

SMS Broker System  
Software Integration

Our system uses  
WCF  
(Windows Communication Foundation)  
&  
.NET

## Base, common usage classes and interfaces.

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*This document describes classes and interfaces those are used in all SMS-system subsystems.*

## 1. Special Notes.

**1. Base classes.** All directory, document and child classes are derived from this classes. Properties and methods of base classes (if not overridden) are not described for derived classes. For example, Id property is absent in a table that describes CustomsEntry class because it is inherited from [EntityDocument](#) class that in turn is inherited from [EntityBase](#) class with Id property.

[EntityChild](#) class is used for collection objects those can't exist as independent entities, without their parent document or directory object. For example, [ShipmentArticle](#) has no a reason without parent [Shipment](#) object, [ContactBondInfo](#) has no a reason without parent [Contact](#) object and so on. In contrast to such

objects, Shipment class (it is derived from [EntityDocument](#) class) objects, for example, can be included as collection to CustomsEntry parent object but can exist also as independent entity. Respectively, [EntityChild](#) derived classes have no manager classes and accessible via parent object manager classes.

**2. Possible Values.** In the tables those describe Data Contract (Directory and Document) classes very often you can see “Has Possible Values” note in description column. It means that property can obtain values only from a standard Customs list. In SMS-system such Customs list is a list of [PossibleValue](#) structures. Each structure contains standard abbreviation (code) and its description. For example, **"CM2"** and **"Square Centimeters"**. The name of this collection is formed by the name of this property plus word “Values”. For example, [ShipmentArticleTariff](#) class has an `UnitOfMeasure1` property. A list of possible values name is `UnitOfMeasure1Values`.

**3. System Alerts.** System alerts is a way to show incoming message information to user in a time. For example, a work with customs entry document isn't finished when cargo release and duty payment process are finished. So-called liquidation process can still continue for a long time period. During this period Customs sends Entry Summary Status Notification and Courtesy Notice messages. “Old” but still not liquidated customs entries go to past and become non-visible for user who is usually interested in current entries. Respectively, “old” entry statuses and events become non-visible also. In the case if such late Customs message will come for “old” entry a user can miss it. To avoid this you can use system alerts. They can be displayed on a form until user confirm that he reviewed them.

**3. Last Statuses and Events.** Last statuses and events in SMS-system are used to record a current state and a history of a document (or directory) object. Last status object contains a number of enumerators those are helpful in a document program processing. Event objects among other properties contains free form text and is more user-oriented.

## 2. Base classes.

### 2.1. Entity Base.

**Class:** [\[DataContract\]](#)

SMS.Broker.DataContracts.[EntityBase](#): [IEntityLink](#), [IComparable](#)

Base class for all entities. Each instance of its derived classes becomes one record in a database.

#### Constructors:

Name	Description
<code>EntityBase()</code>	EntityGuid is initialized by new unique Guid.

#### Properties:

Attributes	Name	Type	Description
<a href="#">[DataMember]</a>	EntityGuid	<a href="#">string</a>	It is used for data identification when it was not still saved to database (on this case <code>Id = 0</code> ) and initialized in constructor. If <code>Id</code> was assigned it is set to null.
	EntityIsNew	<a href="#">bool</a>	if <code>Id = 0</code> then <a href="#">true</a> else <a href="#">false</a>
	EntityLink	<a href="#">EntityLink</a>	Entity link, serves as unique identifier.
<a href="#">[Key]</a> <a href="#">[DataMember]</a>	Id	<a href="#">Int64</a>	Primary key is auto-incremental. 0 value is for new entity. After entity will be saved to table the next auto-incremental value is assigned. There is no a need to set or change it. It is for internal system infrastructure. It can be used to get entity (database row) by primary key <code>Id</code> .
	Link	<a href="#">string</a>	String representation of entity link. In derived classes looks like “Contact=14”, “CustomsEntry=55” and so on.
<a href="#">[DataMember]</a>	RowVersion	<a href="#">byte[]</a>	It is used to detect changes and prevent data

[Timestamp]			saving if source already was changed on database side.
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#### Methods:

Attributes	Name	Type	
	CreateCollections()	void	Create all child collections. [1]
	GetProperty(string name)	object	Gets a value of a property.
	HasProperty(string name)	bool	Returns true if a property with the name exists.
	SetProperty(string name, object value)	void	Sets a property to some value.
	ToDetailtString()	string	Returns detailed text representation.
	ToShortString()	string	Returns short text representation.
	ToString()	string	Returns text representation.
	TrackPropertyChangesEvents(string propertyname)	bool	For internal use.
	TrackSaveChangesEvents()	bool	For internal use.

[1] - For example for `ImporterSecurityFiling`

```
public override void CreateCollections()
{
    Shipments = new List<Shipment>();
    Commodities = new List<ImporterSecurityFilingCommodity>();
}
```

**Interface:** `[ServiceContract]`  
SMS.Broker.ServiceContracts.IEntityManager<T> where T: class  
Base interface for all entity managers.

#### Methods:

Attributes	Name	Type	Description
[OperationContract] [FaultContract(typeof(ActionFault))]	Count()	int	Returns a number of entities in a database
[OperationContract] [FaultContract(typeof(EntryUpdateFault))] [FaultContract(typeof(ActionFault))]	Delete(T entity)	void	Deletes an entity from a database.
[OperationContract] [FaultContract(typeof(ActionFault))]	Get(long Id, string include, string option = null)	T	Gets an entity by primary key Id. "include" is a string that contains navigation property names separated by commas. (See Entity Framework <i>include</i> ) [1]
[OperationContract] [FaultContract(typeof(ActionFault))]	GetEntityType()	Type	Gets Type of T
[OperationContract]	GetEvents(long id, bool	List<Entity	Get a list of entity

[FaultContract(typeof(ActionFault))]	includeText = true)	Event>	events by entity Id.
[OperationContract] [ServiceKnownType(typeof(int[]))] [ServiceKnownType(typeof(long[]))] [ServiceKnownType(typeof(string[]))] [ServiceKnownType(typeof(decimal[]))] [ServiceKnownType(typeof(DateTime[]))] [ServiceKnownType(typeof(EntityEventType))] [FaultContract(typeof(ActionFault))]	GetPage(EntityPageQuery pageQuery)	EntityPage< T>	Allows to get some list of entities. pageQuery – parameters for sampling.
[OperationContract] [FaultContract(typeof(ActionFault))]	New(long? sourceId)	T	Creates a new entity with new child collections. Their Count property is zero. source Id is an Id of a source or null.
[OperationContract] [FaultContract(typeof(EntryValidationFault))] [FaultContract(typeof(EntryUpdateFault))] [FaultContract(typeof(ActionFault))]	Save(T entity)	T	Saves to database. Returns saved entity. If Id is 0 then result has an Id for added row.
[OperationContract] [FaultContract(typeof(EntryValidationFault))] [FaultContract(typeof(ActionFault))]	ValidateTreeById(long id, string action)	void	[2]

[1] – **string** option parameter in Get() method is for internal use. If you program on API level only don't use this parameter.

[2] – Validates entity and related object for some actions.

May be some specific action.

For example, for ISF it can be "QUE SF" – it means that the entity will be validated with all its collections needed to be send to Customs. (ISF with related Shipments, Contacts, Commodities and etc.)

## 2.2. Entity Directory.

**Class:** [DataContract]

SMS.Broker.DataContracts.EntityDirectory: EntityBase

Base class for all directories (Contact, Carrier, CountryInfo, User etc.).

### Constructors:

Name	Description
EntityDirectory()	

### Properties:

Attributes	Name	Type	Description
[Required] [StringLength(10)] [DataMember]	Code	string	Usually unique code for item (entity) in a directory. SCAC code, FIRMS code and so on.
[DataMember]	IsMarkedForDelete	bool	For future use
[DataMember]	IsNotActual	bool	For future use
[DataMember]	Name	string	Name of directory item.
[DataMember] [StringLength(200)]	UserRemark	string	Some user text.
[StringLength(2)] [DataMember]	UserRemarkType	string	Type of remark. Has Possible values.

**Methods:**

Attributes	Name	Type	
	ToString()	string	Returns text representation of entity.

**Interface:**

[ServiceContract]

SMS.Broker.ServiceContracts.IEntityManagerDirectory&lt;T&gt; : IEntityManager&lt;T&gt;

where T : EntityDirectory

Base interface for all directory entity managers.

**Methods:**

Attributes	Name	Type	Description
[OperationContract] [FaultContract(typeof(ActionFault))]	GetByCode(string code, string include)	T	Gets a directory entity by Code field. "include" is a string that contains navigation property names separated by commas. (See Entity Framework include)
[OperationContract] [FaultContract(typeof(ActionFault))]	GetByName(string name, SMS.Broker.Common.StringSearchType searchType, string include)	List<T>	Gets a directory entity by Name field.  searchType is an enum value (FullMatch, StartsWith or Contains), "include" is a string that contains navigation property names separated by commas. (See Entity Framework include)
[OperationContract] [FaultContract(typeof(ActionFault))]	SetUserRemark(long id, string type, string remark)	void	Set user remark to directory entity by its Id. remark – some text, type – type of remark.
[OperationContract] [FaultContract(typeof(ActionFault))] [FaultContract(typeof(EntryValidationFault))]	UnVoid(long id)	void	Mark void directory entity as non-void by its Id.
[OperationContract] [FaultContract(typeof(ActionFault))] [FaultContract(typeof(EntryValidationFault))]	Void(long id)	void	Mark directory entity as void by its Id.

**2.3. Entity Document.****Class:** [DataContract]

SMS.Broker.DataContracts.EntityDocument: EntityBase

Base class for all documents (Customs entry, ISF, In-bonds etc).

**Constructors:**

Name	Description
EntityDocument()	

**Properties:**

Attributes	Name	Type	Description
[DataMember]	Creator	User	Person who created a document.
[DataMember]	Creator_Id	long?	User_Id of a person who created a document.
[Required] [DataMember] [Column(TypeName = "date")]	Date	DateTime	Date of document (only date without time stamp)
[DataMember]	InProcess	bool	For future use
[DataMember]	IsMarkedForDelete	bool	For future use
[DataMember]	IsNotActual	bool	For future use
[Required] [DataMember] [Index(true)]	Number	long	Unique number for document - Customs entry, ISF, In-bond etc. It can be adjusted by related Sequence.
[DataMember]	ResponsiblePerson	User	User_Id of a person who is responsible for a document.
[DataMember]	ResponsiblePerson_Id	long?	Person who is responsible for a document.
[DataMember] [StringLength(200)]	UserRemark	string	Some user text.
[StringLength(2)] [DataMember]	UserRemarkType	string	Type of remark. Has Possible values.

**Methods:**

Attributes	Name	Type	
	ToString()	string	Returns text representation of entity.

**Interface:**

[ServiceContract]

SMS.Broker.ServiceContracts.IIEntityManagerDocument&lt;T&gt; : IEntityManager&lt;T&gt;

where T : EntityDocument

Base interface for all document entity managers.

**Methods:**

Attributes	Name	Type	Description
[OperationContract] [FaultContract(typeof(ActionFault))]	GetByNumber(long Number);	T	Gets a document by its Number.
[OperationContract] [FaultContract(typeof(ActionFault))] [FaultContract(typeof(EntryValidationFault))]	Post(long id)	void	Post document.
[OperationContract] [FaultContract(typeof(ActionFault))]	SetUserRemark(long id, string type, string remark)	void	Set user remark to document by its Id. remark – some text, type – type of remark.

[OperationContract] [FaultContract(typeof(ActionFault))] [FaultContract(typeof(EntryValidationFault))]	UnPost(long id)	void	Undo document posting.
[OperationContract] [FaultContract(typeof(ActionFault))] [FaultContract(typeof(EntryValidationFault))]	UnVoid(long id)	void	Mark void document entity as non-void by its Id.
[OperationContract] [FaultContract(typeof(ActionFault))] [FaultContract(typeof(EntryValidationFault))]	Void(long id)	void	Mark document entity as void by its Id.

## 2.4. Entity Child.

**Class:** [DataContract]

SMS.Broker.DataContracts.EntityChild: EntityBase

Base class for all "dependent" child classes (see Special Notes, 1) such as [ContactBankAccount](#), [ShipmentArticleTariff](#), [ImporterSecurityFilingCommodity](#), [ContactBondInfo](#) etc.

**Constructors:**

Name	Description
EntityChild()	

**Properties:**

Attributes	Name	Type	Description
[DataMember]	Line	int	Sequence number of a child entity
[NotMapped]	RootEntityLink	SMS.Broker.DataContracts.EntityLink	EntityLink of a root parent

**Methods:**

Attributes	Name	Type	
	Down(IEnumerable<EntityChild> list)	void	Changes the order of current and next child entities in a list sorted by line number. Current child entity acquires the line number of the next child entity and vise versa.
	SetNextLine(IEnumerable<EntityChild> list)	void	Set Line property to the next value (Maximum line number in the list + 1)
	ToString()	string	Returns "Line #: " + Line
	Up(IEnumerable<EntityChild> list)	void	Changes the order of current and previous child entities in a list sorted by line number. Current child entity acquires the line number of the previous child entity and vise versa.

## 3. Sequences.

**Class:** [DataContract]

SMS.Broker.DataContracts.Sequence: EntityDirectory

Sequences allow to generate the next number for some sequence name.

**Constructors:**

Name	Description
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Sequence()	
------------	--

#### Properties:

Attributes	Name	Type	Description
[Required] [StringLength(80)] [DataMember]	Code	string	Code ("Shipment", "CustomsEntry" etc.)
[DataMember]	Current	Int64	Last generated number
[Required] [StringLength(120)] [DataMember]	Name	string	Name

**Class:** SMS.Broker.Common.KnownSequences

Class contains the name of known sequences as a property.

```
public const string Shipment = "Shipment";
public const string ImporterSecurityFiling = "ImporterSecurityFiling";
public const string CustomsEntry = "CustomsEntry";
public const string DeliveryOrder = "DeliveryOrder";
public const string PGA = "PGA";
public const string DIS = "DIS";
public const string InBond = "InBond";
public const string Drawback = "Drawback";
```

These sequences are used to assign the next number of related document.

#### Example:

```
var manager entity =
ClientContext.ServicesFactory.GetManager<IImporterSecurityFilingManager>();
var entity = manager.New(null); // Manager returns the new isf object with property
// "Number" filed with the next number of used sequence
// ("ImporterSecurityFiling"). "Current" property of
// sequence will become equal to this number.
```

## 4. Entity Event.

**Class:** [DataContract]

SMS.Broker.DataContracts.Common.EntityEvent: EntityBase

This class is used to handle some events.

#### Properties:

Attributes	Name	Type	Description
[DataMember]	ABITransmission	ABITransmission	Related transmission (if exists)
[DataMember]	ABITransmission_Id	long?	Related transmission Id
[StringLength(200)] [DataMember]	Message	string	Event subject message.
[StringLength(60)] [DataMember]	ReferenceLink1	string	Link to related entities or some specific info
[StringLength(60)] [DataMember]	ReferenceLink2	string	Link to related entities or some specific info
[StringLength(60)] [DataMember]	ReferenceLink3	string	Link to related entities or some specific info
[StringLength(60)] [DataMember]	SourceLink	string	Link of entity which status belongs to



[DataMember] [Obsolete]	Status	EntityStatus	Obsolete.  Related status.
[DataMember] [Obsolete]	Status_Id	long?	Obsolete.  Related status Id.
[StringLength(50)] [DataMember]	StatusSubject	string	Status subject of related last status actual at the time of transaction.
[DataMember]	StatusType	EntityStatusType	Type of related last status actual at the time of transaction
[DataMember]	StatusValue	EntityStatusValue	Value of related last status actual at the time of transaction
[Column(TypeName = "text")] [DataMember]	Text	string	Event text
[DataMember]	Time	DateTime	Time of event
[DataMember]	Type	EntityEventType	Type of status [1]
[DataMember]	User	User	Initiator – User
[DataMember]	User_Id	long	Initiator – User Id

[1] **EntityEventType** enumerator:

**EntityEventType.Added** – object added to database,  
**EntityEventType.Modified** – object modified on database,  
**EntityEventType.Deleted** – object deleted from database,  
**EntityEventType.Info** – information event,  
**EntityEventType.ABI** – related to Customs ABI,  
**EntityEventType.Status** – some status was changed,  
**EntityEventType.Warning** – warning event,  
**EntityEventType.User** – user event.

**Interface:**      [ServiceContract]  
 SMS.Broker.ServiceContracts.Common.I**EntityEventManager**:  
**IEntityManager<EntityEvent>**  
 Designed to work with events. See Operation Contracts of base classes.

#### Methods:

Attributes	Name	Type	Description
[OperationContract] [FaultContract(typeof(ActionFault))]	GetABIEvents(string link, bool includeText = true)	List<EntityEvent>	Gets an event of <b>EntityEventType.ABI</b> type by link of object. If includeText is <b>true</b> returns event object with Text property filled.
[OperationContract] [FaultContract(typeof(ActionFault))]	AddEvent(string link, <b>EntityEventType</b> type, string message, string text, string ref1, string ref2, string ref3, long? ABITransmissionId = null)	void	Add event.
[OperationContract] [FaultContract(typeof(ActionFault))] [FaultContract(typeof(EntryValidationFault))]	Void(long id)	void	Make event void.
[OperationContract]	UnVoid(long id)	void	Undo void operation.

[FaultContract(typeof(ActionFault))] [FaultContract(typeof(EntryValidationFault))]			
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## 5. Entity Link.

**Class:** [DataContract]

SMS.Broker.DataContracts.EntityLink: IEntityLink

It is a special class that identifies one data record.

**Constructors:**

Name	Description
EntityLink(string entityTypeName, long id)	Initializes a new instance of the <a href="#">EntityLink</a> class.
EntityLink(Type entityType, long id)	Initializes a new instance of the <a href="#">EntityLink</a> class.
EntityLink(string entityTypeName, string guid)	Initializes a new instance of the <a href="#">EntityLink</a> class.
EntityLink(string link)	Initializes a new instance of the <a href="#">EntityLink</a> class.

**Properties:**

Attributes	Name	Type	Description
	EntityType	Type	Type of entity
[DataMember]	EntityTypeName	string	Type name of entity.
[DataMember]	Guid	string	Is used if Id = 0. [1]
[DataMember]	Id	long	Entity Id. 0 for new entity (entity that was not saved to database yet) [1]
	Link	string	<a href="#">IEntityLink.Link</a> [1] Realization of <a href="#">IEntityLink</a> interface Link property.

[1] – delimiter is “=”

if Id is 0

Link = EntityTypeName + delimiter + Guid

else

Link = EntityTypeName + delimiter + Id.ToString()

Example:

“Contact=55” // The record of Contacts table where Id = 55

“Contact=e661a76f-a63f-4b99-994c-5e32db2c911f” // A future record of Contacts table if Id = 0 (when it was // not saved yet).

“ImporterSecurityFiling=88” // The record of ImporterSecurityFilings table where Id = 88

## 6. Entity Page Query.

**Class:** [DataContract]

SMS.Broker.DataContracts.EntityPageQuery

Class is used for entities sampling.

**Properties:**

Attributes	Name	Type	Description
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[DataMember]	Criteria	string	Filter criteria. [3]
[DataMember]	Include	string	Contains navigation property names separated by commas. It is used to get object's properties and collections those are not returned by default.
[DataMember]	Navigation	NavigationType	Default – Refresh [1]
[DataMember]	Option	string	Specific options for some managers.
[DataMember]	Order	List<OrderItem>	Allows to order items. [2]
[DataMember]	PageSize	int	Maximum elements that will be returned. 40 elements is default.
[DataMember]	Parameters	List<Parameter>	Specific parameters for some managers.
[DataMember]	Position	int	Position of the first element. Default value is 0.
[DataMember]	QueryTotalCount	bool	Calculates and returns a count of all available elements. Requires more time for execution. Default value is true.
[DataMember]	RequestFullList	bool	Request a full list. For a big data the timeout exception can be raised. Default – false.

[1] enumerator – NavigationType

NavigationType.Refresh – returns a list starting with q.Position,  
 NavigationType.First – returns the first page list starting with the first record,  
 NavigationType.Previous – returns the previous page starting with q.Position - q.PageSize,  
 NavigationType.Next – returns the next page starting with q.Position + q.PageSize,  
 NavigationType.Last – returns the last page list starting with the last record - q.PageSize.

[2] List<OrderItem> is a list of properties and sort orders.

OrderItem.Name – name of property to be ordered.  
 OrderItem.IsDesc – sort order: false for ascending, true for descending orders.

## 7. Entity Last Status.

**Class:** [DataContract]

SMS.Broker.DataContracts.Common.EntityLastStatus: EntityBase

This class is used to handle last statuses of entities (documents, directories).

**Properties:**

Attributes	Name	Type	Description
[DataMember]	ABIQuery	ABIQuery	ABI query data
[DataMember]	ABIQuery_Id	long?	ABI query Id if this status belongs to ABI query else null
[DataMember]	ABITransmission	ABITransmission	ABI transmission data
[DataMember]	ABITransmission_Id	long?	ABI transmission Id if this status belongs to ABI transmission else null
[DataMember]	BreakBulk	BreakBulk	Breakbulk data

[DataMember]	BreakBulk_Id	long?	Breakbulk Id if this status belongs to Breakbulk else null
[DataMember]	CashReceipt	CashReceipt	Cash Receipt data
[DataMember]	CashReceipt_Id	long?	Cash Receipt Id if this status belongs to Cash Receipt else null
[DataMember]	Contact	Contact	Contact data
[DataMember]	Contact_Id	long?	Contact Id if this status belongs to contact else null
[DataMember]	CustomerInvoice	CustomerInvoice	Customer invoice data
[DataMember]	CustomerInvoice_Id	long?	Customer invoice Id if this status belongs to Customer invoice else null
[DataMember]	CustomsEntry	CustomsEntry	Customs entry data
[DataMember]	CustomsEntry_Id	long?	Customs entry Id if this status belongs to customs entry else null
[DataMember]	DIS	DIS	DIS data
[DataMember] [DataMember]	DIS_Id	long?	DIS Id if this status belongs to DIS else null
[DataMember]	Drawback	Drawback	Drawback data
[DataMember]	Drawback_Id	long?	Drawback Id if this status belongs to drawback else null
[DataMember]	EBondQuery	EBondQuery	e-Bond query data
[DataMember]	EBondQuery_Id	long?	e-Bond query Id if this status belongs to e-Bond query else null
[DataMember]	DeliveryOrder	DeliveryOrder	Delivery order data
[DataMember]	DeliveryOrder_Id	long?	Delivery order Id if this status belongs to Delivery order else null
[DataMember]	FTZe214	FTZe214	FTZ admission data
[DataMember]	FTZe214_Id	long?	FTZ admission data Id if this status belongs to FTZ admission data else null
[DataMember]	ImporterSecurityFiling	ImporterSecurityFiling	Importer Security Filing data
[DataMember]	ImporterSecurityFiling_Id	long?	ISF Id if this status belongs to ISF else null
[DataMember]	InBond	InBond	In-bond data
[DataMember]	InBond_Id	long?	In-bond Id if this status belongs to In-bond else null
[DataMember]	InBondBill	InBondBill	In-bond bill data
[DataMember]	InBondBill_Id	long?	In-bond bill Id if this status belongs to In-bond bill else null
[DataMember]	InBondUpdate	InBondUpdate	In-bond update data
[DataMember]	InBondUpdate_Id	long?	In-bond update Id if this status belongs to In-bond update else null
[DataMember]	Payment	Payment	Payment data
[DataMember]	Payment_Id	long?	Payment Id if this status belongs to Payment else null
[DataMember]	ReconEntry	ReconEntry	Reconciliation entry data

[DataMember]	ReconEntry_Id	long?	Reconciliation entry Id if this status belongs to Reconciliation entry else null
[DataMember]	Shipment	Shipment	Shipment data
[DataMember]	Shipment_Id	long?	Shipment Id if this status belongs to shipment else null
[DataMember]	Source	string	Source
[DataMember]	StatementDaily	StatementDaily	Daily statement data
[DataMember]	StatementDaily_Id	long?	Daily statement Id if this status belongs to daily statement else null
[DataMember]	Status	EntityStatusType	Type of status [1]
[IgnoreDataMember] [NotMapped]	StatusEntity	EntityBase	Return the entity related to that status (ISF, CE, In-bond, etc)
[IgnoreDataMember] [NotMapped]	StatusEntityLink	string	String link to StatusEntity object.
[DataMember]	Subject	string	Subject
[DataMember]	SystemAlert	SystemAlert	System alert data.
[DataMember]	SystemAlert_Id	long?	System alert Id if this status belongs to ABI query else null
[DataMember]	Text	string	Text of status [3]
[DataMember]	TextType	EntityStatusTextType	Text type of property Text [3]
[DataMember]	Time	DateTime	Time of status
[DataMember]	User	User	Initiator – User
[DataMember]	User_Id	long	Initiator – User Id
[DataMember]	Value	EntityStatusValue	Value of status [2]
[DataMember]	Voucher	Voucher	Voucher data
[DataMember]	Voucher_Id	long?	Voucher Id if this status belongs to Voucher else null

#### Methods:

Attributes	Name	Type	Description
	StatusInfo()	string	Returns info about status.  Time.ToString() + " [" + User.Name + "]" + ToShortString();
	ToDetailString()	string	Returns detailed object's text representation. Time.ToString() + " [" + User.Name + "]" + ToShortString() + "(" + Id.ToString() + ")"
	ToShortString()	string	Returns short object's text representation.
	ToString()	string	Returns object's text representation.

[1] enumerator – **EntityType**:

[EnumMember(Value = "None")]  
None = 0,

[EnumMember(Value = "ABI App QUE status")]  
ABIAppQUE = 1  
Status for QUE process ("Put to QUE", "Sent", "Accepted", etc),

[EnumMember(Value = "ABI App Customs status")]  
ABIAppCustoms = 2  
Status of a document on Customs side ("No in customs", "Accepted in Customs", "Bill on file", etc),

[EnumMember(Value = "Document calculated")]  
DocumentCalculated = 3  
Status of documents ("Yes", "No").

[2] enumerator – **EntityStatusValue**

[EnumMember(Value = "None")]  
None = 0,

**EntityType.ABIAppQUE:**

[EnumMember(Value = "Put to QUE")]  
ABIAppPutToQUE = 1,

[EnumMember(Value = "Sent")]  
ABIAppSent = 2,

[EnumMember(Value = "Rejected")]  
ABIAppRejected = 5,

[EnumMember(Value = "Put to QUE Error")]  
ABIAppPutToQUEError = 6,

[EnumMember(Value = "Incoming error")]  
ABIAppIncomingError = 7,

[EnumMember(Value = "Incoming")]  
ABIAppIncoming = 8,

[EnumMember(Value = "Removed from QUE")]  
ABIAppRemoveFromQUE = 9,

[EnumMember(Value = "QUE in process")]  
ABIAppQUEInProgress = 10,

**EntityType.ABIAppCustoms:**

[EnumMember(Value = "Accepted in Customs")]  
ABIAppCustomsAccepted = 51,

[EnumMember(Value = "Accepted with warning in Customs")]  
ABIAppCustomsAcceptedWithWarning = 52,

[EnumMember(Value = "Bill on file")]  
ABIAppCustomsBillOnFile = 53,

[EnumMember(Value = "Deleted in customs")]  
ABIAppCustomsDeletedInCustoms = 54,

[EnumMember(Value = "No bill on file")]  
ABIAppCustomsNoBillOnFile = 55,

[EnumMember(Value = "Expired")]  
ABIAppCustomsExpired = 56,

[EnumMember(Value = "Cargo released")]  
ABIAppCustomsCargoReleased = 57,

[EnumMember(Value = "In process")]  
ABIAppCustomsInProcess = 58,

[EnumMember(Value = "Preliminary")]  
ABIAppCustomsPreliminary = 59,

[EnumMember(Value = "Authorized")]  
ABIAppCustomsAuthorized = 60,

[EnumMember(Value = "Final")]  
ABIAppCustomsFinal = 61,

[EnumMember(Value = "Add pending")]  
ABIAppAddPending = 62,

[EnumMember(Value = "Delete pending")]  
ABIAppDeletePending = 63,

[EnumMember(Value = "Yes")]  
Yes = 100,

[EnumMember(Value = "No")]  
No = 101.

[3] enumerator – [EntityStatusTextType](#):

[EntityStatusTextType](#).None –  
[EntityStatusTextType](#).Error –  
[EntityStatusTextType](#).EntryValidationFault –

any text,  
error (unexpected error, usually `Exception.Message`),  
It is used when we put document to QUE (send it to  
Customs) using call (`OperationContract(IsOneWay =  
true)`). Server will validate the entity and if it is not valid  
this [EntityStatusTextType](#) is used. Text property will contain  
`FaultException<EntryValidationFault>` object serialized by  
`DataContractSerializer`, object can be deserialized and  
shown to user.

Sample:

Class [ImporterSecurityFiling](#) has a property

```
[DataMember]  
[InverseProperty("ImporterSecurityFiling")]  
public virtual List<EntityLastStatus> LastStatuses { get; set; }
```

**Class:** SMS.Broker.DataContracts.Common.EntityLastStatusExtensions

This class contains a set of extension methods.

**Static methods:**

Attributes	Name	Type	Description
	Status( <b>this</b> <code>List&lt;EntityLastStatus&gt;</code> statuses, <code>EntityStatusType</code> type, <code>params string[]</code> subjects)	<code>EntityLastStatus</code>	Returns last status object by its type (Status property) and one or more subject(s) from collection of last statuses.
	Status( <b>this</b> <code>List&lt;EntityLastStatus&gt;</code> statuses, <code>EntityStatusType</code> type, <code>EntityBase</code> entity = <code>null</code> , <code>params string[]</code> subjects)	<code>EntityLastStatus</code>	Returns last status object by its type (Status property), entity and one or more subject(s) from collection of last statuses.
	Status( <b>this</b> <code>List&lt;EntityLastStatus&gt;</code> statuses, <code>EntityStatusType</code> type, <code>EntityLink</code> elink = <code>null</code> , <code>params string[]</code> subjects)	<code>EntityLastStatus</code>	Returns last status object by its type (Status property), entity link and one or more subject(s) from collection of last statuses.
	ToString( <b>this</b> <code>List&lt;EntityLastStatus&gt;</code> statuses, <code>EntityStatusType</code> type, <code>TimeZoneInfo</code> tz, <code>params string[]</code> subjects)	<code>string</code>	Returns StatusInfo() <code>string</code> values separated by " <code>\r\n</code> " of last statuses collection selected by their type (Status property) and one or more subject(s) for some time zone.

Sample:

```
statuses.ToString(type, SMS.Broker.ClientContext.ClientTimeZone, subjects);
```

Where statuses is a `List<EntityLastStatus>` collection.

On the table below you can see a sequence in which status values of a document/directory are changed while data exchange. This part of status values is common for all documents/directories those are sent to Customs. All these values have one and the same status type – `EntityStatusType.ABIAppeQUE`. The further data exchange suggests another status type - `EntityStatusType.ABIAppeCustoms` and another status values those are special for different documents. To see them please look at the description of last status objects for each document/directory type (ISF, Contact and so on).

Outgoing File – Any Customs incoming (our outgoing) file.

Incoming File – Any Customs outgoing (our incoming) file.

The actions which suggest some workflow problem are marked in red.

Table 5

Action	Status	Value
Outgoing File Put to queue→	<code>EntityStatusType.ABIAppeQUE</code>	<code>EntityStatusValue.ABIAppePutToQUE</code>
Outgoing File ←Put to queue error	<code>EntityStatusType.ABIAppeQUE</code>	<code>EntityStatusValue.ABIAppePutToQUEError</code>
Outgoing File ←Remove (if necessary)	<code>EntityStatusType.ABIAppeQUE</code>	<code>EntityStatusValue.ABIAppeRemoveFromQUE</code>
Outgoing File Transmit→	<code>EntityStatusType.ABIAppeQUE</code>	<code>EntityStatusValue.ABIAppeSent</code>
Incoming File ←Get file	<code>EntityStatusType.ABIAppeQUE</code>	<code>EntityStatusValue.ABIAppeIncoming</code>



Incoming File ←Get with error	EntityStatusType.ABIAppQUE	EntityStatusValue.ABIAppIncomingError
Incoming File ←Rejected	EntityStatusType.ABIAppQUE	EntityStatusValue.ABIAppRejected

**Interface:** [ServiceContract]  
SMS.Broker.ServiceContracts.Common.IEntityStatusManager:  
IEntityManager<EntityStatus>  
Designed to work with statuses. See Operation Contracts for base classes.

## 8. Parameter.

**Class:** [DataContract]  
SMS.Broker.DataContracts.Parameter

Represents some parameter. In general case its can be used in different methods, in particular in put to queue operation methods.

### Properties:

Attributes	Name	Type	Description
[DataMember]	Description	string	Parameter description.
[DataMember]	Expression	string	Expression (for example, "DateTime.Today") that can be set instead of Value setting.
	IsNull	bool	Returns true if parameter value is null;
[DataMember]	Name	string	Parameter name.
	Type	Type	Parameter type.
[DataMember]	TypeName	string	Has possible values.
[DataMember]	Value	object	Parameter value.
	ValueAsArrayOfLong	long[]	Parameter value as Int64 array.
	ValueAsBoolean	bool	Parameter value as boolean.
	ValueAsDateTime	DateTime	Parameter value as DateTime.
	ValueAsDateTimeOrNull	DateTime?	Parameter value as DateTime?.
	ValueAsEntityBase	EntityBase	Parameter value as EntityBase.
	ValueAsInt64	long	Parameter value as Int64.
	ValueAsString	string	Parameter value as string.

### Instance methods:

Attributes	Name	Type	Description
------------	------	------	-------------

	ToString()	string	Returns object's text representation.
--	------------	--------	---------------------------------------

#### Static methods:

Attributes	Name	Type	Description
	Parameters(string names, params object[] values)	List<Parameter>	Converts names and values to a list of parameters. string names contains parameter names separated by commas (for example "Customer, Checked").

## 9. Possible Values.

**Struct:** SMS.Broker.Common.PossibleValue

Structure that represents possible value.

#### Constructors:

Name	Description
PossibleValue(object value, string description)	Initializes a new instance of the PossibleValue

#### Properties:

Attributes	Name	Type	Description
[DataMember]	Description	string	Description of possible value.
[DataMember]	Value	object	Possible value.

#### Instance methods:

Attributes	Name	Type	Description
	ToString()	string	Returns the value with its description.

## 10. System Alert.

**Class:** [DataContract]

SMS.Broker.DataContracts.Common.SystemAlert : EntityBase

#### Properties:

Attributes	Name	Type	Description
[DataMember]	Contact	Contact	Related contact.
[DataMember]	Contact_Id	long?	Related contact Id.

[DataMember] [StringLength(20)]	DocumentType	string	Specific document type. Has Possible Values.
[DataMember]	Files	string	A name or file attached to alert.
[DataMember] [StringLength(200)]	Message	string	Alert subject text.
[DataMember]	ReadingTime	DateTime?	Reading (confirmation) time.
[DataMember]	ResponsiblePerson	User	User who confirmed the alert.
[DataMember]	ResponsiblePerson_Id	long?	Id of a user who confirmed the alert..
[DataMember] [StringLength(60)]	SourceLink	string	Entity link of a source document string representation.
[DataMember]	SourceResponsiblePerson	User	Responsible person of related document.
[DataMember]	SourceResponsiblePerson_Id	long?	Responsible person of related document Id.
[Column(TypeName = "text")] [DataMember]	Text	string	Alert message text.
[DataMember] [DateTimeUTC]	Time	DateTime	Time when alert was received.
[DataMember] [StringLength(20)]	Type	string	Alert type. Has Possible Values.
[DataMember] [StringLength(200)]	UserRemark	string	User remark. Some info that is significant for user and can be added by him to document.
[StringLength(2)] [DataMember]	UserRemarkType	string	Has Possible Values.

**Interface:** [ServiceContract]  
SMS.Broker.ServiceContracts.Common.ISystemAlertManager :  
IEntityManager<SystemAlert>

**Instance methods:**

Attributes	Name	Type	Description
[OperationContract]	Confirm(long id)	void	Confirms an alert.
[OperationContract]	GetNotConfirmedSystemAlerts(string type)	List<SystemAlert>	Returns alerts those were not confirmed yet.
[OperationContract]	SetUserRemark(long id, string type, string remark)	void	Set user remark to some type and value.

## 11. Validation.

### 11.1. Action Faults.

**Class:** [DataContract]

SMS.Broker.Faults.ActionFaults

Used for actions not related to entity. Thrown if some action has a validation problem.

**Constructors:**

Name	Description
ActionFaults()	

**Properties:**

Attributes	Name	Type	Description
[DataMember]	Faults	List<ActionFaultEntry>	List of validation errors

**Instance methods:**

Attributes	Name	Type	Description
	ToString()	string	Returns object's text representation.

#### 11.1.1 Action Fault Entry.

**Class:** [DataContract]

SMS.Broker.Faults.ActionFaultEntry

**Properties:**

Attributes	Name	Type	Description
[DataMember]	ErrorCode	string	Error code.
[DataMember]	Message	string	Error message.
[DataMember]	Parameters	string	Parameters with error.
[DataMember]	Subject	string	Subject.

### 11.2. Entry Validation Fault.

**Class:** [DataContract]

SMS.Broker.Faults.EntryValidationFault

Thrown if some entity has a validation problem.

**Constructors:**

Name	Description
EntryValidationFault()	
EntryValidationFault(List<EntryValidationError> errors)	

**Properties:**

Attributes	Name	Type	Description
[DataMember]	EntityLinkForEditForm	string	Link of root entity [1]
[DataMember]	EntryValidationErrors	List<EntryValidationError>	List of validation errors

[1] For example, if Shipment has a validation error then EntityLinkForEditForm can be a link to

Shipment class object

CustomsEntry class object

ImporterSecurityFilling class object

- if it calls from shipment edit form.

- if it calls from customs entry edit form.

- if it calls from ISF edit form.

**Methods:**

Attributes	Name	Type	Description
	GetEntityError(string link)	EntryValidationError	Returns EntryValidationError from collection for some entity by its link. If it was not found then null.
	Throw(List<EntryValidationError> errors)	void	Rise new FaultException<EntryValidationFault> with errors.
	ToString()	string	Returns the text representation of all errors (EntryValidationErrors objects collection).

**11.2.1 Entry Validation Error.**

**Class:** [DataContract]

SMS.Broker.Faults.EntryValidationError

**Constructors:**

Name	Description
EntryValidationError()	
EntryValidationError(EntryValidationError error)	

**Properties:**

Attributes	Name	Type	Description
[DataMember]	Details	List<EntryValidationErrorDetail>	Error details.
[DataMember]	EntityLink	EntityLink	Link to validated object.
[DataMember]	Representation	string	String representation of validated object.
[DataMember]	RootEntityLink	EntityLink	Link to root object.

**Methods:**

Attributes	Name	Type	Description
------------	------	------	-------------

	Add(string property, string value, string errorMessage)	EntryValidationErrorDetail	Adds error info to Details collection.
	GetPropertyError(string property)	EntryValidationErrorDetail	Returns EntryValidationErrorDetail for some property, otherwise null.
	Throw()	void	Rise new FaultException<EntryValidationFault> with errors.

#### 11.2.1.1 Entry Validation Error Detail.

**Class:** [DataContract]  
SMS.Broker.Faults.EntryValidationErrorDetail

##### Properties:

Attributes	Name	Type	Description
[DataMember]	ErrorCode	string	Error code.
[DataMember]	ErrorMessage	string	Error message.
[DataMember]	Parent	EntryValidationError	Owner of this error.
[DataMember]	Property	string	Property name.
[DataMember]	ValueAsString	string	Value string representation.

## 12. User.

**Class:** [DataContract]  
SMS.Broker.DataContracts.Directories.User : EntityDirectory

Information about user.

##### Properties:

Attributes	Name	Type	Description
[NotMapped] [IgnoreDataMember]	ActiveClaims	List<Claim>	User active claims.
[NotMapped] [IgnoreDataMember]	Claims	List<Claim>	User claims.
[Required] [StringLength(10)] [DataMember]	Code	string	User login.
[DataMember]	Data	List<UserData>	
[NotMapped] [IgnoreDataMember]	DatabaseClaims	List<Claim>	User database claims.
[NotMapped] [DataMember]	DatabaseRoles	List<Role>	User database roles.
[NotMapped] [DataMember]	IsMasterUser	bool	Indicates if a user has master privileges.
[StringLength(35)] [DataMember]	LastName	string	User last name.

[Required] [StringLength(35)] [DataMember]	Name	string	User name.
[DataMember]	Properties	UserProperties	User properties.
[DataMember]	Roles	List<UserRole>	User roles.

#### Instance methods:

Attributes	Name	Type	Description
	CheckAccess(string Resource, string Operation)	bool	Check an access to a class (Resource) for some Operation.
	ToString()	string	Returns object's text representation.

**Interface:** [ServiceContract]  
SMS.Broker.ServiceContracts.Directories.IUserManager :  
IEntityManagerDirectory<User>

#### Instance methods:

Attributes	Name	Type	Description
[OperationContract]	GetUserProperties(long id, string include)	UserProperties	Gets user properties.
[OperationContract]	SetPassword(string code, string currentPassword, string newPassword)	void	Sets user password.
[OperationContract]  [FaultContract(typeof(EntryValidationFault))] [FaultContract(typeof(EntryUpdateFault))] [FaultContract(typeof(ActionFault))]	SetUserProperties(UserProperties properties)	UserProperties	Sets user properties.

## 12.1 User Properties.

**Class:** [DataContract]  
SMS.Broker.DataContracts.Directories.UserProperties : EntityBase

Information about user.

#### Properties:

Attributes	Name	Type	Description
[DataMember]	AskBeforeCloseProgram	bool	If true, the system asks a question before to close a form. It works in SMS-Shell and needs a realization on another client program.
[DataMember] [StringLength(3)]	Booking_Incoterms	string	Incoterms. (Bookings subsystem).

			Has Possible Values.
[DataMember]	CE_CheckMatchPGAValuesToTariffValue	bool	If <b>true</b> , the system compares if tariff values are equal to PGA values.
[DataMember]	CE_PrintOnlyAcceptedDocuments	bool	If <b>true</b> , CBP 3461 Form can be printed only if entry was released and CBP 7501 can be printed if Entry Summary was accepted.
[DataMember]	CE_SendAddManufacturerAddressOnEntrySaving	bool	If <b>true</b> , after Customs entry was saved the system checks if the manufacturer identifier (MID) code exists in a database and if not, sends MID to Customs for registration.
[DataMember]	ClientTimeZone	string	Client Time Zone. Has Possible Values.
[DataMember]	Contact	Contact	User as contact.
[DataMember]	Contact_Id	long?	User as contact Id.
[DataMember]	DoNotPopUpUnconfirmedSystemAlerts	bool	If <b>true</b> , the system suppresses a pop up system alert messages. It works in SMS-Shell and needs a realization on another client program.
[DataMember]	DRW_AcceleratedPaymentRequestIndicator	bool	If <b>true</b> , the system sets accelerated payment request indicator in drawbacks to <b>true</b> by default.
[DataMember] [StringLength(2)]	DRW_AccountingMethodCode	string	Default drawback accounting method code. Has Possible Values.
[DataMember]	DRW_CDIndicator	bool	Default drawback eligible certificate of delivery indicator.
[DataMember] [StringLength(4)]	DRW_ProvisionCode	string	Default drawback provision code. Has Possible Values.
[DataMember]	DRW_WPNIndicator	bool	Default drawback wavier prior notice indicator.
[DataMember]	Events_ShowAllByDefault	bool	Indicates if all events are shown in a list. It works in SMS-Shell and needs a realization on another client program.
[Key] [DataMember]	Id	new Int64	User Id.
[DataMember]	Importer	Contact	User as importer (default contact for Customs entry end ISF).
[DataMember]	Importer_Id	long?	User as importer Id.
[DataMember]	ISF_AskForQUEForNew	bool	If <b>true</b> , after a new ISF was saved the system asks whether ISF could be put to ABI queue.



[DataMember]	MailProfile	MailProfile	Mail profile related to user.
[DataMember]	MailProfile_Id	long?	Mail profile Id.
[DataMember]	MailToUseInternalMailEditorAndDirectSending	bool	If <b>true</b> , the system uses internal mail client.
[DataMember]	OpenLinkByLeftClick	bool	If <b>true</b> , links in grid open by mouse click otherwise by Ctrl + click. It works in SMS-Shell and needs a realization on another client program.
[DataMember]	PGA_CertifyingIndividual	Contact	PGA certifying individual.
[DataMember]	PGA_CertifyingIndividual_Id	long?	PGA certifying individual Id.
[DataMember]	PGA_CertifyingIndividualPointContact	Contact	PGA certifying individual point contact.
[DataMember]	PGA_CertifyingIndividualPointContact_Id	long?	PGA certifying individual point contact Id.
[DataMember]	PlaySoundForUnconfirmedSystemAlerts	bool	If <b>true</b> , the system plays sound if unconfirmed system alert appears. It works in SMS-Shell and needs a realization on another client program.
[DataMember]	SharePoint_UserName	string	Share Point user login.
[DataMember]	SharePoint_UserPassword	string	Share Point user password.
[DataMember]	Signer_CBP3461	Contact	User as CBP 3461 signer.
[DataMember]	Signer_CBP3461_Id	long?	User as CBP 3461 signer Id.
[DataMember]	Signer_CBP7501	Contact	User as CBP 7501 signer.
[DataMember]	Signer_CBP7501_Id	long?	User as CBP 7501 signer Id.
[DataMember]	Signer_DeliveryOrder	Contact	User as Delivery Order signer. (Delivery Orders subsystem).
[DataMember]	Signer_DeliveryOrder_Id	long?	User as Delivery Order signer Id.
[StringLength(2)] [DataMember]	Title	string	Title.
[DataMember] [StringLength(2)]	TransportationMode	string	Default transportation mode for shipments. Has Possible Values.
[DataMember]	User	User	A reference to a parent User object.

#### Instance methods:

Attributes	Name	Type	Description
	ToString()	string	Returns object's text representation.
	TrackSaveChangesEvents()	bool	For internal use.

**Interface:** [ServiceContract]  
SMS.Broker.ServiceContracts.Directories.IUserManager :  
IEntityManagerDirectory<User>

**Instance methods:**

Attributes	Name	Type	Description
[OperationContract]	GetUserProperties(long id, string include)	UserProperties	Gets user properties.
[OperationContract]	SetPassword(string code, string currentPassword, string newPassword)	void	Sets user password.
[OperationContract]  [FaultContract(typeof(EntryValidationFault))] [FaultContract(typeof(EntryUpdateFault))] [FaultContract(typeof(ActionFault))]	SetUserProperties(UserProperties properties)	UserProperties	Sets user properties.