ID used in a treatment facility.

VB

```
Public Shared Function SetChemicalsandContaminantSpec( _
    ByVal assetCode As Integer, _
```

```
ByVal assetID As Integer, _  
ByVal chemicalsPollutantID As Integer, _  
ByVal value As Double _  
) As Integer
```

C#

```
public static int SetChemicalsandContaminantSpec(  
    int assetCode,  
    int assetID,  
    int chemicalsPollutantID,  
    double value  
)
```

[C++]

```
public static int SetChemicalsandContaminantSpec(  
    int assetCode,  
    int assetID,  
    int chemicalsPollutantID,  
    double value  
)
```

Parameters

assetCode

Asset Code (1-4): 1=WTWs chemicals; 2=WWTWs chemicals; 4=Reservoirs chemicals;
4=WWTWs Contaminant Removal;)

assetID

Asset ID starting from 1

chemicalsPollutantID

chemical ID starting from 1

value

string chemical's Name of interest

Returns

Returns an error code: 0=No error; otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetChemicalsandPollutantSpec Method

Sets the chemical's Name associated with a chemical ID used in a treatment facility.

VB

```
Public Shared Function SetChemicalsandPollutantSpec( _  
    ByVal assetCode As Integer, _  
    ByVal assetID As Integer, _  
    ByVal chemicalsPollutantID As Integer, _  
    ByVal value As String _  
) As Integer
```

C#

```
public static int SetChemicalsandPollutantSpec(  
    int assetCode,  
    int assetID,  
    int chemicalsPollutantID,  
    string value  
)
```

[C++]

```
public static int SetChemicalsandPollutantSpec(  
    int assetCode,  
    int assetID,  
    int chemicalsPollutantID,  
    string value  
)
```

Parameters

assetCode

Asset Code (1-3): 1=WTWs chemicals; 2=WWTWs chemicals; 3=Reservoirs chemicals;)

assetID

Asset ID starting from 1

chemicalsPollutantID

chemical/pollutants ID starting from 1

value

string chemical's Name of interest

Returns

Returns an error code: 0=No error; otherwise -1 in case of error

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetContaminantTankLocalArea Method

Sets the bool values of contaminant parameters in Local Area Tanks

VB

```
Public Shared Function SetContaminantTankLocalArea( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal tankCode As Integer, _  
    ByVal contaminantCode As Integer, _  
    ByVal value As Double _  
) As String
```

C#

```
public static string SetContaminantTankLocalArea(  
    int subcatchmentNo,  
    int localAreaNo,  
    int tankCode,  
    int contaminantCode,  
    double value  
)
```

[C++]

```
public static string SetContaminantTankLocalArea(  
    int subcatchmentNo,  
    int localAreaNo,  
    int tankCode,  
    int contaminantCode,  
    double value  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

contaminantCode

number of contaminant as consecutive integers starting from 1

value

Parameter Value;

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetContaminantTankSubcatchment Method

Sets the double values of contaminant parameters in Subcatchment Tanks

VB

```
Public Shared Function SetContaminantTankSubcatchment( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal tankCode As Integer, _  
    ByVal contaminantCode As Integer, _  
    ByVal value As Double _  
) As String
```

C#

```
public static string SetContaminantTankSubcatchment(  
    int subcatchmentNo,  
    int tankCode,  
    int contaminantCode,  
    double value  
)
```

[C++]

```
public static string SetContaminantTankSubcatchment(  
    int subcatchmentNo,  
    int tankCode,  
    int contaminantCode,  
    double value  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

contaminantCode

number of contaminant as consecutive integers starting from 1;

value

Parameter Value;

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#);

Toolkit.SetContaminantsConcentration Method

Sets the value of a contaminant

VB

```
Public Shared Function SetContaminantsConcentration( _  
    ByVal contaminantCode As Integer, _  
    ByVal parameterCode As Integer, _  
    ByVal value As Double _  
    ) As String
```

C#

```
public static string SetContaminantsConcentration(  
    int contaminantCode,  
    int parameterCode,  
    double value  
    )
```

[C++]

```
public static string SetContaminantsConcentration(  
    int contaminantCode,  
    int parameterCode,  
    double value  
    )
```

Parameters

contaminantCode

1-10: contaminant code between 1 and 10

parameterCode

1-11: 1=Potable water; 2=Dish Washer; 3=Hand Basin; 4=Kitchen Sink; 5=Washing Machine; 6=Shower; 7=Toilet; 8=Industrial; 9=Roof; 10=Road and Pavement; 11=Pervious area;

value

parameter value

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetContaminantsName Method

Sets the name of Contaminants and if they are active.inactive (before this function the size of the array needs to be determined)

VB

```
Public Shared Function SetContaminantsName( _  
    ByVal parameterCode As Integer, _  
    ByVal value As String _  
) As String
```

C#

```
public static string SetContaminantsName(  
    int parameterCode,  
    string value  
)
```

```
[C++]  
public static string SetContaminantsName(  
    int parameterCode,  
    string value  
)
```

Parameters

parameterCode

(number of Contaminant between 1 and the size of the pollutant array)

value

parameter value (name of Contaminants)

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetDailyDemandVariation Method

Sets the parameters of daily water demand variation

VB

```
Public Shared Function SetDailyDemandVariation( _  
    ByVal optionCode As Integer, _  
    ByVal localAreaNo As Integer, _  
    ByVal parameterCode As Integer, _  
    ByVal value As Double _  
    ) As String
```

C#

```
public static string SetDailyDemandVariation(  
    int optionCode,  
    int localAreaNo,  
    int parameterCode,  
    double value  
    )
```

[C++]

```
public static string SetDailyDemandVariation(  
    int optionCode,  
    int localAreaNo,  
    int parameterCode,  
    double value  
    )
```

Parameters

optionCode

option Code (1-5): 1=indoor variation; 2=Industrial variation; 3=Irrigation variation; 4=Frost Tapping variation; 5=unregistered variation;

localAreaNo

Number of local area starting from 1

parameterCode

parameter Code (1-6): 1=Contribution of temperature to daily variation of water demand [%:-100:100]; 2=Start date 1; 3=End date 1; 4=Start date 2; 5=End date 2; 6=Coefficient of Temperature Variation; All the dates are expressed as a number of day in year between 1 and 365, note that zero indicating no value set for start/end date

value

parameter value

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.SetInflowtoWaterResources Method

Creates array/Sets daily value for inflow time series

VB

```
Public Shared Function SetInflowtoWaterResources( _  
    ByVal setCode As Integer, _  
    ByVal waterResourceID As Integer, _  
    ByVal inflowDay As Integer, _  
    ByVal value As Double _  
    ) As String
```

C#

```
public static string SetInflowtoWaterResources(  
    int setCode,  
    int waterResourceID,  
    int inflowDay,  
    double value  
    )
```

[C++]

```
public static string SetInflowtoWaterResources(  
    int setCode,  
    int waterResourceID,  
    int inflowDay,  
    double value  
    )
```

Parameters

setCode

1-2: 1=create new array for inflow time series; 2=setting new daily value for inflow to a water resources

waterResourceID

(setCode=1: total number of water reosources; setCode=2: water reosource ID starting from 1)

inflowDay

(setCode=1: total number of inflow days ; setCode=2: daily inflow ID starting from 1)

value

(setCode=2: the value of interest when setting daily for inflow time series)

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetLocalAreaWD Method

Sets the parameters of Local Areas

VB

```
Public Shared Function SetLocalAreaWD( _  
    ByVal localAreaNo As Integer, _  
    ByVal characterCode As Integer, _  
    ByVal value As Double _  
) As String
```

C#

```
public static string SetLocalAreaWD(  
    int localAreaNo,  
    int characterCode,  
    double value  
)
```

[C++]

```
public static string SetLocalAreaWD(  
    int localAreaNo,  
    int characterCode,  
    double value  
)
```

Parameters

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

characterCode

Character Code (1-18): 1=Indoor water Demand per capita; 2=Industrial and commercial water demand; 3=Irrigation water demand 4=FrostTapping water demand; 5=UnregisteredPublicUse water demand; 6=Occupancy; 7=Roof Area Percentage [%: 0-100]; 8=Pervious Area Percentage [%: 0-100]; 9=Pavement and Road Area Percentage [%: 0-100]; 10=Runoff Coefficient [0-1]; 11=Infiltration Coefficient [0-1]; 12=WashingMachineAssgined; 13=ToiletAssgined; 14=ShowerAssgined; 15=DishWasherAssgined; 16=HandBasinAssgined; 17=KitchenSinkAssgined; 18=WaterDemandTypeID(value=1-5: 1=Conventional; 2=Efficient; 3=More Efficient; 4=Excellent Efficient; 5=Customised);

value

parameter value

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetMonthlyDemandVariation Method

Sets the parameters of Monthly Water Demand Variation

VB

```
Public Shared Function SetMonthlyDemandVariation( _
    ByVal optionCode As Integer, _
    ByVal localAreaNo As Integer, _
    ByVal parameterCode As Integer, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetMonthlyDemandVariation(
    int optionCode,
    int localAreaNo,
    int parameterCode,
    double value
)
```

[C++]

```
public static string SetMonthlyDemandVariation(
    int optionCode,
    int localAreaNo,
    int parameterCode,
    double value
```

```
)
```

Parameters

optionCode

option Code (1-5): 1=Indoor Water Demand; 2=Industrial Water Demand; 3=Irrigation Water Demand; 4=Frost Tapping Water Demand; 5=Unregistered Public Water Demand;

localAreaNo

Number of local area starting from 1

parameterCode

parameter Code (1-12): number of month of year starting from Jan as 1 and finished with Dec as 12 (optionCode=1: number of year)

value

parameter value

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetOptionGeneral Method

Sets the general parameters of options in the urban water systems

VB

```
Public Shared Function SetOptionGeneral( _
    ByVal optionCode As Integer, _
    ByVal parameterCode As Integer, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetOptionGeneral(
    int optionCode,
    int parameterCode,
    double value
)
```

[C++]

```
public static string SetOptionGeneral(
    int optionCode,
    int parameterCode,
    double value
)
```

Parameters

optionCode

option Code (1-8): 1=Cost; 2=Location; 3=wastewater conversion; 4=water demand coefficient; 5=time; 6=general; 7=EnergyUseforAppliancesandFitting; 8=contaminants;

parameterCode

parameter Code

(1=Cost: 1-4: 1=ElectricityCost; 2=FossilFuelCost; 3=interest rate; 4=CapCostWaterMeter)

(2=Location: 1-5: 1=Elevation; 2=LatitudeD; 3=LatitudeM; 4=LatitudeS; 5=LatitudeNorth(0=false; 1=true))

(3=wastewater conversion: 1-9: 1=DishWasher; 2=HandBasin; 3=KitchenSink; 4=WashingMachine; 5=Shower; 6=Toilet; 7=Industrial; 8=FrostTapping; 9=UnregisteredPublicUse;)

(4=water demand coefficient and 7=EnergyUseforAppliancesandFitting: 1-6: 1=DishWasher; 2=HandBasin; 3=KitchenSink; 4=WashingMachine; 5=Shower; 6=Toilet;)

(5=time: 1-5: 1=No of years shown (between 0 and 30); 2=No of months shown (between 0 and 12); 3=No of Days shown (between 0 and 30); 4=Aggregated Time Step; 5=Total days)

(6=general: 1: 1=specific gravity of snow; 2=specific gravity of Diesel;)

(7=EnergyUseforAppliancesandFitting: 1-6: 1=DishWasher; 2=HandBasin; 3=KitchenSink; 4=WashingMachine; 5=Shower; 6=Toilet;)

(8=contaminants size: 1=number of pollutants and resize the array of contaminants' name and concentration)

value

parameter value (for parameterCode=8, value must be between 1-10)

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetOptionsMaterials Method

Sets the values of parameters in option menu in the urban water System

VB

```
Public Shared Function SetOptionsMaterials( _
    ByVal categoryCode As Integer, _
    ByVal parameterCode As Integer, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetOptionsMaterials(
    int categoryCode,
    int parameterCode,
    double value
)
```

[C++]

```
public static string SetOptionsMaterials(
    int categoryCode,
    int parameterCode,
    double value
)
```

Parameters

categoryCode

category Code(1-4): 1=Embodied Energy; 2=Embodied GHG; 3=Acidification; 4=Eutrophication;

parameterCode

parameter Code(1-36): 1=Alum; 2=Carbondioxide; 3=Calciumhydroxide; 4=PAX; 5=NaoCl; 6=Chlorine; 7=FerricChloride; 8=FerricSulphate; 9=Nitricacid; 10=Methanol; 11=Ethanol; 12=Sodiumhydroxide; 13=PotassiumPermanganate; 14=Ozone; 15=SilicaSandandMicrosand; 16=Electricity; 17=Coal; 18=Diesel; 19=FuelOil; 20=Gasoline; 21=LPG; 22=NaturalGas; 23=Wood; 24=PVCpipe; 25=PEpipe; 26=MildSteelPipe; 27=DuctileIronPipe; 28=GreyCastIronPipe; 29=Concrete; 30=EpoxyResin; 31=Polyurethane; 32=Copper; 33=Polypropylene; 34=AmmoniumNitrate; 35=SingleSuperphosphate; 36=Urea;

value

parameter value

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetPipelineData Method

Sets the pipeline data

VB

```
Public Shared Function SetPipelineData( _
    ByVal systemCode As Integer, _
    ByVal subcatchmentID As Integer, _
    ByVal pipelineID As Integer, _
    ByVal pipelineSpec As Integer, _
    ByVal stringValue As String, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetPipelineData(
    int systemCode,
    int subcatchmentID,
    int pipelineID,
    int pipelineSpec,
    string stringValue,
    double value
)
```

[C++]

```
public static string SetPipelineData(
    int systemCode,
    int subcatchmentID,
    int pipelineID,
    int pipelineSpec,
    string stringValue,
    double value
)
```

Parameters

systemCode

1-4: 1=Creates/resizes array for water distribution system; 2=Setting a pipeline value for water distribution system; 3=Creating array for wastewater system; 4=Setting a pipeline value wastewater system

subcatchmentID

subcatchment ID starting from 1; or number of subcatchments

pipelineID

pipeline ID starting from 1; or number of pipelines

pipelineSpec

(systemCode=1 or 3: 1-4: 1=Pipelines; 2=leakagePercentageUpdate; 3=AgeAverage; 4=AgeUpdate) (systemCode=2 or 4: 1-5: 1=MaterialType; 2=Length; 3=Diameter; 4=Age; 5=AgeUpdate)

stringValue

string value of interest for MaterialType; leave "" if not applied

value

value of interest for Length, Diameter, Age and AgeUpdate; leave 0 if not applied

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetRehabilitationMethods Method

Sets the parameters of rehabilitation technique in the urban water systems

VB

```
Public Shared Function SetRehabilitationMethods( _  
    ByVal optionCode As Integer, _  
    ByVal parameterCode As Integer, _  
    ByVal value As Double _  
) As String
```

C#

```
public static string SetRehabilitationMethods(  
    int optionCode,  
    int parameterCode,  
    double value  
)
```

[C++]

```
public static string SetRehabilitationMethods(  
    int optionCode,  
    int parameterCode,  
    double value  
)
```

Parameters

optionCode

option Code (1-7): 1=Cost of detailed method; 2=Diesel of detailed method; 3=general data; 4=Lining with polyurethane (PU); 5=Slip-lining with PE pipe; 6=Pipe cracking + lining; 7=Rebuilding with ductile iron pipe;

parameterCode

parameter Code

(1=Cost of detailed method: 1-3: 1=small-size pipe; 2=medium-size pipe; 3=large-size pipe)

(2=Diesel of detailed method: 1-3: 1=small-size pipe; 2=medium-size pipe; 3=large-size pipe)

(3=general data: 1-2: 1=thickness of the pipe [Internal diameter of the pipe rehabilitated multiplied by]; 2=specific gravity of the pipe;)

(optionCode(4,5,6,7): 1-3: 1=% of total annual rehabilitation; 2=Coefficient of Cost of slip-lining with PE pipe; 3=Coefficient of GHG emissions of slip-lining with PE pipe;)

value

parameter value

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#),

Toolkit.SetSubcatchmentWD Method

Sets the parameters of Subcatchments

VB

```
Public Shared Function SetSubcatchmentWD( _
    ByVal subcatchmentNo As Integer, _
    ByVal LocalAreaNo As Integer, _
    ByVal characterCode As Integer, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetSubcatchmentWD(
    int subcatchmentNo,
    int LocalAreaNo,
    int characterCode,
    double value
)
```

[C++]

```
public static string SetSubcatchmentWD(
    int subcatchmentNo,
    int LocalAreaNo,
    int characterCode,
```

```

    double value
)

```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

characterCode

Character Code (1-3): 1=Local Area Availability of a specified local area [0=False; 1=True]; 2-Number of properties of a specified local area 3=Total area of a specified local area [m2];

value

parameter value (if Character Code=1:Availability of a specified local area [0=False; 1=True])

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetTankLocalArea (Int32, Int32, Int32, Int32, Boolean) Method

Sets the bool values of parameters in Local Area Tanks

VB

```

Public Shared Function SetTankLocalArea( _
    ByVal subcatchmentNo As Integer, _
    ByVal localAreaNo As Integer, _
    ByVal tankCode As Integer, _
    ByVal characterCode As Integer, _
    ByVal value As Boolean _
) As String

```

C#

```

public static string SetTankLocalArea(
    int subcatchmentNo,
    int localAreaNo,
    int tankCode,
    int characterCode,
    bool value
)

```

```
)
```

```
[C++]  
public static string SetTankLocalArea(  
    int subcatchmentNo,  
    int localAreaNo,  
    int tankCode,  
    int characterCode,  
    bool value  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

characterCode

Character Code (1-16):

(Tank Code=1: 1=Toilet; 2=DishWasher; 3=HandBasin; 4=KitchenSink; 5=Shower;
6=WashingMachine; 7=Industrial; 8=Irrigation; 10=CollectRoofRunoff;
11=CollectRoadPavementRunoff; 12=OverflowtoGreywaterRecyclingTank; 13=available)

(Tank Code=2: 1=Toilet; 2=DishWasher; 3=HandBasin; 4=KitchenSink; 5=Shower;
6=WashingMachine; 7=Industrial; 8=Irrigation; 10=CollectDishWasher; 11=CollectHandBasin;
12=CollectShower; 13=CollectWashingMachine; 14=CollectIndustrial; 15=CollectFrostTapping;
16=available)

value

value= true: Allocation from Tank is available; false=Allocation from Tank is not available;

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetTankLocalArea (Int32, Int32, Int32, Int32, Double) Method

Sets the bool values of parameters in Local Area Tanks

VB

```
Public Shared Function SetTankLocalArea( _
    ByVal subcatchmentNo As Integer, _
    ByVal localAreaNo As Integer, _
    ByVal tankCode As Integer, _
    ByVal CharacterCode As Integer, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetTankLocalArea(
    int subcatchmentNo,
    int localAreaNo,
    int tankCode,
    int CharacterCode,
    double value
)
```

[C++]

```
public static string SetTankLocalArea(
    int subcatchmentNo,
    int localAreaNo,
    int tankCode,
    int CharacterCode,
    double value
)
```

Parameters*subcatchmentNo*

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

CharacterCode

Character Code (1-7): 1=Storage Capacity; 2=Initial volume; 3=Start Year; 4=capital cost; 5=OandM cost; 6=Electricity; 7=FuelUsage;

value

Parameter Value;

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetTankSubcatchment (Int32, Int32, Int32, Double) Method

Sets the double values of parameters in Subcatchment Tanks

VB

```
Public Shared Function SetTankSubcatchment( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal tankCode As Integer, _  
    ByVal characterCode As Integer, _  
    ByVal value As Double _  
) As String
```

C#

```
public static string SetTankSubcatchment(  
    int subcatchmentNo,  
    int tankCode,  
    int characterCode,  
    double value  
)
```

[C++]

```
public static string SetTankSubcatchment(  
    int subcatchmentNo,  
    int tankCode,  
    int characterCode,  
    double value  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

characterCode

Character Code (1-14): 1=Storage Capacity; 2=Initial volume; 3=exposed surface; 4=capital cost; 5=OandM cost; 6=Electricity; 7=FuelUsage;

value

Parameter Value;

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetTankSubcatchment (Int32, Int32, Int32, Boolean) Method

Sets the bool values of parameters in Subcatchment Tanks

VB

```
Public Shared Function SetTankSubcatchment( _  
    ByVal subcatchmentNo As Integer, _  
    ByVal tankCode As Integer, _  
    ByVal characterCode As Integer, _  
    ByVal value As Boolean _  
) As String
```

C#

```
public static string SetTankSubcatchment(  
    int subcatchmentNo,  
    int tankCode,  
    int characterCode,  
    bool value  
)
```

[C++]

```
public static string SetTankSubcatchment(  
    int subcatchmentNo,  
    int tankCode,  
    int characterCode,  
    bool value  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

tankCode

Tank Code (1-2): 1=Rainwater Harvesting Tank; 2=Greywater Recycling Tank.

characterCode

Character Code (1-12): (Tank Code=1: 1=Toilet; 2=DishWasher; 3=HandBasin; 4=KitchenSink; 5=Shower; 6=WashingMachine; 7=Industrial; 8=Irrigation; 10=CollectRunoffInsideSubcatchment; 11=CollectRunoffUpstreamSubcatchment; 12=OverflowtoGreywaterRecyclingTank; 13=Tank availability) (Tank Code=2: 1=Toilet; 2=DishWasher; 3=HandBasin; 4=KitchenSink; 5=Shower; 6=WashingMachine; 7=Industrial; 8=Irrigation; 10=Collect Greywater Overflow from Inside Subcatchment; 12=Tank availability)

value

Value= true: Allocation from Tank is available; false=Allocation from Tank is not available;

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#),

Toolkit.SetTopologyWSS Method

Sets how different components are connected to each other(interconnection) in Water Supply Systems

VB

```
Public Shared Function SetTopologyWSS( _
    ByVal connectCode As Integer, _
    ByVal upstreamNo As Integer, _
    ByVal downstreamNo As Integer, _
    ByVal value As Boolean _
) As String
```

C#

```
public static string SetTopologyWSS(
    int connectCode,
    int upstreamNo,
    int downstreamNo,
    bool value
)
```

[C++]

```
public static string SetTopologyWSS(
    int connectCode,
    int upstreamNo,
    int downstreamNo,
    bool value
)
```

Parameters

connectCode

Connection Code (1-3): 1=Subcatchments vs Service Reservoirs; 2=Service Reservoir vs WTWs; 3-WTWs vs Raw Water Sources

upstreamNo

Upsream component number;consecutive integers starting from 1

downstreamNo

Downstream component number;consecutive integers starting from 1

value

parameter value

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetTopologyandOperationWWS Method

Sets the topology/Operation of waste water systems

VB

```
Public Shared Function SetTopologyandOperationWWS( _
    ByVal connectCode As Integer, _
    ByVal functionType As Integer, _
    ByVal upstreamID As Integer, _
    ByVal downstreamID As Integer, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetTopologyandOperationWWS(
    int connectCode,
    int functionType,
    int upstreamID,
    int downstreamID,
    double value
)
```



```
[C++]
public static string SetTopologyandOperationWWS(
    int connectCode,
    int functionType,
    int upstreamID,
    int downstreamID,
    double value
)
```

Parameters

connectCode

1-3: 1=Sewer System vs WWTWs; 2=Subcatchment vs Receiving Water; 3=WWTWs vs Receiving Water

functionType

1-2: 1=Topology(connection is present or not)[0=No connection; 1=Connected];
2=Operation(Share) [0-100]

upstreamID

Upstream ID as consecutive integers starting from 1

downstreamID

Downstream ID as consecutive integers starting from 1

value

the value of interest

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SetWaterRecoveryAllocation Method

Sets the Water Recovery Allocation for different water demand types

VB

```
Public Shared Function SetWaterRecoveryAllocation( _
    ByVal subcatchmentNo As Integer, _
    ByVal localAreaNo As Integer, _
    ByVal waterDemandCode As Integer, _
    ByVal value As Boolean _
) As String
```

C#

```
public static string SetWaterRecoveryAllocation(  
    int subcatchmentNo,  
    int localAreaNo,  
    int waterDemandCode,  
    bool value  
)
```

[C++]

```
public static string SetWaterRecoveryAllocation(  
    int subcatchmentNo,  
    int localAreaNo,  
    int waterDemandCode,  
    bool value  
)
```

Parameters

subcatchmentNo

Subcatchment Number; Note that Subcatchment numbers are consecutive integers starting from 1.

localAreaNo

Local Area Number; Note that Local Area numbers are consecutive integers starting from 1.

waterDemandCode

Water Demand Code (1-8 and 11-19): 1=ToiletRWH; 2=DishWasherRWH; 3=HandBasinRWH; 4=KitchenSinkRWH; 5=ShowerRWH; 6=WashingMachineRWH; 7=IndustrialRWH; 8=IrrigationRWH; 11=ToiletGWR; 12=DishWasherGWR; 13=HandBasinGWR; 14=KitchenSinkGWR; 15=ShowerGWR; 16=WashingMachineGWR; 17=IndustrialGWR; 18=IrrigationGWR; 19=WaterSavingNeededLocalArea

value

Value= true: Allocation from Tank is available; false=Allocation from Tank is not available;

Returns

Returns an error code: ""=No error otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SetWeatherData Method

Sets the parameters of climate data over the planning horizon

VB

```
Public Shared Function SetWeatherData( _
    ByVal parameterCode As Integer, _
    ByVal iday As Integer, _
    ByVal value As Double _
) As String
```

C#

```
public static string SetWeatherData(
    int parameterCode,
    int iday,
    double value
)
```

```
[C++]
public static string SetWeatherData(
    int parameterCode,
    int iday,
    double value
)
```

Parameters

parameterCode

1-12: 1=CreateArrayforClimateData; 2=date; 3=Precipitation[m]; 4=SnowDepth[m];
 5=PrecipitationType; 6=MeanTemperature; 7=MinimumTemperature;
 8=MaximumTemperature; 9=AverageWindSpeed(main observations)[m/s]
 10=HoursofSunshine; 11=MeanRelativeHumidity[0-1]; 12=VapourPressure[hPa];

iday

day of climate data starting from 1 (for parameterCode=CreateArrayforClimateData: total number of days)

value

double value of interest (for parameterCode=PrecipitationType: Rain=1; Snow=2; Sleet=3; Not=4) (for parameterCode=CreateArrayforClimateData: leave 0)

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)

Toolkit.SimulateFull Method

Simulation for whole duration

VB

```
Public Shared Function SimulateFull( _  
    ByVal timeStep As Integer _  
) As String
```

C#

```
public static string SimulateFull(  
    int timeStep  
)
```

[C++]

```
public static string SimulateFull(  
    int timeStep  
)
```

Parameters

timeStep

Interval of aggregated time step for indicators: 1=Daily; 7=Weekly; 30=Monthly;365=Annually;
0= one value aggregating the whole defined duration

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.SimulateInitial Method

Set initial setting before simulation, this function needs to be called before simulation time step

VB

```
Public Shared Function SimulateInitial() As String
```

C#

```
public static string SimulateInitial()
```

```
[C++]
public static string SimulateInitial()
```

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit](#)₅

Toolkit.SimulateTimeStep Method

Simulation for timestep iDay

VB

```
Public Shared Function SimulateTimeStep( _
    ByVal iDay As Integer _
) As String
```

C#

```
public static string SimulateTimeStep(
    int iDay
)
```

```
[C++]
public static string SimulateTimeStep(
    int iDay
)
```

Parameters

iDay

number of day

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Toolkit.UpdatePipeline Method

Update pipeline data which needs to be done after setting the pipeline data

VB

```
Public Shared Function UpdatePipeline( _  
    ByVal nrows As Integer _  
) As String
```

C#

```
public static string UpdatePipeline(  
    int nrows  
)
```

[C++]

```
public static string UpdatePipeline(  
    int nrows  
)
```

Parameters

nrows

number of pipeline data

Returns

Returns an error code: ""=No error; otherwise there is error message

Requirements

Platforms: Windows 8, Windows Server 2012, Windows 7, Windows Vista SP1 or later, Windows XP SP3, Windows XP SP2 x64 Edition, Windows Server 2008 (Server Core not supported), Windows Server 2008 R2 (Server Core supported with SP1 or later), Windows Server 2003 SP2

See Also

Applies to: [Toolkit₅](#)

Index

AddTotalDailyCapitalCost Method 7
 CreateNewDevelopment Method 8
 DisposeAsset Method 9
 DisposeTopologyWSS Method 10
 FileStream Method 11
 GetAnnualDemandVariation Method 12
 GetAssetNo Method 13
 GetAssetWSS (Int32, Int32, Int32) Method 13
 GetAssetWSS (Int32, String, Int32) Method 15
 GetAssetWastewater (Int32, Int32, Int32) Method 17
 GetAssetWastewater (Int32, String, Int32) Method 16
 GetChemicalsandContaminantNo Method 18
 GetChemicalsandContaminantSpec Method 19
 GetConnectingAssetNo Method 20
 GetContaminantTankLocalArea Method 21
 GetContaminantTankSubcatchment Method 22
 GetContaminantsConcentration Method 23
 GetContaminantsName Method 24
 GetDailyDemandVariation Method 25
 GetInflowtoWaterResources Method 26
 GetKPIValue Method 27
 GetKPIsTimeSeries Method 28
 GetKPIsTimeSeriesUWS Method 31
 GetLocalAreaWD Method 33
 GetMonthlyDemandVariation Method 34
 GetNoandResizeSubcatchmentWD Method 35
 GetNoandResizeWastewater Method 36
 GetOptionGeneral Method 37
 GetOptionsMaterials Method 39
 GetPipelineData Method 40
 GetRehabilitationMethods Method 41
 GetSubcatchmentWD Method 42
 GetTankLocalArea Method 43
 GetTankLocalAreaBool Method 44
 GetTankSubcatchment Method 45
 GetTankSubcatchmentBool Method 46
 GetTopologyWSS Method 47
 GetTopologyWSSDownstreamNo Method 48
 GetTopologyWSSUpstreamNo Method 49
 GetTopologyandOperationWWS Method 50
 GetWaterRecoveryAllocation Method 51
 GetWeatherData Method 52
 PreparingFillTimeStep Method 53
 ResizeAsset Method 54
 ResizeChemicalsandContaminantNo Method 55
 ResizeTopologyWSSDownstreamNo Method 56
 ResizeTopologyWSSUpstreamNo Method 57
 SetAnnualDemandVariation Method 58
 SetAssetNo Method 59
 SetAssetWSS (Int32, Int32, Int32, Double) Method 62
 SetAssetWSS (Int32, String, Int32, String) Method 60
 SetAssetWastewater (Int32, Int32, Int32, Double) Method 63
 SetAssetWastewater (Int32, String, Int32, String) Method 64
 SetChemicalsandContaminantSpec Method 65
 SetChemicalsandPollutantSpec Method 67
 SetContaminantTankLocalArea Method 68
 SetContaminantTankSubcatchment Method 69
 SetContaminantsConcentration Method 70
 SetContaminantsName Method 71
 SetDailyDemandVariation Method 72
 SetInflowtoWaterResources Method 73
 SetLocalAreaWD Method 74
 SetMonthlyDemandVariation Method 75
 SetOptionGeneral Method 76
 SetOptionsMaterials Method 77
 SetPipelineData Method 79
 SetRehabilitationMethods Method 80
 SetSubcatchmentWD Method 81
 SetTankLocalArea (Int32, Int32, Int32, Int32, Boolean) Method 82
 SetTankLocalArea (Int32, Int32, Int32, Int32, Double) Method 83
 SetTankSubcatchment (Int32, Int32, Int32, Boolean) Method 86
 SetTankSubcatchment (Int32, Int32, Int32, Double) Method 85
 SetTopologyWSS Method 87
 SetTopologyandOperationWWS Method 88
 SetWaterRecoveryAllocation Method 89
 SetWeatherData Method 90
 SimulateFull Method 92
 SimulateInitial Method 92
 SimulateTimeStep Method 93
 Toolkit Class 5
 Toolkit Functions **Error! Bookmark not defined.**
 Toolkitns Namespace 5
 UpdatePipeline Method 94