

LOGEN SOLUTIONS

Reference Guide

OptimizerG3 member of DevPack™

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Table of Contents

1	Introduction	6
2	Object Model.....	6
3	MixLoadCom Object.....	8
3.1	MixLoadCom Object Overview	8
3.2	MixLoadCom Object Prosperities.....	9
3.3	MixLoadCom Object Methods.....	16
4	ContainerTag Object	21
4.1	ContainerTag Object Overview	21
4.2	ContainerTag Object Properties	22
5	ContainerTags Object.....	26
5.1	ContainerTags Object Overview	26
5.2	ContainerTags Object Properties	26
5.3	ContainerTags Object Methods.....	27
6	SKU Object	28
6.1	SKU Object Overview	28
6.2	SKU Object Properties	29
6.3	SKU Object Methods, Functions	39

7	SKUs Object.....	40
7.1	SKUs Object Overview.....	40
7.2	SKUs Object Properties	40
7.3	SKUs Object Methods, Functions.....	41
8	Container Object	43
8.1	Container Object Overview.....	43
8.2	Container Object Properties	44
8.3	Container Object Methods, Functions.....	52
9	Containers Object.....	54
9.1	Containers Object Overview	54
9.2	Containers Object Properties.....	54
9.3	Containers Object Methods, Functions	55
10	Solution Object.....	56
10.1	Solution Object Overview.....	57
10.2	Solution Object Properties	57
10.3	Solution Object Methods, Functions.....	62
11	Solutions Object	63
11.1	Solutions Object Overview	63
11.2	Solutions Object Properties.....	63

11.3	Solutions Object Methods, Functions	64
12	SpaceInContainer Object.....	65
12.1	SpaceInContainer Object Overview	65
12.2	SpaceInContainer Object Properties	66
13	SpacesInContainer Object	67
13.1	SpaceInsContainer Object Overview	67
13.2	SpaceInsContainer Object Properties.....	68

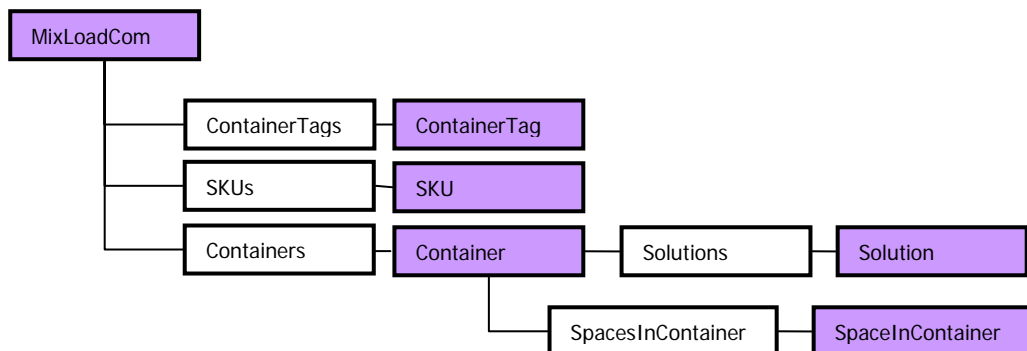
1 Introduction

OptimizerG3 Programmer's Reference Guide is for the developer who likes to make a software application with load planning and optimization features. This document contains a full description for the object model, collections, properties, methods, events, enumerations and code samples of OptimizerG3 components as followings;

- OptimizerG3 Object Model
- OptimizerG3 Objects
- OptimizerG3 Collections
- OptimizerG3 Events
- OptimizerG3 Enumerated Constants
- OptimizerG3 Code Samples

2 Object Model

OptimizerG3 has one root object - *MixLoadCom*. The *MixLoadCom* has three objects - *ContainerTags*, *SKUs*, and *Containers*. Each object represents a collection of *ContainerTag*, *SKU* and *Container* object respectively. The *ContainerTag* object represents information of a container type such as sea van, truck, trailer, pallet and carton to be used during the load optimization. It includes a name, sizes, weight, color and description of container. The *SKU* object represents information of one SKU such as shipping carton, master carton and pallet load to be loaded into the containers. It includes a name, sizes, weight, quantity, color and description of SKU. The *Container* object represents information of one loaded container after the load optimization. It contains the number of SKUs, load-blocks, spaces and load summary. It has another two objects, *Solutions* and *SpacesInContainer*. The *Solutions* object is a collection of *Solution* object that presents one load-block in a container. The *SpaceInContainer* object is a collection of *SpaceInContainer* that represents one space in a container. The following picture shows the



conceptual view of the relation between the objects and collections of the *MixLoadCom* object.

3 MixLoadCom Object

The *MixLoadCom* is a main object to collect the input data, execute the optimization and store the results of the optimization. The optimization requires the following information as input data;

- A list of container types
- A list of SKUs
- Load type
- Load rules

Available container types are carton (tote), pallets, sea vans, trucks and air pallets. Available SKU types are carton and unitload of cube shape. The roll shape is not supported in the current version of MixLoadCom. Three load types – Single Load, Mix Load and Set Load are supported. For more information of the load type and load rules, please refer the CubeMaster User’s Guide.

3.1 MixLoadCom Object Overview

□ Properties & Collections

ApplyGroup	ApplyItemSequence
bApplyUnitLoadOnMixLoad	bFillAirbagOnContainer
bSplitIdenticalItem	CntLoadDir
CompareTypeOnItemSum	ContainerCount
Containers	ContainerTags
DataErrorType	EnhanceAllContainers
EnhanceLastContainer	EnhanceSKUList
ErrorMessage	ItemCompareCondition
LicenseKey	LimitMaxLoadWeight
LoadByItemPriority	MachineName
MaxContainerWeight	MergeEmptySpaces
MinCntGapWidth	MixDifferentGroupOnMultiSetLoad
OptimalLoadLevel	OptionBLOBStream
PredefinedOption	SimProperties
SimType	SKUs
SortTypeOnItemGroups	SortTypeOnItemSum
SubTitle	Title
UploadRule	

□ Functions & Methods

AddItem	AddItem2
---------	----------

AddPreloadContainer	AddSubContainer
AddUserAdditionItem	ApplyUserAdditionItems
AutoDetectSimType	ContainerInfo
FindItem	GetResultBLOBStream
GetResultRecordset	GetSKURecordset
LoadFromFile	OnEndPage
OnStartPage	Reset
Run	SaveToFile
SetContainer	SetContainer2
SetContainerCornerCastSize	SetContainerNamingRule
SetGroupSequence	SetItemAlias2At
SetItemAliasAt	SetItemArrowDirectionStringAt
SetItemColorAt	SetItemCommentAt
SetItemConstraintPrimaryLoadDirIndexAt	SetItemCumulativeLayerLimitAt
SetItemFlipStartLayerAt	SetItemGroupNameAt
SetItemHatchStyleAt	SetItemJobHeightSlackAt
SetItemJobLengthSlackAt	SetItemLoadDirAt
SetItemLoadTypeAt	SetItemMaxLayerAt
SetItemMaxLayersAt	SetItemMaxLayerStringAt
SetItemNetWeightAt	SetItemPropertiesAt
SetItemProperty4At	SetItemSetRatioAt
SetItemSimpleLoadLowerLayerPatternTypeAt	SetItemSimpleLoadUpperLayerPatternTypeAt
SetItemUserActionTypeAt	SetResultBLOBStream
SetResultRecordset	SubtractItemFromLoadedPattern
SubtractItemFromLoadedPattern2	TryToLoadIntoOneContainer
UnloadContainerByID	UseSavedDefaultOption

□ Events

None

3.2 MixLoadCom Object Prosperities

□ ApplyGroup Property

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Sets or returns whether the optimization uses the group rule.
Syntax	Property ApplyGroup As Bool
Remarks	The group rule allows the optimization to place SKUs of the same group into same area in a container. You can group SKUs with order number or destination through the <i>GroupName</i> property of SKU object. . The default value for this property is FALSE.

Data Type Bool

□ **ApplyItemSequence Property**

Applies To MLMATLCOMSRVLib.MixLoadCom

Description Sets or returns whether the optimization uses the sequence rule.

Syntax Property ApplyItemSequence As Bool

Remarks The sequence rule allows the optimization to put SKUs with high priority earlier in the container and low priority later. You can determine priority of each SKU by using the *Sequence* property of SKU object. If you are using the group rule with the sequence rule together, the group rule is applied first. The default value for this property is FALSE.

Data Type Bool

□ **bApplyUnitLoadOnMixLoad Property**

Applies To MLMATLCOMSRVLib.MixLoadCom

Description Sets or returns whether the optimization makes unit loads first on the mix load.

Syntax Property bApplyUnitLoadOnMixLoad As Bool

Remarks When the bApplyUnitLoadOnMixLoad property is set to TRUE, the optimization fills containers with single SKU type first and the next containers with remain SKUs later. The default value for this property is TRUE.

Data Type Bool

□ **bFillAirbagOnContainer Property**

Applies To MLMATLCOMSRVLib.MixLoadCom

Description Sets or returns whether the optimization fills containers with air-bags when the containers filled with single SKU types.

Syntax Property bFillAirbagOnContainer As Bool

Remarks When the bFillAirbagOnContainer property is set to TRUE, the optimization fills containers with air-bags after filling inside the containers with single SKU type completely. The default value for this property is FALSE.
* Please note that the size of air-bags is determined automatically.

Data Type Bool

□ **bSplitIdenticalItem Property**

Applies To MLMATLCOMSRVLib.MixLoadCom

Description Sets or returns whether the optimization places the same type of SKUs in different spaces.

Syntax Property bSplitIdenticalItem As Bool

Remarks When the bSplitIdenticalItem property is set to TRUE, the optimization fills the spaces with maximum efficiency and thus allows splitting the same type of SKUs into different spaces. The default value for this property is TRUE.

Data Type Bool

□ **CompareTypeOnItemSum Property**

Applies To MLMATLCOMSRVLib.MixLoadCom

Description Sets or returns the rule to indentify a SKU during the optimization.
Syntax Property CompareTypeOnItemSum As _CompareTypeOnItemSum
Remarks The following values are available;

Value	Description	Constant
0	Identifies two SKUs if all properties are same.	<i>CompareAll</i>
1	Identifies two SKUs if the name and sizes properties are same.	<i>CompareNameAndSizeOnly</i>
2	Identifies two SKUs if the certain properties are same.	<i>CompareConditionally</i>

The ItemCompareCondition property should be set when the CompareTypeOnItemSum property is set to *CompareConditionally*.
The default value for this property is CompareAll.

Data Type _CompareTypeOnItemSum

❑ ContainerCount Property

Applies To MLMATLCOMSRVLib.MixLoadCom
Description Return the number of loaded containers that were generated from the optimization.
Syntax Property ContainerCount As Long
Remarks Read Only
Data Type Long

❑ Containers Property

Applies To MLMATLCOMSRVLib.MixLoadCom
Description Returns the collection of the *Container* object. The *Container* object represents a loaded container generated from the optimization.
Syntax Property Containers As Variant
Remarks Read Only. Use this property to access all loaded containers that were generated from the optimization.
Data Type Variant

Examples (Visual Basic Code)

```
Dim oMixLoad As New MLMATLCOMSRVLib.MixLoadCom
Dim oContainers As IContainers
Dim oContainer As Icontainer
Dim i As Integer
```

```
oMixLoad.Run (0)
```

```
Set oContainers = oMixLoad.Containers
```

```
For i = 1 To oContainers.Count  

Set oContainer = oContainers.Item(i)
```

```
Debug.Print "# Container:" + CStr(oContainer.ID)
```

```
Debug.Print " Name =" + oContainer.Name
```

```
Debug.Print " Number of loads= + CStr(oContainer.ItemCount)
```

Next i

□ **ContainerTags Property**

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Returns the collection of the <i>ContainerTag</i> object. The <i>ContainerTag</i> object represents one container type such as sea container, truck and trailer to be loaded.
Syntax	Property ContainerTags As Variant
Remarks	Read Only.
Data Type	Variant

□ **DataErrorType Property**

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Returns the error type of the optimization.
Syntax	Property DataErrorType As _DataErrorType
Remarks	Read Only
Data Type	_DataErrorType

□ **EnhanceAllContainers Property**

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Sets or returns whether the optimization uses the enhancement rules to the all loaded containers.
Syntax	Property EnhanceAllContainers As Bool
Remarks	When this property is set to TRUE, the optimization applies the enhancement rules to all loaded containers after feasible solutions found to improve the volume efficiency. The enhancement rules contain the following procedures; <ol style="list-style-type: none">1) Replace containers with smaller container2) Unload containers with low volume efficiency3) Fill unused spaces of containers with extra SKUs4) Fill unused spaces of containers with more number of existing SKUs Each procedure is applies sequentially to each container. The default values for this property is FALSE.
Data Type	Bool

□ **EnhanceLastContainer Property**

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Sets or returns whether the optimization uses the enhancement rules to the last loaded container.
Syntax	Property EnhanceLastContainer As Bool
Remarks	When this property is set to TRUE, the optimization applies the enhancement rules to the last container only after feasible solutions found to improve the volume efficiency. The enhancement rules contain the following procedures; <ol style="list-style-type: none">1) Replace container with smaller container2) Unload container with low volume efficiency3) Fill unused spaces of container with extra SKUs

4) Fill unused spaces of container with more number of existing SKUs
 Each procedure is applies sequentially to the last container.
 The default values for this property is FALSE.

Data Type Bool

❑ **ErrorMessage Property**

Applies To MLMATLCOMSRVLib.MixLoadCom
Description Returns the message of the optimization when it meets errors during the calculation.
Syntax Property ErrorMessage As String
Remark Read Only.
Data Type String

❑ **ItemCompareCondition Property**

Applies To MLMATLCOMSRVLib.MixLoadCom
Description Sets or returns the condition to compare and identify two SKUs during the optimization.
Syntax Property ItemCompareCondition As _ItemPropertyID
Remarks This property represents a set of SKU properties to be compared to identify two SKUs. This property should be set when the CompareTypeOnItemSum property is set to *CompareConditionally*.
 The following values are combined using the OR operator ;

Value	Description	Constant
1	Group Name	<i>propidGroupName</i>
2	SKU Name	<i>propidName</i>
4	Sizes	<i>propidSize</i>
8	Weight	<i>propidWeight</i>
16	Alias 1	<i>propidAlias1</i>
32	Alias 2	<i>PropidAlias2</i>
64	Property 1	<i>propidProperty1</i>
128	Property 2	<i>propidProperty2</i>
256	Property 3	<i>propidProperty3</i>
512	Property 4	<i>propidProperty4</i>
1024	Property 5	<i>propidProperty5</i>
2048	Property 6	<i>propidProperty6</i>
4096	Property 7	<i>propidProperty7</i>
8192	Property 8	<i>propidProperty8</i>
16384	Property 9	<i>propidProperty9</i>
32768	Property 10	<i>propidProperty10</i>
65536	Color	<i>propidColor</i>
131072	Piece Qty	<i>propidSubPackQty</i>

524288	Load Orientation	<i>propidOrientation</i>
1048576	Load Sequence	<i>propidSeq</i>

For example, set 6 (2 + 4) to specify the name and sizes for comparison two SKUs.

Data Type _ItemPropertyID

□ **LimitMaxLoadWeight Property**

Applies To MLMATLCOMSRVLib.MixLoadCom
Description Sets or returns whether the optimization fills containers less than max weight.
Syntax Property LimitMaxLoadWeight As Bool
Remarks When the LimitMaxLoadWeight property is set to TRUE, the optimization fills containers not to exceed the max weight of each container. Please note the optimization leaves containers even more spaces are available when the load weight reaches the max weight.
The MaxWeight property of ContainerTag object should be set when this rule is used. The default value for this property is FALSE;
Data Type Bool

□ **MergeEmptySpaces Property**

Applies To MLMATLCOMSRVLib.MixLoadCom
Description Sets or returns whether the optimization merges spaces inside containers.
Syntax Property MergeEmptySpaces As Bool
Remarks When this property is set to TRUE, the optimization merges two spaces and makes new space where more SKUs are filled with.
The default value for this property is TRUE.
Data Type Bool

□ **MixDifferentGroupOnMultiSetLoad Property**

Applies To MLMATLCOMSRVLib.MixLoadCom
Description Sets or returns whether the optimization puts SKUs of different groups in same container.
Syntax Property MixDifferentGroupOnMultiSetLoad As Long
Remarks The default value for this property is FALSE.
Data Type Long

□ **OptimalLoadLevel Property**

Applies To MLMATLCOMSRVLib.MixLoadCom
Description Sets or returns the level of the optimization.
Syntax Property OptimalLoadLevel As LoadLevel
Remarks The following values are available;

Value	Description	Constant
1	Fastest and normal quality.	<i>level1</i>
2	Better quality than level 2.	<i>level2</i>
3	Faster than level 4.	<i>level3</i>

4	Slowest and best quality.	<i>level4</i>
---	---------------------------	---------------

The default value for this property is *level2*.

Data Type

LoadLevel

□ SimType Property

Applies To

MLMATLCOMSRVLib.MixLoadCom

Description

Sets or returns the load type of the optimization.

Syntax

Property SimType As SimulationType

Remarks

The following values are available;

Value	Description	Constant
0	Mix Load	<i>simMixLoad</i>
1	Set Load	<i>simSetLoadByQuantity</i>
3	Single Load	<i>simSimpleLoad</i>
4	Multiple Set Load	<i>simOrderSetLoadByQuantity</i>

The default value for this property is *simMixLoad*.

Data Type

SimulationType

□ SKUs Property

Applies To

MLMATLCOMSRVLib.MixLoadCom

Description

Returns the collection of the SKU object. The SKU object represents one SKU to be stowed in container during the optimization.

Syntax

Property SKUs As Variant

Remarks

Read Only. Use this property to manage a list of SKUs. New SKUs can be added or existing SKUs can be removed from the list.

Data Type

Variant

Example

The following example changes the group name of the all SKUs with new name.

(Visual Basic Code)

```
Dim oMixLoad As New MLMATLCOMSRVLib.MixLoadCom
Dim oSKUs As ISKUs
Dim oSKU As ISKU
Dim i As Integer
```

```
Set oSKUs = oMixLoad.SKUs
For i = 1 To oSKUs.Count
    Set oSKU = oSKUs.Item(i)
    oSKU.GroupName = "NewGroup"
Next i
```

```
Set oSKUs = Nothing
Set oSKU = Nothing
Set oMixLoad = Nothing
```

□ SubTitle Property

Applies To

MLMATLCOMSRVLib.MixLoadCom

Description	Sets or returns the description of the optimization.
Syntax	Property SubTitle As String
Data Type	String

□ Title Property

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Sets or returns the title of the optimization.
Syntax	Property Title As String
Data Type	String

□ UploadRule Property

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Sets or returns the stacking rule to be used by the optimization.
Syntax	Property UploadRule As ItemUploadRule
Remarks	The following values are available;

Value	Description	Constant
1	SKUs with small stack value are allowed on topside of other SKUs with large stack value.	<i>uploadLoose</i>
2	SKUs are allowed to be placed on topside of other SKUs when the both stack values are same.	<i>uploadExact</i>
3	Less heavy SKUs are allowed on topside of other SKUs when both the length and width are same.	<i>uploadLowerTiled</i>
4	Less or same heavy SKUs are allowed on topside of other SKUs.	<i>uploadWeightlike</i>
100	All SKUs are allowed on topside of others.	<i>uploadAll</i>
101	No stacking is allowed.	<i>uploadNone</i>

When the UploadRule is set to *uploadLoose*, *uploadExact* or *uploadLowerTiled*, the StackValue property of the SKU object should be set.

The default value for this property is *uploadAll*.

Data Type	ItemUploadRule
------------------	----------------

3.3 MixLoadCom Object Methods

□ AddItem Method

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Insert a new SKU into the simulation.
Syntax	Sub AddItem(<i>tName</i> As String, <i>tQuantity</i> As Long, <i>tdLength</i> As Double, <i>tdWidth</i> As Double, <i>tdHeight</i> As Double, <i>tdWeight</i> As Double)

Parameters	
Parameter	Description
<i>tName</i>	Name of SKU
<i>tQuantity</i>	The number of SKU
<i>tdLength</i>	Length of SKU

<i>tdWidth</i>	Width of SKU
<i>tdHeight</i>	Height of SKU
<i>tdWeight</i>	Weight of SKU

Remarks Use the *AddNewSKU()* method of the SKUs object if you want more convenient way.

Data Type None

□ AddItem2 Function

Applies To MLMATLCOMSRVLib.MixLoadCom

Description Insert a new SKU into the simulation.

Syntax Function AddItem2(*tName* As String, *tQuantity* As Long, *tdLength* As Double, *tdWidth* As Double, *tdHeight* As Double, *tdWeight* As Double, *tDir* As ItemLoadDirType, *tMaxLayer* As Long, *StackValue* As Long, *tPriority* As Long, *tColor* As Long) As Long

Parameters

Parameter	Description																											
<i>tName</i>	Name of SKU																											
<i>tQuantity</i>	The number of SKU																											
<i>tdLength</i>	Length of SKU																											
<i>tdWidth</i>	Width of SKU																											
<i>tdHeight</i>	Height of SKU																											
<i>tdWeight</i>	Weight of SKU																											
<i>tDir</i>	A constant to permit the orientations of SKU. The constant <i>ItemLoadDirType</i> has the following meanings.																											
	<table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> <th>Enum</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Permit orientation #1</td> <td><i>dir1</i></td> </tr> <tr> <td>2</td> <td>Permit orientation #2</td> <td><i>dir2</i></td> </tr> <tr> <td>3</td> <td>Permit orientation #1 and #2</td> <td><i>dirBasic</i></td> </tr> <tr> <td>4</td> <td>Permit orientation #3</td> <td><i>dir3</i></td> </tr> <tr> <td>8</td> <td>Permit orientation #4</td> <td><i>dir4</i></td> </tr> <tr> <td>16</td> <td>Permit orientation #5</td> <td><i>dir5</i></td> </tr> <tr> <td>32</td> <td>Permit orientation #6</td> <td><i>dir6</i></td> </tr> <tr> <td>63</td> <td>Permit all orientations (#1,2,3,4,5,6)</td> <td><i>dirAll</i></td> </tr> </tbody> </table>	Value	Description	Enum	1	Permit orientation #1	<i>dir1</i>	2	Permit orientation #2	<i>dir2</i>	3	Permit orientation #1 and #2	<i>dirBasic</i>	4	Permit orientation #3	<i>dir3</i>	8	Permit orientation #4	<i>dir4</i>	16	Permit orientation #5	<i>dir5</i>	32	Permit orientation #6	<i>dir6</i>	63	Permit all orientations (#1,2,3,4,5,6)	<i>dirAll</i>
Value	Description	Enum																										
1	Permit orientation #1	<i>dir1</i>																										
2	Permit orientation #2	<i>dir2</i>																										
3	Permit orientation #1 and #2	<i>dirBasic</i>																										
4	Permit orientation #3	<i>dir3</i>																										
8	Permit orientation #4	<i>dir4</i>																										
16	Permit orientation #5	<i>dir5</i>																										
32	Permit orientation #6	<i>dir6</i>																										
63	Permit all orientations (#1,2,3,4,5,6)	<i>dirAll</i>																										
<i>tMaxLayer</i>	The number of max stacks of SKU. Leave 0 not to set the max stack of the SKU.																											
<i>StackValue</i>	Stack priority of SKU.																											
<i>tPriority</i>	Load priority of SKU. A SKU with less priority is places earlier in the container. This is activated only when the <i>LoadByItemPriority</i> = TRUE																											
<i>tColor</i>	Color of SKU. Set 0 to assign a random color.																											

Remarks Use the *AddNewSKU()* method of the SKUs object if you want more convenient way.

Data Type Long

□ FindItem Function

Applies To MLMATLCOMSRVLib.MixLoadCom

Description	Find a SKU with a name				
Syntax	Function FindItem(<i>ItemName</i> As String) As Long				
Parameters	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>ItemName</i></td> <td>A SKU name to search in the SKU list</td> </tr> </tbody> </table>	Parameter	Description	<i>ItemName</i>	A SKU name to search in the SKU list
Parameter	Description				
<i>ItemName</i>	A SKU name to search in the SKU list				
Remarks	Returns 0 if no SKU is found				
Data Type	Long				

□ **GetResultBLOBStream Function**

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Get a stream of the engine.
Syntax	Function GetResultBLOBStream() As Object
Parameter	None
Example (Visual Basic Code)	<pre>Dim oMixLoad As New MLMATLCOMSRVLib.MixLoadCom Dim oResultStream As Stream 'Set container oMixLoad.SetContainer typeContainer, "40ft", 12000, 3600, 3890, 300, 3000, _ 0, 0, 0, 0, RGB(255, 255, 255), 0 'Add SKUs oMixLoad.AddItem2 "item2", 60, 1900, 1800, 700, 10.2, dirBasic, 0, 0, 4, 0 oMixLoad.AddItem2 "item2", 200, 1200, 876, 298, 33.2, dirBasic, 0, 0, 3, 0 oMixLoad.AddItem2 "item3", 100, 1000, 1000, 798, 33.9, dirBasic, 0, 0, 2, 0 'Start the calculation oMixLoad.Run (0) 'Get a stream from the engine and save the stream to a file Set oResultStream = oMixLoad.GetResultBLOBStream oResultStream.SaveToFile "c:\Result.slover", adSaveCreateOverWrite Set oResultStream = Nothing Set oMixLoad = Nothing</pre>
Remarks	Use the <i>SetResultBLOBStream</i> to set a stream to the engine
Data Type	IStream

□ **LoadFromFile Method**

Applies To	MLMATLCOMSRVLib.MixLoadCom				
Description	Load the simulation from a file.				
Syntax	Sub LoadFromFile(<i>FileName</i> As String)				
Parameters	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>FileName</i></td> <td>A full path name to read</td> </tr> </tbody> </table>	Parameter	Description	<i>FileName</i>	A full path name to read
Parameter	Description				
<i>FileName</i>	A full path name to read				
Remarks	Use the <i>SaveToFile</i> to store a simulation to a file.				
Data Type	None				

❑ Reset Method

Applies To	MLMATLCOMSRVLib.MixLoadCom
Description	Initialize the engine.
Syntax	Sub Reset()
Parameters	None
Data Type	None

❑ Run Method

Applies To	MLMATLCOMSRVLib.MixLoadCom				
Description	Start the calculation of the engine.				
Syntax	Sub Run(<i>tbShowGagebar</i> As Long)				
Parameters	<table border="1"><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td><i>tbShowGagebar</i></td><td><Internal use only></td></tr></tbody></table>	Parameter	Description	<i>tbShowGagebar</i>	<Internal use only>
Parameter	Description				
<i>tbShowGagebar</i>	<Internal use only>				
Data Type	None				

❑ SaveToFile Method

Applies To	MLMATLCOMSRVLib.MixLoadCom				
Description	Store the simulation to a file.				
Syntax	Sub SaveToFile(<i>FileName</i> As String)				
Parameters	<table border="1"><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td><i>FileName</i></td><td>A full path name to write.</td></tr></tbody></table>	Parameter	Description	<i>FileName</i>	A full path name to write.
Parameter	Description				
<i>FileName</i>	A full path name to write.				
Remarks	Use the <i>LoadFromFile</i> to load a simulation from a file.				
Data Type	None				

❑ SetContainerNamingRule Method

Applies To	MLMATLCOMSRVLib.MixLoadCom										
Description	Set an option to name containers in the solutions.										
Syntax	Sub SetContainerNamingRule(<i>Prefix</i> As String, <i>Suffix</i> As String, <i>StartSeq</i> As Long, <i>SeqLength</i> As Long)										
Parameter	<table border="1"><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td><i>Prefix</i></td><td>Prefix of the name</td></tr><tr><td><i>Suffix</i></td><td>Suffix of the name</td></tr><tr><td><i>StartSeq</i></td><td>The starting sequence of the name</td></tr><tr><td><i>SeqLength</i></td><td>The length of the sequence of the name</td></tr></tbody></table>	Parameter	Description	<i>Prefix</i>	Prefix of the name	<i>Suffix</i>	Suffix of the name	<i>StartSeq</i>	The starting sequence of the name	<i>SeqLength</i>	The length of the sequence of the name
Parameter	Description										
<i>Prefix</i>	Prefix of the name										
<i>Suffix</i>	Suffix of the name										
<i>StartSeq</i>	The starting sequence of the name										
<i>SeqLength</i>	The length of the sequence of the name										
Remarks	The engine will name all the loaded containers with this rule after the calculation. For example, if the Prefix has '#', Suffix has 'AH', StartSeq has 2 and SeqLength has 3, the names of three containers are '#002AH', '#003AH' and '#004AH'.										
Data Type	None										

❑ SetResultBLOBStream Method

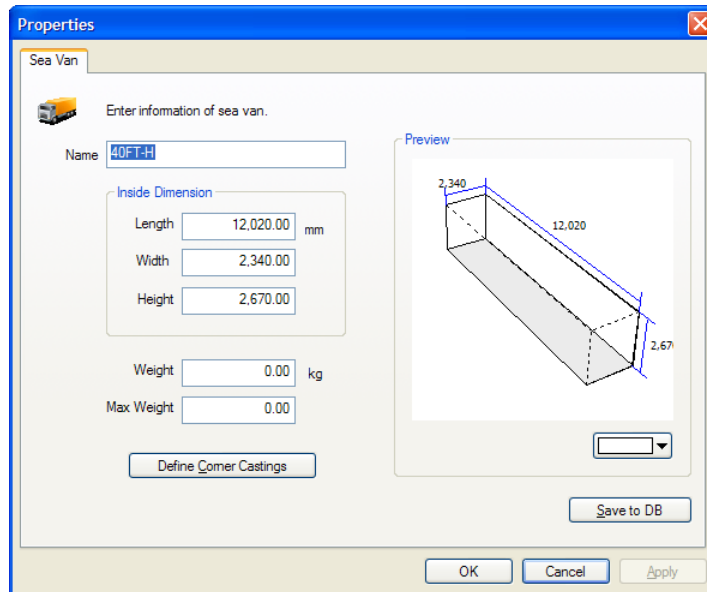
Applies To	MLMATLCOMSRVLib.MixLoadCom				
Description	Set a stream to the engine.				
Syntax	Sub SetResultBLOBStream(<i>pStream</i> As Object)				
Parameter	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>pStream</i></td> <td>An <i>IStream</i> object</td> </tr> </tbody> </table>	Parameter	Description	<i>pStream</i>	An <i>IStream</i> object
Parameter	Description				
<i>pStream</i>	An <i>IStream</i> object				
Example (Visual Basic Code)	<pre> Dim oMixLoad As New MLMATLCOMSRVLib.MixLoadCom Dim stOption As Stream Set stOption = New Stream stOption.Open stOption.Type = adTypeBinary stOption.LoadFromFile "C:\ResultSimulation.solver" oMixLoad.SetResultBLOBStream stOption stOption = Nothing oMixLoad = Nothing </pre>				
Remarks	Use <i>GetResultBLOBStream</i> to get a stream from the engine				
Data Type	None				

□ UnloadContainerByID Method

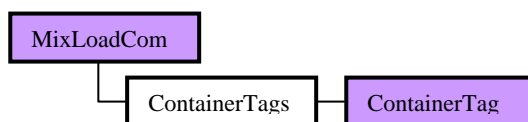
Applies To	MLMATLCOMSRVLib.MixLoadCom				
Description	Unload a container and remove it from the solutions.				
Syntax	Sub UnloadContainerByID(ContainerID As Long)				
Parameters	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ContainerID</td> <td>An index in the list to indicate the container to remove</td> </tr> </tbody> </table>	Parameter	Description	ContainerID	An index in the list to indicate the container to remove
Parameter	Description				
ContainerID	An index in the list to indicate the container to remove				
Data Type	None				

4 ContainerTag Object

The *ContainerTag* object provides a set of properties such as type, name, size, weight and description of one container type. Using this object, you can define one container type to be filled during the optimization. The following picture shows the properties window of the container type at the CubeMaster software.



The following picture shows the relations of the three objects – *MixLoadCom*, *ContainerTags* and *ContainerTag* which means the *ContainerTag* is accessible only through the *ContainerTags*.



[Picture 6. ContainerTags Object]

4.1 ContainerTag Object Overview

□ ContainerTag Object Properties, Collections

Alias	Capa
Color	Height
Length	MaxCE
MaxWeight	Name
OutHeight	OutLength

OutWidth	PalletType
Type	TypeString
UnitPrice	Weight
Width	

❑ **ContainerTag Object Method**

None

❑ **ContainerTag Object Event**

None

4.2 ContainerTag Object Properties

❑ **Alias Property**

Applies To MLMATLCOMSRVLib.IContainerTag
Description Sets or returns the alias of container
Syntax Property Alias As String
Data Type String

❑ **Capa Property**

Applies To MLMATLCOMSRVLib.IContainerTag
Description Sets or returns the number of containers
Syntax Property Capa As Integer
Data Type Integer

❑ **Color Property**

Applies To MLMATLCOMSRVLib.IContainerTag
Description Sets or returns the color of container in RGB format. Set 0 to assign a random color.
Syntax Property Color As Long
Data Type Long

❑ **Height Property**

Applies To MLMATLCOMSRVLib.IContainerTag
Description Sets or returns the internal height of container
Syntax Property Height As Double
Data Type Double

❑ **Length Property**

Applies To MLMATLCOMSRVLib.IContainerTag

Description	Sets or returns the internal length of container
Syntax	Property Length As Double
Data Type	Double

❑ **MaxCE Property**

Applies To	MLMATLCOMSRVLib.IContainerTag
Description	Sets or returns the max cube efficiency in percentage of container
Syntax	Property MaxCE As Double
Data Type	Double

❑ **MaxWeight Property**

Applies To	MLMATLCOMSRVLib.IContainerTag
Description	Sets or returns the max weight (payload) of container
Syntax	Property MaxWeight As Double
Data Type	Double

❑ **Name Property**

Applies To	MLMATLCOMSRVLib.IContainerTag
Description	Sets or returns the name of container
Syntax	Property Name As String
Data Type	String

❑ **OutHeight Property**

Applies To	MLMATLCOMSRVLib.IContainerTag
Description	Sets or returns the external height of container
Syntax	Property OutHeight As Double
Data Type	Double

❑ **OutLength Property**

Applies To	MLMATLCOMSRVLib.IContainerTag
Description	Sets or returns the external length of container
Syntax	Property OutLength As Double
Data Type	Double

❑ **OutWidth Property**

Applies To	MLMATLCOMSRVLib.IContainerTag
Description	Sets or returns the external width of container
Syntax	Property OutWidth As Double
Data Type	Double

❑ **PalletType Property**

Applies To MLMATLCOMSRVLib.IContainerTag
Description Sets or returns the pallet type of container if it is a pallet
Syntax Property PalletType As _PalletType
Remarks This property is effective only the type of container is a pallet(*Type = typePallet*)

Constant	Description	Enumeration
0	Default	typeDefault
1	Paper pallet	typePaperPallet
2	Steel pallet	typeSteelPallet
3	Wooden pallet	typeWoodPallet

Data Type _PalletType

□ Type Property

Applies To MLMATLCOMSRVLib.IContainerTag
Description Sets or returns the type of container
Syntax Property Type As CntType
Remarks

Constant	Description	Enumeration
0	Ship carton or box	<i>typeBox</i>
1	Pallet	<i>typePallet</i>
2	Sea van	<i>typeContainer</i>
3	Truck and trailer	<i>typeTruck</i>
4	Air pallet	<i>typeAircraft</i>

The *PalletType* should be defined if the *Type=typePallet*

Data Type CntType

□ TypeString Property

Applies To MLMATLCOMSRVLib.IContainerTag
Description Sets or returns the type of container in a string
Syntax Property TypeString As String
Remarks

Type	Returns
<i>typeBox</i>	'BOX'
<i>typePallet</i>	'PLT'
<i>typeContainer</i>	'CTN'
<i>typeTruck</i>	'TRK'
<i>typeAircraft</i>	'ULD'

Data Type String

□ UnitPrice Property

Applies To MLMATLCOMSRVLib.IContainerTag
Description Sets or returns the unit price (or shipping cost) of container
Syntax Property UnitPrice As Double

Data Type	Double
------------------	--------

□ **Weight Property**

Applies To	MLMATLCOMSRVLib.IContainerTag
-------------------	-------------------------------

Description	Sets or returns the weight of container
--------------------	---

Syntax	Property Weight As Double
---------------	---------------------------

Data Type	Double
------------------	--------

□ **Width Property**

Applies To	MLMATLCOMSRVLib.IContainerTag
-------------------	-------------------------------

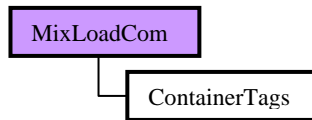
Description	Sets or returns the internal width of container
--------------------	---

Syntax	Property Width As Double
---------------	--------------------------

Data Type	Double
------------------	--------

5 ContainerTags Object

The *ContainerTags* is a collection to store multiple *ContainerTag* objects. The *ContainerTags* is accessible through the property *ContainerTags* of the *MixLoadCom* object. Once the *ContainerTags* is acquired, you can iterate all elements in it.



[Picture 6. ContainerTags Object]

5.1 ContainerTags Object Overview

□ ContainerTags Object Properties

Count	Item
-------	------

□ ContainerTags Object Method

AddNewContainerTag	RemoveAllSubContainerTags
--------------------	---------------------------

5.2 ContainerTags Object Properties

□ Count Property

Applies To	MLMATLCOMSRVLib.IContainerTags
Description	Returns the number of items (container types) in the collection.
Syntax	Property Count As Long
Data Type	Long

□ Item Property

Applies To	MLMATLCOMSRVLib.IContainerTags				
Description	Returns an item (container type) in the collection.				
Syntax	Property Item(<i>index</i> As Long) As ContainerTag				
Parameters	<table border="1"><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td><i>index</i></td><td>An index to the item</td></tr></tbody></table>	Parameter	Description	<i>index</i>	An index to the item
Parameter	Description				
<i>index</i>	An index to the item				
Data Type	ContainerTag				

5.3 ContainerTags Object Methods

□ AddNewContainerTag Method

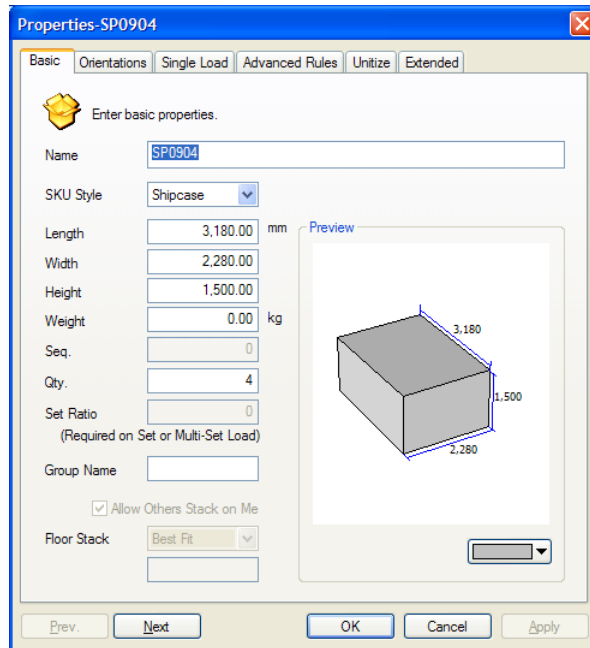
Applies To	MLMATLCOMSRVLib.IContainerTags
Description	Adds a new container type into the collection and returns <i>ContainerTag</i> object to allow you to access the new container type.
Syntax	Sub AddNewContainerTag() As ContainerTag
Example (Visual Basic Code)	<pre>Dim oContainerTypes Dim oContainerType Set oContainerTypes = oOptimizer.ContainerTags 'Add new container type Set oContainerType = oContainerTypes.AddNewContainerTag oContainerType.Type = typeContainer oContainerType.Name = "40FT" oContainerType.Length = 12020 oContainerType.Width = 2330 oContainerType.Height = 2330 oContainerType.MaxCE = 0.7 oContainerType.MaxWeight = 2000 oContainerType.UnitPrice = 4000 'Shipping cost</pre>
Remarks	See <i>ContainerTag</i> object to learn about the properties for container type
Data Type	<i>ContainerTag</i>

□ RemoveAllSubContainerTags Method

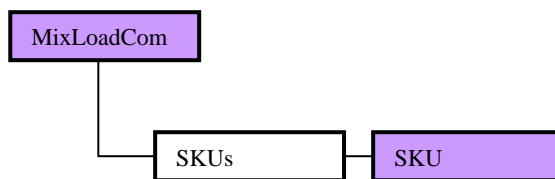
Applies To	MLMATLCOMSRVLib.IContainerTags
Description	Removes all items in the collections.
Syntax	Sub RemoveAllSubContainerTags ()

6 SKU Object

The *SKU* object provides a set of properties such as name, size, weight and description of one *SKU* type. Using this object, you can define a *SKU* to be stowed in the container type that was defined with the *ContainerTag* object. The following picture shows the properties window of the *SKU* at the CubeMaster software.



The following picture shows the relations of the three objects – *MixLoadCom*, *SKUs* and *SKU* which means the *SKU* is accessible only through the *SKUs*.



[Picture9. SKU Object]

6.1 SKU Object Overview

□ SKU Object Properties, Collections

Alias1	Alias2
bApplyBarcodeLabel	bKeepBasicOrientationOnSimpleLoad
CBM	Color

CountToLoad	DepartureTime
Description	GroupName
Height	Length
LoadDir1MaxLayer	LoadDir2MaxLayer
LoadDir3MaxLayer	LoadDir4MaxLayer
LoadDir5MaxLayer	LoadDir6MaxLayer
LoadedCount	LoadSequence
Name	NetWeight
Orientation	PrimaryOrientationIndex
Property 1	Property2
Property3	Property4
Property5	Property6
Property7	Property8
Property9	Property10
Property11	Property12
Property13	Property14
Property15	Property16
Property17	Property18
Property19	Property20
SecondaryOrientationIndexAtLastSpace	SetRatio
SimpleLoadLowerLayeAllowOverhang	SimpleLoadLowerLayerAlignType
SimpleLoadLowerLayerGenerateHole	SimpleLoadLowerLayerPatternType
StackValue	SubPackQty
TurnStartLayer	Type
UnitLoadBLOBStream	UnitloadContainer
UnitPrice	UnloadedCount
Weight	Width

□ **SKU Object Method**

AddSubItem	SetPropertyBasic
------------	------------------

□ **SKU Object Event**

None

6.2 SKU Object Properties

□ **Alias1 Property**

Applies To

MLMATLCOMSRVLib.ISKU

Description	Sets or returns the alias1 of the SKU
Syntax	Property Alias1 As String
Data Type	String

□ **Alias2 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the alias2 of the SKU
Syntax	Property Alias2 As String
Data Type	String

□ **bApplyBarcodeLabel Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns whether the SKU has a barcode on the 3D graphics
Syntax	Property bApplyBarcodeLabel As Bool
Data Type	Bool

□ **bKeepBasicOrientationOnSimpleLoad Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns whether the all orientation are allowed on the bottom of container. If set TRUE, only the basic orientations allowed on the bottom of container. Otherwise, all orientations are allowed.
Syntax	Property bKeepBasicOrientationOnSimpleLoad As Bool
Data Type	Bool

□ **CBM Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the volume of the SKU.
Syntax	Property CBM As Double
Data Type	Double

□ **Color Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the color of the SKU in RGB format. Set 0 to assign a random color.
Syntax	Property Color As Long
Data Type	Long

□ **CountToLoad Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the quantity of the SKU to be loaded.
Syntax	Property CountToLoad As Integer
Remarks	Use the <i>LoadedCount</i> property to read the number of loaded for the SKU after the

optimization.

Data Type Integer

❑ **DepartureTime Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the departure time of the SKU in a string.

Syntax Property DepartureTime As String

Data Type String

❑ **Description Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the description of the SKU.

Syntax Property Description As String

Data Type String

❑ **GroupName Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the group name of the SKU.

Syntax Property GroupName As String

Data Type String

❑ **Height Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the height of the SKU.

Syntax Property Height As Double

Data Type Double

❑ **Length Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the length of the SKU.

Syntax Property Length As Double

Data Type Double

❑ **LoadDir1MaxLayer Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the max stacks for the orientation #1 of the SKU.

Syntax Property LoadDir1MaxLayer As Integer

Data Type Integer

❑ **LoadDir2MaxLayer Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the max stacks for the orientation #2 of the SKU.
Syntax	Property LoadDir1MaxLayer As Integer
Data Type	Integer

❑ **LoadDir3MaxLayer Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the max stacks for the orientation #3 of the SKU.
Syntax	Property LoadDir3MaxLayer As Integer
Data Type	Integer

❑ **LoadDir4MaxLayer Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the max stacks for the orientation #4 of the SKU.
Syntax	Property LoadDir4MaxLayer As Integer
Data Type	Integer

❑ **LoadDir5MaxLayer Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the max stacks for the orientation #5 of the SKU.
Syntax	Property LoadDir5MaxLayer As Integer
Data Type	Integer

❑ **LoadDir6MaxLayer Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the max stacks for the orientation #6 of the SKU.
Syntax	Property LoadDir6MaxLayer As Integer
Data Type	Integer

❑ **LoadedCount Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Returns the number of loaded for the SKU.
Syntax	Property LoadedCount As Integer
Data Type	Integer

❑ **LoadSequence Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the load sequence of the SKU.
Syntax	Property LoadSequence As Integer
Data Type	Integer

□ Name Property

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the name of the SKU.
Syntax	Property Name As String
Data Type	String

□ NetWeight Property

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the net weight of the SKU.
Syntax	Property NetWeight As Double
Data Type	Double

□ Orientation Property

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the SKU orientations permitted to the optimization.
Syntax	Property Orientation As ItemLoadDirType
Remarks	A constant to permit the orientations of SKU. The constant <i>ItemLoadDirType</i> has the following meanings.

Value	Description	Enum
1	Permit orientation #1	<i>dir1</i>
2	Permit orientation #2	<i>dir2</i>
3	Permit orientation #1 and #2	<i>dirBasic</i>
4	Permit orientation #3	<i>dir3</i>
8	Permit orientation #4	<i>dir4</i>
16	Permit orientation #5	<i>dir5</i>
32	Permit orientation #6	<i>dir6</i>
63	Permit all orientations (#1,2,3,4,5,6)	<i>dirAll</i>

Data Type	ItemLoadDirType
------------------	-----------------

□ PrimaryOrientationIndex Property

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the primary orientation among the permitted ones.
Syntax	Property PrimaryOrientationIndex As Integer
Data Type	Integer

□ Property1 Property

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property1 of the SKU.
Syntax	Property Property1 As String
Data Type	String

❑ **Property2 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property2 of the SKU.
Syntax	Property Property2 As String
Data Type	String

❑ **Property3 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property3 of the SKU.
Syntax	Property Property3 As String
Data Type	String

❑ **Property4 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property4 of the SKU.
Syntax	Property Property4 As String
Data Type	String

❑ **Property5 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property5 of the SKU.
Syntax	Property Property5 As String
Data Type	String

❑ **Property6 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property6 of the SKU.
Syntax	Property Property6 As String
Data Type	String

❑ **Property7 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property7 of the SKU.
Syntax	Property Property7 As String
Data Type	String

❑ **Property8 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property8 of the SKU.
Syntax	Property Property8 As String

Data Type String

❑ **Property9 Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the property9 of the SKU.

Syntax Property Property9 As String

Data Type String

❑ **Property10 Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the property10 of the SKU.

Syntax Property Property10 As String

Data Type String

❑ **Property11 Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the property11 of the SKU.

Syntax Property Property11 As String

Data Type String

❑ **Property12 Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the property12 of the SKU.

Syntax Property Property12 As String

Data Type String

❑ **Property13 Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the property13 of the SKU.

Syntax Property Property13 As String

Data Type String

❑ **Property14 Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the property14 of the SKU.

Syntax Property Property14 As String

Data Type String

❑ **Property15 Property**

Applies To MLMATLCOMSRVLib.ISKU

Description	Sets or returns the property15 of the SKU.
Syntax	Property Property15 As String
Data Type	String

□ **Property16 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property16 of the SKU.
Syntax	Property Property16 As String
Data Type	String

□ **Property17 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property17 of the SKU.
Syntax	Property Property17 As String
Data Type	String

□ **Property18 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property18 of the SKU.
Syntax	Property Property18 As String
Data Type	String

□ **Property19 Property**

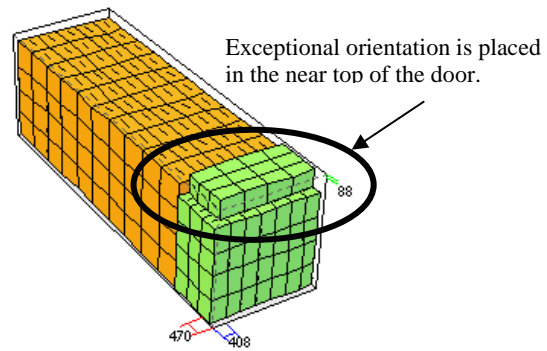
Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property19 of the SKU.
Syntax	Property Property19 As String
Data Type	String

□ **Property20 Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the property20 of the SKU.
Syntax	Property Property20 As String
Data Type	String

□ **SecondaryOrientationIndexAtLastSpace Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the orientation to allow placing the SKU into the last space at near top of the door.
Syntax	Property SecondaryOrientationIndexAtLastSpace As Integer
Remarks	Use this property if you like to allow an exceptional orientation could be placed into the near top spaces at the door.



Data Type Integer

□ **SetRatio Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the set ratio of the SKU.

Syntax Property SetRatio As Double

Remarks This property is effective only if the *SimType* of the *MixLoadCom* is *simSetLoadByQuantity* or *simSetLoadByQuantity*.

Data Type Double

□ **SimpleLoadLowerLayAllowOverhang Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns whether an overhang is allowed to the single load optimization of the SKU.

Syntax Property SimpleLoadLowerLayAllowOverhang As Bool

Data Type Bool

□ **SimpleLoadLowerLayerPatternType Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the pattern type to the single load optimization of the SKU.

Syntax Property SimpleLoadLowerLayerPatternType As Integer

Value	Description
0	1 block pattern type
1	2 blocks pattern type
2	4 blocks pattern type
4	3 blocks pattern type
9	Best fit

Data Type Integer

□ **StackValue Property**

Applies To MLMATLCOMSRVLib.ISKU

Description Sets or returns the stack value of the SKU.

Syntax Property StackValue As Integer

Remarks	This property is effective only if the <i>UploadRule</i> of the <i>MixLoadCom</i> is <i>uploadLoose</i> .
Data Type	Integer

□ **SubPackQty Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the number of pack inside the SKU.
Syntax	Property SubPackQty As Long
Data Type	Long

□ **UnitLoadBLOBStream Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the unitload of the SKU.
Syntax	Property UnitLoadBLOBStream As Object
Remarks	The SKU with a unitload assigned with this property is recognized as a pallet load and drawn in full 3D pallet load inside the container.
Data Type	Object

□ **UnitloadContainer Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Returns the Container object indicating the unitload of the SKU.
Syntax	Property UnitloadContainer As Container
Remarks	Use this property to access the unitload properties of the SKU. The unitload should be created inside the SKU or assigned with <i>UnitLoadBLOBStream</i> outside the SKU already.
Data Type	Container

□ **UnitPrice Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the unit price (cost) of the SKU.
Syntax	Property UnitPrice As Double
Data Type	Double

□ **UnloadedCount Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Returns the number of cargos remaining for the SKU after the optimization.
Syntax	Property UnloadedCount As Integer
Data Type	Integer

□ **Weight Property**

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the weight of the SKU.

Syntax	Property Weight As Double
Data Type	Double

□ Width Property

Applies To	MLMATLCOMSRVLib.ISKU
Description	Sets or returns the width of the SKU.
Syntax	Property Width As Double
Data Type	Double

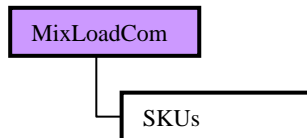
6.3 SKU Object Methods, Functions

□ SetPropertyBasic Method

Applies To	MLMATLCOMSRVLib.ISKU												
Description	Sets basic properties as the name, quantity, length, width and height of the SKU.												
Syntax	Sub SetPropertyBasic(<i>Name</i> As String, <i>CountToLoad</i> As Long, <i>Length</i> As Double, <i>Width</i> As Double, <i>Height</i> As Double)												
Parameter	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>Name</i></td> <td>Name of the SKU</td> </tr> <tr> <td><i>CountToLoad</i></td> <td>Quantity of the SKU</td> </tr> <tr> <td><i>Length</i></td> <td>Length of the SKU</td> </tr> <tr> <td><i>Width</i></td> <td>Width of the SKU</td> </tr> <tr> <td><i>Height</i></td> <td>Height of the SKU</td> </tr> </tbody> </table>	Parameter	Description	<i>Name</i>	Name of the SKU	<i>CountToLoad</i>	Quantity of the SKU	<i>Length</i>	Length of the SKU	<i>Width</i>	Width of the SKU	<i>Height</i>	Height of the SKU
Parameter	Description												
<i>Name</i>	Name of the SKU												
<i>CountToLoad</i>	Quantity of the SKU												
<i>Length</i>	Length of the SKU												
<i>Width</i>	Width of the SKU												
<i>Height</i>	Height of the SKU												
Data Type	None												

7 SKUs Object

The *SKUs* is a collection to store multiple *SKU* objects. The *SKUs* is accessible through the property *SKUs* of the *MixLoadCom* object. Once the *SKUs* is acquired, you can iterate all elements in it.



[Picture8. SKUs Object]

7.1 SKUs Object Overview

□ SKUs Object Properties, Collections

Count	Item
TotalCBM	TotalLoadedQty

□ SKUs Object Method

AddNewSKU	RemoveAll
RemoveAt	

□ SKUs Object Event

None

7.2 SKUs Object Properties

□ Count Property

Applies To	MLMATLCOMSRVLib.ISKUs
Description	Return the number of items (SKUs) in the collection.
Syntax	Property Count As Long
Data Type	Long

□ Item Property

Applies To	MLMATLCOMSRVLib.ISKUs
Description	Returns an item (SKU) in the collection.

Syntax	Property Item(<i>index</i> As Long)				
Parameter	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>index</i></td> <td>An index to item between 1 and <i>Count</i></td> </tr> </tbody> </table>	Parameter	Description	<i>index</i>	An index to item between 1 and <i>Count</i>
Parameter	Description				
<i>index</i>	An index to item between 1 and <i>Count</i>				
Data Type	None				

□ **TotalCBM Property**

Applies To	MLMATLCOMSRVLib.ISKUs
Description	Returns the sum of volume for all SKUs in the collection.
Syntax	Property TotalCBM As Double
Data Type	Double

□ **TotalLoadedQty Property**

Applies To	MLMATLCOMSRVLib.ISKUs
Description	Returns the sum of load quantities for all SKUs in the collection.
Syntax	Property TotalLoadedQty As Long
Data Type	Long

7.3 SKUs Object Methods, Functions

□ **AddNewSKU Functions**

Applies To	MLMATLCOMSRVLib.ISKUs
Description	Adds a new SKU into the collection and returns <i>SKU</i> object to allow you to set properties of the new SKU.
Syntax	Sub AddNewSKU() As SKU
Example (Visual Basic Code)	<pre>Dim oSKUs, oSKU Set oSKUs = oOptimizer.SKUs Set oSKU = oSKUs.AddNewSKU oSKU.Name = "AA-101" oSKU.Length = 690 oSKU.Width = 900 oSKU.Height = 500 oSKU.CountToLoad = 100 oSKU.Orientation = dirBasic Set oSKU = oSKUs.AddNewSKU oSKU.Name = "BB-303" oSKU.Length = 900 oSKU.Width = 800 oSKU.Height = 550 oSKU.CountToLoad = 100 oSKU.Orientation = dirBasic</pre>

Data Type SKU

❑ **RemoveAll Method**

Applies To MLMATLCOMSRVLib.ISKUs

Description Remove all items from the collection.

Syntax Sub RemoveAll()

Data Type None

❑ **RemoveAt Method**

Applies To MLMATLCOMSRVLib.ISKUs

Description Remove an item from the collection.

Syntax Sub RemoveAt(index As Long)

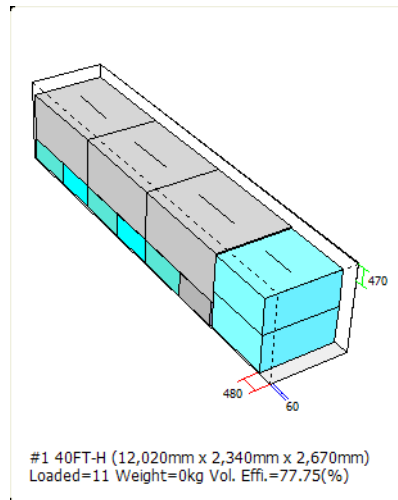
Parameters

Parameter	Description
<i>index</i>	An index to the item

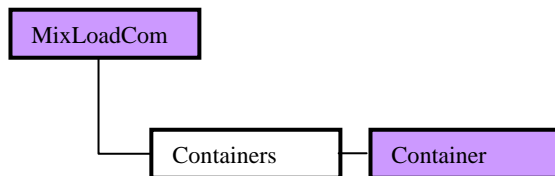
Data Type None

8 Container Object

The *Container* object provides a set of properties such as name, size, weight and load information of one loaded container. By using this object, you can access one loaded container after the optimization. The following picture shows a sample image for the loaded container.



The following picture shows the relations of the three objects – *MixLoadCom*, *Containers* and *Container* which means the *Container* is accessible only through the *Containers*.



[Picture 12.Container Object]

8.1 Container Object Overview

□ Container Object Properties, Collections

Alias	AppliedBandType
Comment	ContainerData
ContainerName	ContainerWeight
CubeEfficiency	DepartureTime
GrossItemCount	Height
ID	IsAnglePanelApplied
IsTopPanelApplied	IsWrappingApplied

ItemCount	ItemCount
Length	LimitCE
LimitWeight	LoadedCBM
LoadedWeight	Name
NetWeight	OutHeight
OutLength	OutWidth
PatternEditType	ProductionLine
Property1	Property2
Property3	Property4
Property5	Property6
Property7	Property8
Property9	Property10
SimpleLoadCustomPatternType	SimpleLoadHeight
SimpleLoadLayerCount	SimpleLoadLength
SimpleLoadPlaneEfficiency	SimpleLoadWidth
Solutions	SpacesInContainer
Width	

❑ **Container Object Method**

ApplyAnglePanel	ApplyBanding
ApplyHandlingSign	ApplyTopPanel
ApplyWrapping	DisplayPattern
GetPatternBLOBStream	ReloadTo
SaveToFile	UnloadBlockByIndex

❑ **Container Object Event**

None

8.2 Container Object Properties

❑ **Alias Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the alias 1 of the container.
Syntax	Property Alias As String
Data Type	String

❑ **AppliedBandType Property**

Applies To	MLMATLCOMSRVLib.Icontainer
Description	Returns the banding type applied to the container if the type is a pallet.

Syntax	Property AppliedBandType As _BandType		
Remarks	Value	Description	Enum
	0	No banding applied	<i>BandNone</i>
	1	2 straps along the length	<i>Band2LineLengthSide</i>
	2	2 straps along the width	<i>Band2LineWidthSide</i>
	3	2 straps along the length and 2 straps along the width	<i>Band2LineBothSide</i>
Data Type	_BandType		

❑ **Comment Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the comment of the container.
Syntax	Property Comment As String
Data Type	String

❑ **ContainerName Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the name of the container type applied to this container.
Syntax	Property ContainerName As String
Data Type	String

❑ **ContainerWeight Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the weight of the container type (without load weight).
Syntax	Property ContainerWeight As Double
Data Type	Double

❑ **CubeEfficiency Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the volume efficiency in percentage of the container.
Remarks	Read only
Syntax	Property CubeEfficiency As Double
Data Type	Double

❑ **DepartureTime Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the departure time of the container.
Syntax	Property DepartureTime As String
Remarks	This property does not affect the calculation.
Data Type	String

❑ **GrossItemCount Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the gross load quantity of the container.
Syntax	Property GrossItemCount As Long
Remarks	Read only
Data Type	Long

❑ **Height Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the height of the container (it is equal the internal height of the container type applied to the container).
Remarks	Read only
Syntax	Property Height As Double
Data Type	Double

❑ **ID Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the ID of the container.
Syntax	Property ID As Long
Remarks	Read only. Every container is given an ID after the calculation.
Data Type	Long

❑ **IsAnglePanelApplied Property**

Applies To	MLMATLCOMSRVLib. IContainer
Description	Returns whether the angle panel (or post guard) is applied to the container if it is pallet type.
Syntax	Property IsAnglePanelApplied As Bool
Remarks	Read only
Data Type	Bool

❑ **IsTopPanelApplied Property**

Applies To	MLMATLCOMSRVLib. IContainer
Description	Returns whether the top panel is applied to the container if it is pallet type.
Syntax	Property IsTopPanelApplied As Bool
Remarks	Read only
Data Type	Bool

❑ **IsWrappingApplied Property**

Applies To	MLMATLCOMSRVLib. IContainer
Description	Returns whether the wrapping is applied to the container if it is pallet type.

Syntax	Property IsWrappingApplied As Bool
Remarks	Read only
Data Type	Bool

□ **ItemCount Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the number of load inside the container.
Syntax	Property ItemCount As Integer
Remarks	Read only
Data Type	Integer

□ **Length Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the length of the container (it is equal the internal length of the container type applied to the container).
Syntax	Property Length As Double
Remarks	Read only
Data Type	Double

□ **LimitCE Property**

Applies To	MLMATLCOMSRVLib.Icontainer
Description	Returns the max volume percentage of the container.
Syntax	Property LimitCE As Double
Remarks	Read only
Data Type	Double

□ **LimitWeight Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the max weight of the container.
Syntax	Property LimitWeight As Double
Remarks	Read only
Data Type	Double

□ **LoadedCBM Property**

Applies To	MLMATLCOMSRVLib.Icontainer
Description	Returns the volume of the load inside the container.
Syntax	Property LoadedCBM As Double
Remarks	Read only
Data Type	Double

□ **LoadedWeight Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the gross weight (load weight + container weight) of the container.
Syntax	Property LoadedWeight As Double
Remarks	Read only
Data Type	Double

□ **Name Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the name of the container.
Syntax	Property Name As String
Remarks	Every container has a name created from the naming rule. The naming rule is defined with the method, <i>MixLoadCom.SetContainerNamingRule</i> .
Data Type	String

□ **NetWeight Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the load weight inside the container.
Syntax	Property NetWeight As Double
Remarks	Read only
Data Type	Double

□ **OutHeight Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the external height of the container.
Syntax	Property OutHeight As Double
Remarks	Read only
Data Type	Double

□ **OutLength Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the external length of the container.
Syntax	Property OutLength As Double
Remarks	Read only
Data Type	Double

□ **OutWidth Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the external width of the container.
Syntax	Property OutWidth As Double
Remarks	Read only
Data Type	Double

□ **ProductionLine Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the production line of the container.
Syntax	Property ProductionLine As String
Remarks	This property does not affect the calculation.
Data Type	String

□ **Property1 Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the property1 of the container.
Syntax	Property Property1 As String
Data Type	String

□ **Property2 Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the property2 of the container.
Syntax	Property Property2 As String
Data Type	String

□ **Property3 Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the property3 of the container.
Syntax	Property Property3 As String
Data Type	String

□ **Property4 Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the property4 of the container.
Syntax	Property Property4 As String
Data Type	String

□ **Property5 Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the property5 of the container.
Syntax	Property Property5 As String
Data Type	String

□ **Property6 Property**

Applies To	MLMATLCOMSRVLib.IContainer
Description	Sets or returns the property6 of the container.

Syntax Property Property6 As String

Data Type String

□ **Property7 Property**

Applies To MLMATLCOMSRVLib.IContainer

Description Sets or returns the property7 of the container.

Syntax Property Property7 As String

Data Type String

□ **Property8 Property**

Applies To MLMATLCOMSRVLib.IContainer

Description Sets or returns the property8 of the container.

Syntax Property Property8 As String

Data Type String

□ **Property9 Property**

Applies To MLMATLCOMSRVLib.IContainer

Description Sets or returns the property9 of the container.

Syntax Property Property9 As String

Data Type String

□ **Property10 Property**

Applies To MLMATLCOMSRVLib.IContainer

Description Sets or returns the property10 of the container.

Syntax Property Property10 As String

Data Type String

□ **SimpleLoadHeight Property**

Applies To MLMATLCOMSRVLib.Icontainer

Description Returns the height of the load if the container is filled with this SKU only.

Syntax Property SimpleLoadHeight As Double

Remarks Read only

Data Type Double

□ **SimpleLoadLayerCount Property**

Applies To MLMATLCOMSRVLib.Icontainer

Description Returns the number of load layers if the container is filled with this SKU only.

Syntax Property SimpleLoadLayerCount As Integer

Remarks Read only

Data Type Integer

❑ SimpleLoadLength Property

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the length of the load if the container is filled with this SKU only.
Syntax	Property SimpleLoadLength As Double
Remarks	Read only
Data Type	Double

❑ SimpleLoadPlaneEfficiency Property

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the area efficiency of the load if the container is filled with this SKU only.
Syntax	Property SimpleLoadPlaneEfficiency As Double
Remarks	Read only
Data Type	Double

❑ SimpleLoadWidth Property

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the width of the load if the container is filled with this SKU only.
Syntax	Property SimpleLoadWidth As Double
Remarks	Read only
Data Type	Double

❑ Solutions Property

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the collection of the <i>Solution</i> object. The <i>Solution</i> object represents load information of the SKU loaded in the container.
Syntax	Property Solutions As Solutions
Remarks	Read only
Data Type	<i>Solutions</i>

❑ SpacesInContainer Property

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the collection of the <i>SpaceInContainer</i> object. The <i>SpaceInContainer</i> object represents space information in the container.
Syntax	Property SpacesInContainer As SpacesInContainer
Remarks	Read only
Data Type	<i>SpacesInContainer</i>

❑ Width Property

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the width of the container (it is equal the internal width of the container type applied to the container).

Syntax	Property Width As Double
Remarks	Read only
Data Type	Double

8.3 Container Object Methods, Functions

□ ApplyAnglePanel Method

Applies To	MLMATLCOMSRVLib.IContainer						
Description	Add angle panels (or post guards) on the pallet load						
Syntax	Sub ApplyAnglePanel(<i>PanelWidth</i> As Double, <i>PanelColor</i> As Long)						
Parameters	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>PanelWidth</i></td> <td>The size of panel</td> </tr> <tr> <td><i>PanelColor</i></td> <td>The color of panel</td> </tr> </tbody> </table>	Parameter	Description	<i>PanelWidth</i>	The size of panel	<i>PanelColor</i>	The color of panel
Parameter	Description						
<i>PanelWidth</i>	The size of panel						
<i>PanelColor</i>	The color of panel						
Remarks							
Data Type	None						

□ ApplyBanding Method

Applies To	MLMATLCOMSRVLib.IContainer								
Description	Add banding straps on the pallet load								
Syntax	Sub ApplyBanding(<i>BandWidth</i> As Double, <i>BandColor</i> As Long, <i>BandType</i> As _BandType)								
Parameters	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>BandWidth</i></td> <td>The size of strap</td> </tr> <tr> <td><i>BandColor</i></td> <td>The color of strap</td> </tr> <tr> <td><i>BandType</i></td> <td>The type of strap.</td> </tr> </tbody> </table>	Parameter	Description	<i>BandWidth</i>	The size of strap	<i>BandColor</i>	The color of strap	<i>BandType</i>	The type of strap.
Parameter	Description								
<i>BandWidth</i>	The size of strap								
<i>BandColor</i>	The color of strap								
<i>BandType</i>	The type of strap.								
Remarks	For more about <i>BandType</i> , see the <i>AppliedBandType</i> property.								
Data Type	None								

□ ApplyHandlingSign Method

Applies To	MLMATLCOMSRVLib.IContainer
Description	Add handling sign on the pallet load
Syntax	Sub ApplyHandlingSign()
Parameters	None
Remarks	
Data Type	None

□ ApplyTopPanel Method

Applies To	MLMATLCOMSRVLib.IContainer
Description	Add top panel on the pallet load
Syntax	Sub ApplyTopPanel(<i>PanelLength</i> As Double, <i>PanelWidth</i> As Double, <i>PanelColor</i>

	As Long)								
Parameters	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>PanelLength</i></td> <td>The length of panel</td> </tr> <tr> <td><i>PanelWidth</i></td> <td>The width of panel</td> </tr> <tr> <td><i>PanelColor</i></td> <td>The color of panel</td> </tr> </tbody> </table>	Parameter	Description	<i>PanelLength</i>	The length of panel	<i>PanelWidth</i>	The width of panel	<i>PanelColor</i>	The color of panel
Parameter	Description								
<i>PanelLength</i>	The length of panel								
<i>PanelWidth</i>	The width of panel								
<i>PanelColor</i>	The color of panel								
Remarks									
Data Type	None								

□ **ApplyWrapping Method**

Applies To	MLMATLCOMSRVLib.IContainer				
Description	Add wrapping on the pallet load				
Syntax	Sub ApplyWrapping(<i>WrapColor</i> As Long)				
Parameters	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>WrapColor</i></td> <td>The color of warpping</td> </tr> </tbody> </table>	Parameter	Description	<i>WrapColor</i>	The color of warpping
Parameter	Description				
<i>WrapColor</i>	The color of warpping				
Remarks					
Data Type	None				

□ **GetPatternBLOBStream Method**

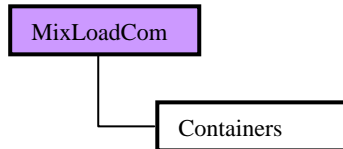
Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the stream of the container.
Syntax	Function GetPatternBLOBStream() As Object
Parameters	None
Remarks	
Data Type	ADO::Stream

□ **SaveToFile Method**

Applies To	MLMATLCOMSRVLib.IContainer				
Description	Store the container to a file.				
Syntax	Sub SaveToFile(<i>strFullPathName</i> As String)				
Parameters	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>strFullPathName</i></td> <td>A full path name to write</td> </tr> </tbody> </table>	Parameter	Description	<i>strFullPathName</i>	A full path name to write
Parameter	Description				
<i>strFullPathName</i>	A full path name to write				
Data Type	None				

9 Containers Object

The *Containers* is a collection to store multiple *Container* objects. The *Containers* is accessible through the property *Containers* of the *MixLoadCom* object. Once the *Containers* is acquired, you can iterate all elements in it.



[Picture 11.Containers Object]

9.1 Containers Object Overview

□ Containers Object Properties, Collections

AverageCubeEfficiency	Count
Item	TotalGrossLoadCount
TotalLoadCount	

□ Containers Object Method

AddEmptyContainer	GetContainerByID
-------------------	------------------

□ Containers Object Event

None

9.2 Containers Object Properties

□ AverageCubeEfficiency Property

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the average volume efficiency for the all containers in the collection.
Syntax	Property AverageCubeEfficiency As Double
Data Type	Double

□ Count Property

Applies To	MLMATLCOMSRVLib.IContainer
Description	Returns the number of items (containers) in the collection.

Syntax Property Count As Long

Data Type Long

□ **Item Property**

Applies To MLMATLCOMSRVLib.IContainers

Description Returns an item (container) in the collection.

Syntax Property Item(*index* As Long)

Parameter

Parameter	Description
<i>index</i>	An index to an item between 1 and <i>Count</i>

Data Type None

□ **TotalGrossLoadCount Property**

Applies To MLMATLCOMSRVLib.IContainers

Description Returns sum of gross load quantities for the all containers in the collection.

Syntax Property TotalGrossLoadCount As Long

Data Type Long

□ **TotalLoadCount Property**

Applies To MLMATLCOMSRVLib.IContainers

Description Returns sum of load quantities for the all containers in the collection.

Syntax Property TotalLoadCount As Integer

Data Type Integer

9.3 Containers Object Methods, Functions

□ **AddEmptyContainer Functions**

Applies To MLMATLCOMSRVLib.IContainers

Description Add an empty container to the collections and return the *Container* object to allow you to access the new container.

Syntax Function AddEmptyContainer() as Container

Data Type Container

□ **GetContainerByID Method**

Applies To MLMATLCOMSRVLib.IContainers

Description Find a container with an ID in the collection.

Syntax Function GetContainerByID(ID As Long)

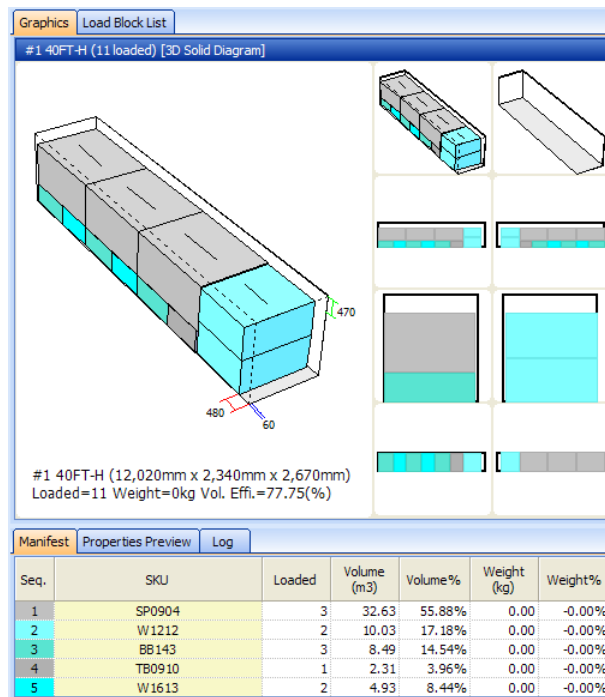
Parameter

Parameter	Description
<i>ID</i>	An ID of container to find

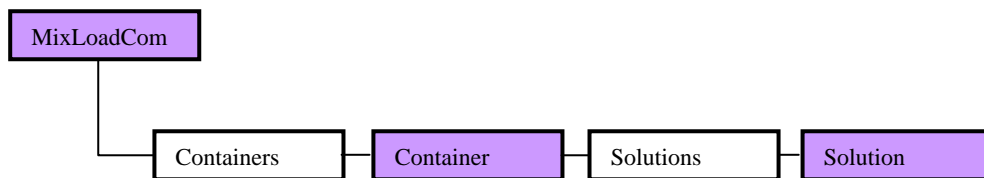
Data Type None

10 Solution Object

The *Solution* object provides a set of properties for a SKU loaded in the container and its information such as load volume, quantity and weight. By using this object, you can access one line of the manifest of the loaded container. The following picture shows the conceptual image for a manifest of the loaded container.



The following picture shows the relations of the five objects – *MixLoadCom*, *Containers*, *Container*, *Solutions* and *Solution* which means the *Solution* is accessible only through the *Solutions*.



[Picture13.Solution Object]

10.1 Solution Object Overview

□ Solution Object Properties, Collections

ActionType	Color
ContainerNameOnUnitLoad	DepartureTime
Description	GrossLoadedCount
GroupName	IsUnitloadContainer
ItemAlias	ItemAlias2
ItemCBM	ItemHeight
ItemLength	ItemName
ItemProperty1	ItemProperty2
ItemProperty3	ItemProperty4
ItemProperty5	ItemProperty6
ItemProperty7	ItemProperty8
ItemProperty9	ItemProperty10
ItemWeight	ItemWidth
LoadedCount	LoadedItem
SetRatio	SubPackQty

□ Solution Object Method

None

□ Solution Object Event

None

10.2 Solution Object Properties

□ Color Property

Applies To MLMATLCOMSRVLib.ISolution

Description Return the color of the SKU

Syntax Property Color As Long

Data Type Long

□ ContainerNameOnUnitLoad Property

Applies To MLMATLCOMSRVLib.ISolution

Description Returns the name of the pallet if the SKU is a pallet load

Syntax Property ContainerNameOnUnitLoad As String

Data Type Long

❑ **DepartureTime Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the departure time of the SKU
Syntax	Property DepartureTime As String
Remarks	Read only
Data Type	String

❑ **Description Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the description of the SKU
Syntax	Property Description As String
Remarks	Read only
Data Type	String

❑ **GrossLoadedCount Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the gross load quantity of the SKU. It equals <i>LoadedCount</i> x <i>SubPackQty</i> of the SKU.
Syntax	Property GrossLoadedCount As Long
Remarks	Read only
Data Type	Long

❑ **GroupName Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the group name of the SKU
Syntax	Property GroupName As String
Remarks	Read only
Data Type	String

❑ **IsUnitloadContainer Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns whether the SKU is a pallet load.
Syntax	Property IsUnitloadContainer As Bool
Remarks	Read only
Data Type	Bool

❑ **ItemAlias Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the alias of the SKU
Syntax	Property ItemAlias As String

Remarks	Read only
Data Type	String

❑ **ItemAlias2 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the alias2 of the SKU
Syntax	Property ItemAlias2 As String
Remarks	Read only
Data Type	String

❑ **ItemCBM Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the volume of the SKU
Syntax	Property ItemCBM As Double
Remarks	Read only
Data Type	Double

❑ **ItemHeight Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the height of the SKU
Syntax	Property ItemHeight As Double
Remarks	Read only
Data Type	Double

❑ **ItemLength Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the length of the SKU
Syntax	Property ItemLength As Double
Remarks	Read only
Data Type	Double

❑ **ItemName Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the name of the SKU
Syntax	Property ItemName As String
Remarks	Read only
Data Type	String

❑ **ItemProperty1 Property**

Applies To	MLMATLCOMSRVLib.ISolution
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Description	Returns the property1 of the SKU
Syntax	Property ItemProperty1 As String
Remarks	Read only
Data Type	String

□ **ItemProperty2 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the property2 of the SKU
Syntax	Property ItemProperty2 As String
Remarks	Read only
Data Type	String

□ **ItemProperty3 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the property3 of the SKU
Syntax	Property ItemProperty3 As String
Remarks	Read only
Data Type	String

□ **ItemProperty4 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the property4 of the SKU
Syntax	Property ItemProperty4 As String
Remarks	Read only
Data Type	String

□ **ItemProperty5 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the property5 of the SKU
Syntax	Property ItemProperty5 As String
Remarks	Read only
Data Type	String

□ **ItemProperty6 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the property6 of the SKU
Syntax	Property ItemProperty6 As String
Remarks	Read only
Data Type	String

□ **ItemProperty7 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the property7 of the SKU
Syntax	Property ItemProperty7 As String
Remarks	Read only
Data Type	String

□ **ItemProperty8 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the property8 of the SKU
Syntax	Property ItemProperty8 As String
Remarks	Read only
Data Type	String

□ **ItemProperty9 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the property9 of the SKU
Syntax	Property ItemProperty9 As String
Remarks	Read only
Data Type	String

□ **ItemProperty10 Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the property10 of the SKU
Syntax	Property ItemProperty10 As String
Remarks	Read only
Data Type	String

□ **ItemWeight Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the weight of the SKU
Syntax	Property ItemWeight As Double
Remarks	Read only
Data Type	Double

□ **ItemWidth Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the width of the SKU
Syntax	Property ItemWidth As Double
Remarks	Read only
Data Type	Double

❑ **LoadedCount Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the number of load for the SKU
Syntax	Property LoadedCount As Long
Remarks	Read only
Data Type	Long

❑ **LoadedItem Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the <i>SKU</i> object of the SKU to allow you to access the properties of the SKU
Syntax	Property LoadedItem As SKU
Remarks	Read only
Data Type	SKU

❑ **SetRatio Property**

Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the set ratio of the SKU
Syntax	Property SetRatio As Integer
Remarks	Read only
Data Type	Integer

❑ **SubPackQty Property**

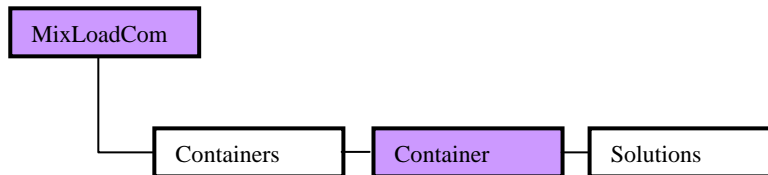
Applies To	MLMATLCOMSRVLib.ISolution
Description	Returns the number of pack inside the SKU.
Syntax	Property SubPackQty As Long
Remarks	Read only
Data Type	Long

10.3 Solution Object Methods, Functions

❑ **None**

11 Solutions Object

The *Solutions* is a collection to store multiple *Solution* objects. The *Solutions* is accessible through the property *Solutions* of the *Container* object. Once the *Solutions* is acquired, you can iterate all elements in it.



[Picture12.Solutions Object]

11.1 Solutions Object Overview

□ Solutions Object Properties, Collections

Count	Item
SolutionByGroupAt	SolutionByGroupCount

□ Solutions Object Method

Reset

□ Solutions Object Event

None

11.2 Solutions Object Properties

□ Count Property

Applies To	MLMATLCOMSRVLib.ISolutions
Description	Returns the number of item(solution)s in the collection
Syntax	Property Count As Long
Data Type	Long

□ Item Property

Applies To	MLMATLCOMSRVLib. ISolutions
Description	Returns an item (solution) in the collection.

Syntax	Property Item(<i>index</i> As Long)				
Parameter	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>index</i></td> <td>An index to an item between 1 and <i>Count</i></td> </tr> </tbody> </table>	Parameter	Description	<i>index</i>	An index to an item between 1 and <i>Count</i>
Parameter	Description				
<i>index</i>	An index to an item between 1 and <i>Count</i>				
Data Type	None				

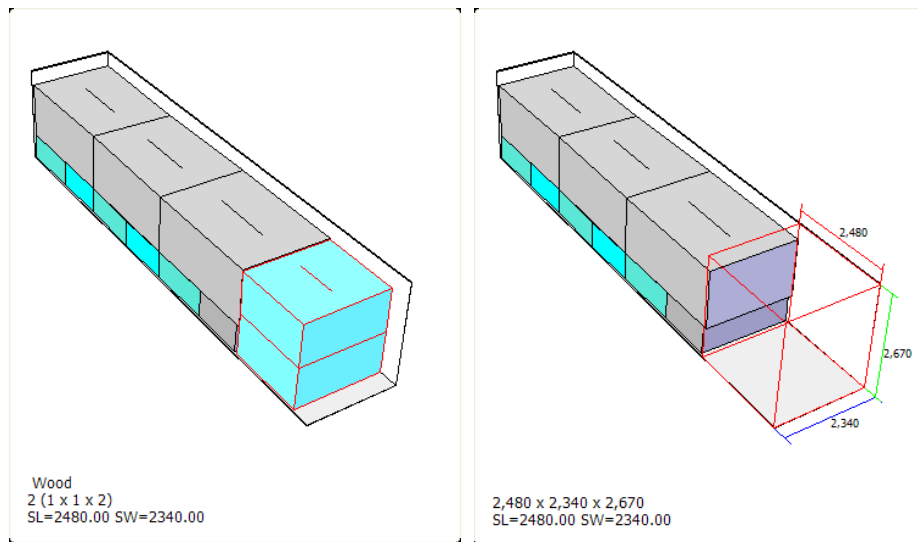
11.3 Solutions Object Methods, Functions

□ Reset Method

Applies To	MLMATLCOMSRVLib.ISolutions
Description	Initialize the collection
Syntax	Sub Reset()
Data Type	None

12 SpaceInContainer Object

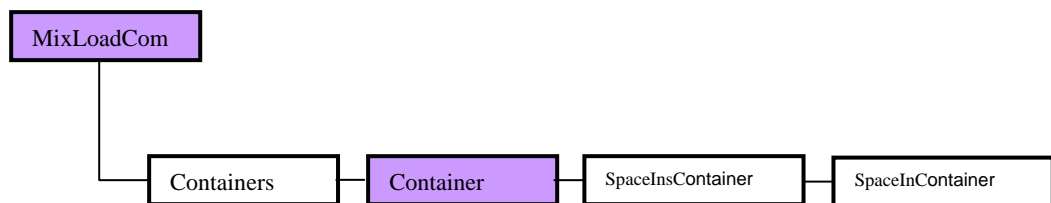
The *SpaceInContainer* object provides a set of properties for a space in the loaded container and the SKU inside the space if it is a filled space. Using this object, you can access a space in the loaded container. The space has two types – filled and empty as in the following picture.



A filled space

An empty space

The following picture shows the relations of the five objects – *MixLoadCom*, *Containers*, *Container*, *SpacesInContainer* and *SpaceInContainer* which means the *SpaceInContainer* is accessible only through the *SpacesInContainer*.



[Picture16.SpaceInContainer Object]

12.1 SpaceInContainer Object Overview

□ SpaceInContainer Object Properties, Collections

Height	ItemData
Length	LoadableContainers
LoadableSKUs	LoadedItem

LoadedItemCount	LoadedItemName
Width	

❑ **SpaceInContainer Object Method**

None

❑ **SpaceInContainer Object Event**

None

12.2 SpaceInContainer Object Properties

❑ **Height Property**

Applies To	MLMATLCOMSRVLib.ISpaceInContainer
Description	Returns the height of the space
Syntax	Property Height As Double
Remarks	Read only
Data Type	Double

❑ **Length Property**

Applies To	MLMATLCOMSRVLib.ISpaceInContainer
Description	Returns the length of the space
Syntax	Property Length As
Remarks	Read only
Data Type	Double

❑ **LoadedItem Property**

Applies To	MLMATLCOMSRVLib.ISpaceInContainer
Description	Returns the <i>SKU</i> object inside the space to allow you to access the properties of the SKU. If the space is empty, it returns NULL.
Syntax	Property LoadedItem As SKU
Remarks	Read only
Data Type	SKU

❑ **LoadedItemCount Property**

Applies To	MLMATLCOMSRVLib.ISpaceInContainer
Description	Returns the number of SKU inside the space. If the space is empty, it returns 0.
Syntax	Property LoadedItemCount As Long
Remarks	Read only
Data Type	Long

❑ **LoadedItemName Property**

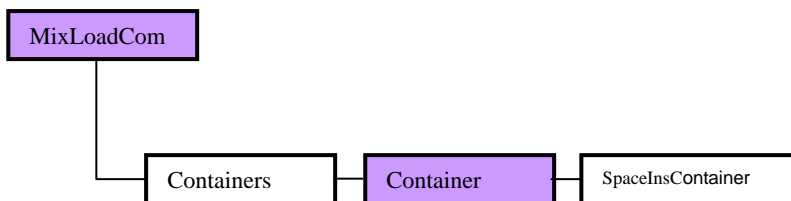
Applies To	MLMATLCOMSRVLib.ISpaceInContainer
Description	Returns the name of SKU inside the space. If the space is empty, it returns "".
Syntax	Property LoadedItemName As String
Remarks	Read only
Data Type	String

❑ **Width Property**

Applies To	MLMATLCOMSRVLib.ISpaceInContainer
Description	Returns the width of the space
Syntax	Property Width As Double
Remarks	Read only
Data Type	Double

13 SpacesInContainer Object

The *SpacesInContainer* is a collection to store multiple *SpaceInContainer* objects. The *SpacesInContainer* is accessible through the property *SpacesInContainer* of the *Container* object. Once the *SpacesInContainer* is acquired, you can iterate all elements in it.



[Picture15.SpacesInContainer Object]

13.1 SpaceInsContainer Object Overview

❑ **SpaceInsContainer Object Properties, Collections**

Count	GarbageSpaceAt
GarbageSpaceCount	Item
LoadedSpaceAt	LoadedSpaceCount

❑ **SpaceInsContainer Object Method**

None

❑ **SpaceInsContainer Object Event**

None

13.2 SpaceInContainer Object Properties

□ Count Property

Applies To	MLMATLCOMSRVLib.ISpacesInContainer
Description	Returns the number of item(SpaceInContainer)s in the collection. It equals the sum of <i>GarbageSpaceCount</i> and <i>LoadedSpaceCount</i> .
Syntax	Property Count As Long
Data Type	Long

□ GarbageSpaceAt Property

Applies To	MLMATLCOMSRVLib. ISpacesInContainer				
Description	Returns an empty space in the collection.				
Syntax	Property GarbageSpaceAt(index As Long)				
Parameter	<table border="1"><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td><i>index</i></td><td>An index to an item between 1 and <i>GarbageSpaceCount</i></td></tr></tbody></table>	Parameter	Description	<i>index</i>	An index to an item between 1 and <i>GarbageSpaceCount</i>
Parameter	Description				
<i>index</i>	An index to an item between 1 and <i>GarbageSpaceCount</i>				
Data Type	None				

□ GarbageSpaceCount Property

Applies To	MLMATLCOMSRVLib. ISpacesInContainer
Description	Returns the number of empty spaces in the collection.
Syntax	Property GarbageSpaceCount As Long
Data Type	Long

□ Item Property

Applies To	MLMATLCOMSRVLib. ISpacesInContainer				
Description	Returns an item(space)s in the collection.				
Syntax	Property Item(index As Long)				
Parameter	<table border="1"><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td><i>index</i></td><td>An index to an item between 1 and <i>Count</i></td></tr></tbody></table>	Parameter	Description	<i>index</i>	An index to an item between 1 and <i>Count</i>
Parameter	Description				
<i>index</i>	An index to an item between 1 and <i>Count</i>				
Data Type	None				

□ LoadedSpaceAt Property

Applies To	MLMATLCOMSRVLib. ISpacesInContainer				
Description	Returns a space filled with a SKU in the collection.				
Syntax	Property LoadedSpaceAt(index As Long)				
Parameter	<table border="1"><thead><tr><th>Parameter</th><th>Description</th></tr></thead><tbody><tr><td><i>index</i></td><td>An index to an item between 1 and <i>LoadedSpaceCount</i></td></tr></tbody></table>	Parameter	Description	<i>index</i>	An index to an item between 1 and <i>LoadedSpaceCount</i>
Parameter	Description				
<i>index</i>	An index to an item between 1 and <i>LoadedSpaceCount</i>				
Data Type	None				

□ LoadedSpaceCount Property

Applies To	MLMATLCOMSRVLib. ISpacesInContainer
Description	Returns the number of spaces filled with a SKU in the collection.
Syntax	Property LoadedSpaceCount As Long
Data Type	None