

SMS Broker System
Software Integration

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

Participating Government Agencies classes and interfaces.

(ver. from 8/3/2026)

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1. Special Notes.

1. There are about 13 PGA ABI automated government agencies now and their number will only be growing in a future. Each agency has its own requirements as for PGA data filing. Respectively, this document does not purport to describe all PGA formats but only main principles used in SMS-system programming for PGA automation. For agency-specific requirements please look at: <https://www.cbp.gov/trade/automated/catair>, PGA Message Set Documents.

2. PGA workflow.

1. Having some HTS number it is possible to define what data must be present in PGA document. Customs Harmonized Tariff Scheduler (HTS) has a "Participating Government Agencies" field that contains tariff flag code (codes) related to agency (agencies), program and processing. For example, code EP1 means that Ozone Depleting Substances specific data may be required by Environmental Protection Agency (EPA). In general case the field can contain a set of such codes (3 positions per code). For more details, please look at https://www.cbp.gov/sites/default/files/2026-03/ace_agency_tariff_codes_04march2026_0.pdf

2. Used PGA records, relations between them, exact PGA fields meaning depend on agency, program and processing but anyway all PGA set can be represented as a tree structure where each PGA record is a node, has own fields and also can be a parent node for some PGA record collection. Our purpose is to build such tree for particular agency (agencies). In SMS-system PGA document as a whole consists of a header and a PGA tree.

3. In a general case PGA document looks as:

Header
→ PGOI record
→ PG01 record (for agency 1)

- subtree (PGA records of other types)
- ...
- PG01 record (for agency 2)
- subtree (PGA records of other types)
- ...
- PG01 record (for agency 3)
- subtree (PGA records of other types)
- ...
- ...

The root node of PGA tree is always PGOI record. It has a description of goods and contains a set of PG01 records (one PG01 record per agency). The common part of PGA tree is ended here and the adding of other PGA records is a non-trivial task. To simplify it, our system suggest to use PGA templates. The template is a (mostly) plain class related to some agency (maybe in addition to program and processing). You can file its properties and save it to tree structure as output.

4. PGA document is sent to Customs as a part of Cargo Release document. It is also possible to send PGA Data Corrections document as a stand-alone document.

3. PGA document.

An object of [PGA](#) class contains an info about PGA document. It consist of a header and [PGABranch](#) objects collection detail part that can be represented as a tree. In relation to SMS-system classes it looks like this:

```
PGA pga
→ PGABranch branch Type = "PGOI"
    → PGABranch branch Type = "PG01" (for agency 1)
        → subtree (branches of other types)
    ...
    → PGABranch branch Type = "PG01" (for agency 2)
        → subtree (branches of other types)
    ...
    → PGABranch branch Type = "PG01" (for agency 3)
        → subtree (branches of other types)
    ...
...
```

Class: [DataContract](#)

SMS.Broker.DataContracts.Documents.PGA.PGA : [EntityDocument](#) [1]

Properties:

Attributes	Name	Type	Description
DataMember InverseProperty("PGA")	Branches	List<PGABranch>	Collection that contains all PGA tree of PGA document.
DataMember	Description	string	PGA document description.
IgnoreDataMember NotMapped	PGOI	PGABranch	PGOI record.
DataMember	ShipmentArticleTariff	ShipmentArticleTariff	A reference to related Customs entry class object article tariff.

Interface: [ServiceContract]
SMS.Broker.ServiceContracts.Documents.IPGAManager :
IEntityManagerDocument<PGA> [1]

Instance methods:

Attributes	Name	Type	Description
[OperationContract] [FaultContract(typeof(ActionFault))]	GetReferences(EntityCollectionInfo references)	EntityCollectionInfo	Able to return a collection of objects of different types. [2]
[OperationContract] [FaultContract(typeof(EntryValidationFault))] [FaultContract(typeof(ActionFault))]	SaveSubTree1(PGABranch branch)	PGABranch	Saves all sub-tree changes beginning from the branch. Saves also changes made in header.
[OperationContract] [FaultContract(typeof(EntryValidationFault))] [FaultContract(typeof(ActionFault))]	Validate_Template(long PG01_Id, string action, ShipmentArticleTariff tariff = null)	void	Validation method. It has agency level and depend on selected template. Template code is a property of PG01 record.

[1] - The features of IPGAManager those differ from other Operation Contract inherited classes.

a) New(long? SourceId) Method returns a new PGA class object. Its number will be assigned by "PGA" sequence. By default a new PGA class object contains:
PGABranch class object with Type = "PGOI",
DateTime Date = DateTime.Now.

b) By Save(PGA entity) method on the server side PGA class object's record with the records corresponded to the PGA.Branches collection will be saved.

c) Validate_Template(long PG01_Id, string action, ShipmentArticleTariff tariff = null)

actions:

Empty string "" - if Validate_Template() method is called directly for PGA document. If validation process was not successful EntryValidationFault will be thrown.

"QUE SE R" - if Validate_Template() method is called indirectly by ValidateTreeById(long Id, string action) for SE (Cargo Release). If validation process was not successful EntryValidationFault will be thrown.

d) PGA document has no special statuses.

On the Table 7 you can see all changes in **Customs Entry** document last status (Status and Value properties) those undergo during data exchange with Customs when PGA Data Corrections application is sent. The actions which suggest some workflow problem are marked in red.

Table 7

Action	Status	Value
CA Put to queue→	EntityStatusType.ABIAAppQUE	EntityStatusValue.ABIAAppPutToQUE
CA ←Put to queue error	EntityStatusType.ABIAAppQUE	EntityStatusValue.ABIAAppPutToQUEError
CA ←Remove (if	EntityStatusType.ABIAAppQUE	EntityStatusValue.ABIAAppRemoveFromQUE

necessary)		
CA Transmit→	EntityStatusType.ABIAppQUE	EntityStatusValue.ABIAppSent
CC ←Get file	EntityStatusType.ABIAppQUE	EntityStatusValue.ABIAppIncoming
CC ←Get with error	EntityStatusType.ABIAppQUE	EntityStatusValue.ABIAppIncomingError
CC ←Rejected	EntityStatusType.ABIAppQUE	EntityStatusValue.ABIAppRejected
CC ←Accepted	No status changes.*	No value changes.*

* If PGA Data Corrections accepted by Customs only event messages are added.

CA – PGA Data Corrections incoming (our outgoing) file.

CC – PGA Data Corrections outgoing (our incoming) file.

e) Only general PutToQueueOneWay([string](#) AppId, [List<Parameter>](#) parameters) and PutToQueue([string](#) AppId, [List<Parameter>](#) parameters) methods of SMS.Broker.ServiceContracts.ISmsABIManager are available for PGA Data Corrections. Please, see 08. Annex. ABI classes and interfaces.pdf 2., ISmsABIManager PutToQueue() and PutToQueueOneWay() parameters for more details. A sample of PutToQue() method usage you can find in 28. Annex. PGA classes and interfaces, 4. Sample. How to queue a PGA Data Corrections message.

[2] Usually used in templates in FillFrom([PGABranch](#) branch, [IPGAManager](#) manager) method. You can apply it if you want to create your own template class.

3.1. PGA Branch.

An object of [PGABranch](#) class is an element of a PGA tree. It contains an information about one PGA record and in general case can be a parent node for another branches (PGA records).

Class: [[DataContract](#)]

SMS.Broker.DataContracts.Documents.PGA.[PGABranch](#) : [EntityChild](#)

Properties:

Attributes	Name	Type	Description
[DataMember] [InverseProperty ("ParentBranch")]	Branches	List<PGABranch>	A list of a child branches.
[DataMember] [ForeignKey ("ParentBranch_Id")]	ParentBranch	PGABranch	A reference to parent branch.
[DataMember]	ParentBranch_Id	long?	Parent branch Id.
[DataMember] [StringLength (1)]	PG00_SubstitutionIndicator	string	Substitution Indicator. Has Possible Values.
[DataMember] [StringLength (4)]	PG00_SubstitutionNumber	string	Substitution Number.
[DataMember]	PG01_ConfidentialInformationIndicator	bool	Confidential Information Indicator.
[StringLength (1)] [DataMember]	PG01_CorrectionIndicator	string	Correction Indicator. Has Possible Values.
[StringLength (1)] [DataMember]	PG01_Disclaimer	string	Disclaimer. Has Possible Values.

[DataMember]	PG01_ElectronicImageSubmitted	bool	Electronic Image Submitted.
[StringLength(19)] [DataMember]	PG01_GloballyUniqueProductIdentificationCode	string	Globally Unique Product Identification Code.
[StringLength(4)] [DataMember]	PG01_GloballyUniqueProductIdentificationCodeQualifier	string	Globally Unique Product Identification Code Qualifier Has Possible Values.
[StringLength(3)] [DataMember]	PG01_GovernmentAgencyCode	string	Government Agency Code. Has Possible Values.
[StringLength(3)] [DataMember]	PG01_GovernmentAgencyProcessingCode	string	Government Agency Processing Code.
[StringLength(3)] [DataMember]	PG01_GovernmentAgencyProgramCode	string	Government Agency Program Code.
[StringLength(16)] [DataMember]	PG01_IntendedUseCode	string	Intended Use Code. Has Possible Values.
[StringLength(21)] [DataMember]	PG01_IntendedUseDescription	string	Intended Use Description.
[DataMember]	PG01_PGALineNumber	int?	PGA line number.
[IgnoreDataMember] [NotMapped]	PG01_Value	decimal	Value.
[StringLength(1)] [DataMember]	PG02_ItemType	string	Item Type. Has Possible Values.
[StringLength(19)] [DataMember]	PG02_ProductCodeNumber1	string	Product Code Number 1.
[StringLength(19)] [DataMember]	PG02_ProductCodeNumber2	string	Product Code Number 2.
[StringLength(19)] [DataMember]	PG02_ProductCodeNumber3	string	Product Code Number 3.
[StringLength(4)] [DataMember]	PG02_ProductCodeQualifier1	string	Product Code Qualifier 1. Has Possible Values.
[StringLength(4)] [DataMember]	PG02_ProductCodeQualifier2	string	Product Code Qualifier 2. Has Possible Values.
[StringLength(4)] [DataMember]	PG02_ProductCodeQualifier3	string	Product Code Qualifier 3. Has Possible Values.
[DataMember]	PG04_ConstituentActiveIngredientQualifier	bool	Constituent Active Ingredient Qualifier.
[StringLength(51)] [DataMember]	PG04_NameOfConstituentElement	string	Name Of Constituent Element.
[DataMember] [DecimalPrecisionAttribute(7, 4)]	PG04_PercentOfConstituentElement	decimal	Percent Of Constituent Element.
[DataMember] [DecimalPrecisionAttribute(12, 2)]	PG04_QuantityOfConstituentElement	decimal	Quantity Of Constituent Element.
[StringLength(5)] [DataMember]	PG04_UnitOfMeasure	string	Unit Of Measure.

			Has Possible Values.
[StringLength(7)] [DataMember]	PG05_FWSDescriptionCode	string	FWS Description Code.
[StringLength(22)] [DataMember]	PG05_ScientificGenusName	string	Scientific Genus Name.
[StringLength(7)] [DataMember]	PG05_ScientificSpeciesCode	string	Scientific Species Code.
[StringLength(22)] [DataMember]	PG05_ScientificSpeciesName	string	Scientific Species Name.
[StringLength(18)] [DataMember]	PG05_ScientificSubSpeciesName	string	Scientific Subspecies Name.
[StringLength(2)] [DataMember]	PG06_CountryCode	string	Country Code. Has Possible Values.
[StringLength(20)] [DataMember]	PG06_GeographicLocation	string	Geographic Location.
[StringLength(30)] [DataMember]	PG06_ProcessingDescription	string	Processing Description.
[Column(TypeName = "date")] [DataMember]	PG06_ProcessingEndDate	DateTime?	Processing End Date.
[Column(TypeName = "date")] [DataMember]	PG06_ProcessingStartDate	DateTime?	Processing Start Date.
[StringLength(5)] [DataMember]	PG06_ProcessingTypeCode	string	Processing Type Code.
[StringLength(3)] [DataMember]	PG06_SourceTypeCode	string	Source Type Code. Has Possible Values.
[StringLength(17)] [DataMember]	PG07_ItemIdentityNumber	string	Item Identity Number.
[StringLength(3)] [DataMember]	PG07_ItemIdentityNumberQualifier	string	Item Identity Number Qualifier. Has Possible Values.
[Column(TypeName = "date")] [DataMember]	PG07_ManufactureMonthAndYear	DateTime?	Manufacture Month And Year.
[StringLength(15)] [DataMember]	PG07_Model	string	Model.
[StringLength(35)] [DataMember]	PG07_TradeNameBrandName	string	Trade Name Brand Name.
[StringLength(17)] [DataMember]	PG08_ItemIdentityNumber1	string	Item Identity Number 1.
[StringLength(17)] [DataMember]	PG08_ItemIdentityNumber2	string	Item Identity Number 2.
[StringLength(17)] [DataMember]	PG08_ItemIdentityNumber3	string	Item Identity Number 3.
[StringLength(17)] [DataMember]	PG08_ItemIdentityNumber4	string	Item Identity Number 4.
[StringLength(5)] [DataMember]	PG10_CategoryCode	string	Category Code.
[StringLength(6)] [DataMember]	PG10_CategoryTypeCode	string	Category Type Code.
[StringLength(57)] [DataMember]	PG10_CommodityCharacteristicDescription	string	Commodity Characteristic Description.
[StringLength(4)] [DataMember]	PG10_CommodityCharacteristicQualifier	string	Commodity

			Characteristic Qualifier.
[StringLength(4)] [DataMember]	PG10_CommodityQualifierCode	string	Commodity Qualifier Code.
[StringLength(35)] [DataMember]	PG13_LPC0Issuer	string	LPCO Issuer.
[StringLength(3)] [DataMember]	PG13_LPC0IssuerGeographicCode	string	LPCO Issuer Geographic Code.
[StringLength(3)] [DataMember]	PG13_LPC0IssuerGeographicCodeQualifier	string	LPCO Issuer Geographic Code Qualifier. Has Possible Values.
[StringLength(25)] [DataMember]	PG13_RegionalDescriptionOfLocation	string	Regional Description Of Location.
[StringLength(9)] [DataMember]	PG14_ExemptionCode	string	Exemption Code.
[Column(TypeName = "date")] [DataMember]	PG14_LPC0Date	DateTime?	LPCO Date.
[StringLength(1)] [DataMember]	PG14_LPC0DateQualifier	string	LPCO Date Qualifier. Has Possible Values.
[StringLength(33)] [DataMember]	PG14_LPC0NumberOrName	string	LPCO Number Or Name
[DataMember] [DecimalPrecisionAttribute(18, 4)]	PG14_LPC0Quantity	decimal	LPCO Quantity.
[StringLength(1)] [DataMember]	PG14_LPC0TransactionType	string	LPCO Transaction Type. Has Possible Values.
[StringLength(3)] [DataMember]	PG14_LPC0Type	string	LPCO Type. Has Possible Values.
[StringLength(5)] [DataMember]	PG14_LPC0UnitOfMeasure	string	LPCO Unit Of Measure.
[DataMember] [DecimalPrecisionAttribute(5, 0)]	PG17_CartonsContainingWildlife	decimal	Cartons Containing Wild life.
[StringLength(30)] [DataMember]	PG17_CommonNameGeneral	string	Common Name General.
[StringLength(30)] [DataMember]	PG17_CommonNameSpecific	string	Common Name Specific.
[StringLength(1)] [DataMember]	PG17_LiveVenomousWildlifeCode	string	Live Venomous Wild life Code. Has Possible Values.
[StringLength(4)] [DataMember]	PG18_EPAHazardousWasteCode	string	EPA Hazardous Waste Code.
[StringLength(4)] [DataMember]	PG18_HazardousClassCode	string	Hazardous Class Code.
[StringLength(50)] [DataMember]	PG18_HazardousMaterialDescription	string	Hazardous Material Description.
[StringLength(1)]	PG18_PackagingGroupCode	string	Packaging Group Code.

[DataMember]			Has Possible Values.
[StringLength(10)] [DataMember]	PG18_UNDangerousGoodsCode	string	UN Dangerous Goods Code.
[DataMember] [ForeignKey("PG19_Contact_Id")]	PG19_Contact	Contact	Contact.
[DataMember]	PG19_Contact_Id	long?	Contact Id.
[StringLength(3)] [DataMember]	PG19_EntityIdentificationCode	string	Entity Identification Code. Has Possible Values.
[StringLength(15)] [DataMember]	PG19_EntityNumber	string	Entity Number.
[StringLength(3)] [DataMember]	PG19_EntityRoleCode	string	Entity Role Code. Has Possible Values.
[DataMember] [ForeignKey("PG21_Contact_Id")]	PG21_Contact	Contact	Contact.
[DataMember]	PG21_Contact_Id	long?	Contact Id.
[StringLength(3)] [DataMember]	PG21_IndividualQualifier	string	Individual Qualifier. Has Possible Values.
[StringLength(30)] [DataMember]	PG22_ComplianceDescription	string	Compliance Description.
[StringLength(5)] [DataMember]	PG22_ConformanceDeclaration	string	Conformance Declaration.
[Column(TypeName = "date")] [DataMember]	PG22_DateOfSignature	DateTime?	Date Of Signature.
[StringLength(1)] [DataMember]	PG22_DeclarationCertification	string	Declaration Certification. Has Possible Values.
[StringLength(4)] [DataMember]	PG22_DeclarationCode	string	Declaration Code. Has Possible Values.
[StringLength(7)] [DataMember]	PG22_DocumentIdentifier	string	Document Identifier. Has Possible Values.
[StringLength(3)] [DataMember]	PG22_EntityRoleCode	string	Entity Role Code. Has Possible Values.
[StringLength(1)] [DataMember]	PG22_ImportersSubstantiatingSignedDocument	string	Importers Substantiating Signed Document. Has Possible Values.
[StringLength(17)]	PG22_InvoiceNumber	string	Invoice Number.

[DataMember]			
[StringLength(5)] [DataMember]	PG23_AffirmationOfComplianceCode	string	Affirmation Of Compliance Code.
[StringLength(70)] [DataMember]	PG23_AffirmationOfComplianceDescription	string	Affirmation Of Compliance Description.
[StringLength(5)] [DataMember]	PG24_RemarksCode	string	Remarks Code.
[StringLength(68)] [DataMember]	PG24_RemarksText	string	Remarks Text.
[StringLength(3)] [DataMember]	PG24_RemarksTypeCode	string	Remarks Type Code.
[DataMember] [DecimalPrecisionAttribute(8, 2)]	PG25_ActualTemperature	decimal	Actual Temperature.
[StringLength(1)] [DataMember]	PG25_DegreeType	string	Degree Type. Has Possible Values.
[StringLength(1)] [DataMember]	PG25_LocationOfTemperatureRecording	string	Location Of Temperature Recording. Has Possible Values.
[StringLength(25)] [DataMember]	PG25_LotNumber	string	Lot Number.
[StringLength(1)] [DataMember]	PG25_LotNumberQualifier	string	Lot Number Qualifier. Has Possible Values.
[DataMember] [DecimalPrecisionAttribute(13, 0)]	PG25_PGALineValue	decimal	PGA Line Value.
[DataMember] [DecimalPrecisionAttribute(14, 2)]	PG25_PGAUnitValue	decimal	PGA Unit Value.
[Column(TypeName = "date")] [DataMember]	PG25_ProductionEndDate	DateTime?	Production End Date.
[Column(TypeName = "date")] [DataMember]	PG25_ProductionStartDate	DateTime?	Production Start Date.
[StringLength(1)] [DataMember]	PG25_TemperatureQualifier	string	Temperature Qualifier. Has Possible Values.
[StringLength(15)] [DataMember]	PG26_PackageFiller	string	Package Filler.
[StringLength(25)]	PG26_PackageIdentifier	string	Package Identifier.

[DataMember]			
[StringLength(15)] [DataMember]	PG26_PackageMaterial	string	Package Material.
[StringLength(3)] [DataMember]	PG26_PackagingMethod	string	Packaging Method.
[StringLength(1)] [DataMember]	PG26_PackagingQualifier	string	Packaging Qualifier.
[DataMember] [DecimalPrecisionAttribute(12, 2)]	PG26_Quantity	decimal	Quantity.
[StringLength(5)] [DataMember]	PG26_UnitOfMeasure	string	Unit Of Measure.
[DecimalPrecisionAttribute(2, 0)] [DataMember]	PG27_ContainerLength1	decimal	Container Length 1.
[DecimalPrecisionAttribute(2, 0)] [DataMember]	PG27_ContainerLength2	decimal	Container Length 2.
[DecimalPrecisionAttribute(2, 0)] [DataMember]	PG27_ContainerLength3	decimal	Container Length 3.
[StringLength(20)] [DataMember]	PG27_ContainerNumber1	string	Container Number 1.
[StringLength(20)] [DataMember]	PG27_ContainerNumber2	string	Container Number 2.
[StringLength(20)] [DataMember]	PG27_ContainerNumber3	string	Container Number 3.
[StringLength(1)] [DataMember]	PG27_TypeOfContainer1	string	Type Of Container 1. Has Possible Values.
[StringLength(1)] [DataMember]	PG27_TypeOfContainer2	string	Type Of Container 2. Has Possible Values.
[StringLength(1)] [DataMember]	PG27_TypeOfContainer3	string	Type Of Container 3. Has Possible Values.
[DataMember] [DecimalPrecisionAttribute(4, 0)]	PG28_CanDimensions1	decimal	Can Dimensions 1.
[DataMember] [DecimalPrecisionAttribute(4, 0)]	PG28_CanDimensions2	decimal	Can Dimensions 2.
[DataMember]	PG28_CanDimensions3	decimal	Can Dimensions 3.

[DecimalPrecisionAttribute(4, 0)]			
[DataMember] [StringLength(50)]	PG28_PackageTrackingNumber	string	Package Tracking Number.
[DataMember] [StringLength(4)]	PG28_PackageTrackingNumberCode	string	Package Tracking Number Code.
[DataMember] [DecimalPrecisionAttribute(12, 2)]	PG29_CommodityGrossQuantity1	decimal	Commodity Gross Quantity 1.
[DataMember] [StringLength(3)]	PG29_CommodityGrossQuantity1UOM	string	Commodity Gross Quantity 1 UOM.
[DataMember] [DecimalPrecisionAttribute(12, 2)]	PG29_CommodityGrossQuantity2	decimal	Commodity Gross. Quantity 2.
[DataMember] [StringLength(3)]	PG29_CommodityGrossQuantity2UOM	string	Commodity Gross Quantity 2 UOM.
[DataMember] [DecimalPrecisionAttribute(12, 2)]	PG29_CommodityNetQuantity1	decimal	Commodity Net Quantity 1.
[DataMember] [StringLength(3)]	PG29_CommodityNetQuantity1UOM	string	Commodity Net Quantity 1 UOM.
[DataMember] [DecimalPrecisionAttribute(12, 2)]	PG29_CommodityNetQuantity2	decimal	Commodity Net Quantity 2.
[DataMember] [StringLength(3)]	PG29_CommodityNetQuantity2UOM	string	Commodity Net Quantity 2 UOM.
[DataMember] [StringLength(50)]	PG30_InspectionOrArrivalLocation	string	Inspection Or Arrival Location.
[DataMember] [StringLength(4)]	PG30_InspectionOrArrivalLocationCode	string	Inspection Or Arrival Location Code.
[DataMember] [StringLength(1)]	PG30_InspectionTestingStatus	string	Inspection Testing Status. Has Possible Values.
[DataMember]	PG30_RequestedOrScheduledTimeOfInspection	DateTime?	Requested Or Scheduled Time Of Inspection.
[DataMember] [StringLength(35)]	PG31_CommodityHarvestingVesselCharacteristic	string	Commodity Harvesting Vessel Characteristic.
[DataMember] [StringLength(3)]	PG31_CommodityHarvestingVesselCharacteristicTypeCode	string	Commodity Harvesting Vessel Characteristic Type Code.
[DataMember]	PG31_HarvestedCommodityNetWeight	decimal	Harvested Commodity Net Weight.

[DecimalPrecisionAttribute(10, 2)]			
[DataMember] [StringLength(3)]	PG31_UnitOfMeasure	string	Unit Of Measure.
[DataMember] [StringLength(55)]	PG32_CommodityPoliticalSubunitOfRoutingName	string	Commodity Political Subunit Of Routing Name.
[DataMember] [StringLength(9)]	PG32_CommodityPoliticalSubunitOfRoutingNumber	string	Commodity Political Subunit Of Routing Number.
[DataMember] [StringLength(3)]	PG32_CommodityPoliticalSubunitOfRoutingQualifier	string	Commodity Political Subunit Of Routing Qualifier.
[DataMember] [StringLength(2)]	PG32_CommodityRoutingCountryCode	string	Commodity Routing Country Code.
[DataMember] [StringLength(3)]	PG32_CommodityRoutingTypeCode	string	Commodity Routing Type Code.
[DataMember] [StringLength(9)]	PG33_CommodityGeographicAreaCode	string	Commodity Geographic Area Code.
[DataMember] [StringLength(65)]	PG33_CommodityGeographicAreaName	string	Commodity Geographic Area Name.
[DataMember] [StringLength(35)]	PG34_TravelDocumentIdentifier	string	Travel Document Identifier.
[DataMember] [StringLength(2)]	PG34_TravelDocumentNationality	string	Travel Document Nationality.
[DataMember] [StringLength(3)]	PG34_TravelDocumentTypeCode	string	Travel Document Type Code. Has Possible Values.
[DataMember] [DecimalPrecisionAttribute(8, 0)]	PG35_DOTBondAmount	decimal	DOT Bond Amount.
[DataMember] [StringLength(1)]	PG35_DOTBondQualifier	string	DOT Bond Qualifier. Has Possible Values.
[DataMember] [StringLength(30)]	PG35_DOTBondSerialNumber	string	DOT Bond Serial Number.
[DataMember] [StringLength(3)]	PG35_DOTSuretyCode	string	DOT Surety Code.
[DataMember] [StringLength(3)]	PG55_EntityRoleCode1	string	Entity Role Code 1.
[DataMember] [StringLength(3)]	PG55_EntityRoleCode10	string	Entity Role Code 10.

[DataMember] [StringLength(3)]	PG55_EntityRoleCode2	string	Entity Role Code 2.
[DataMember] [StringLength(3)]	PG55_EntityRoleCode3	string	Entity Role Code 3.
[DataMember] [StringLength(3)]	PG55_EntityRoleCode4	string	Entity Role Code 4.
[DataMember] [StringLength(3)]	PG55_EntityRoleCode5	string	Entity Role Code 5.
[DataMember] [StringLength(3)]	PG55_EntityRoleCode6	string	Entity Role Code 6.
[DataMember] [StringLength(3)]	PG55_EntityRoleCode7	string	Entity Role Code 7.
[DataMember] [StringLength(3)]	PG55_EntityRoleCode8	string	Entity Role Code 8.
[DataMember] [StringLength(3)]	PG55_EntityRoleCode9	string	Entity Role Code 9.
[DataMember] [Required] [ForeignKey("PGA_Id")]	PGA	PGA	A reference to PGA document.
[DataMember]	PGA_Id	long	PGA document Id.
[StringLength(70)] [DataMember]	PGOI_CommercialDescription	string	Commercial description.
[DataMember]	Subline	int	Property is used to save an order of PGA branch records of the same type.
[StringLength(20)] [DataMember]	Template	string	Template code.
[StringLength(4)] [DataMember] [Required]	Type	string	Branch type. ("PGOI", "PG01", "PG02", etc.) Has Possible Values.

Instance methods:

Attributes	Name	Type	Description
	AddBranch(PGABranch branch)	void	Adds a branch with its child branches to PGA tree making a current branch the parent.
	Copy()	void	Copy a current branch with its child branches to the same parent branch.
	Copy(PGABranch source)	void	Copy source branch with its child branches to PGA tree making a current branch the parent.
	FindParent(string type)	PGABranch	Recursively find a parent branch of a defined type.

	GetSubTreeBranches()	List<PGABranch>	Gets subtree branches.
	RemoveBranch(PGABranch branch)	void	Recursively removes branch and its child branches.
	ToShortString()	string	Returns short string representation.
	ToString()	string	The same as ToShortString()

4. Template.

AAAPPPVVV class is an abstract class that is used to inherit new special template classes. These new classes simplify the work with PGA trees.

Abstract class:

SMS.Broker.DataContracts.Documents.PGA.Templates AAAPPPVVV : IEntityLink

Properties:

Attributes	Name	Type	Description
	Link	string	Used to save a link to related PG01 record branch object.
	PG01_PGALineNumber	int?	PGA line number.
	PGA_Id	long	Id of a related PGA document.
	PGOI_CommercialDescription	string	Commercial description in PGOI record.

Instance methods:

Modifier	Name	Type	Description
virtual	FillFrom(PGABranch branch, IPGAManager manager)	void	Fills template properties from PGA tree branches and document/directory type entities.
virtual	FillFrom(PGABranch branch)	void	Fills template properties from tree branches.
abstract	FillFromEntity(EntityBase entry)	void	Can be overridden in inherited classes. Fill a template properties from some entity.
abstract	FillTo(PGABranch branch)	void	Build PGA tree from template.
	GetPG06CountryCode(PGABranch branch, string sourceCode)	string	Gets a Country Code from PG06 record branches by Source Type Code. Input branch has always PG01 type.
	GetPG19Entity(PGABranch branch, string roleCode)	Contact	Gets a Contact object from PG19 record

			branches by Role Code. Input branch has always PG01 type.
	GetPG21Entity(PGABranch branch, string roleCode, string individualQualifier = null)	Contact	Gets a Contact object from PG21 record branches by Role Code and optionally by Individual Qualifier. Input branch has always PG01 type.
	GetPG23AocDescription(PGABranch branch, string aocCode)	string	Gets Affirmation Of Compliance from PG23 record branches by Affirmation Of Compliance Code. Input branch has always PG01 type.
	GetPG27ContainerList(PGABranch bPG02, List<PG27Item> items)	void	Gets container info from PG27 record branches. Input branch has always PG02 type.
	PG26Sort(PGABranch branch, List<PossibleValue> PG26_UnitOfMeasureValues)	Tuple<decimal, string>[]	Sorts PG26 branches by Packaging Qualifier levels and save them to quantity-unit pairs leaving a base unit pare as a 6-th level.
	SetPG06CountryCode(PGABranch branch, string sourceCode, string countryCode)	void	Adds PG06 record branch with given Source and Country Codes to PGA tree. Input branch has always PG01 type.
	SetPG27ContainerList(PGABranch branchPG02, List<PG27Item> items)	void	Adds PG27 record branches with container info.

Static methods:

Modifier	Name	Type	Description
	Create(string className)	AAAPPPVVV	Create an object of some template class by its code.

Class:

PG27Item : IEntityLink

Properties:

Attributes	Name	Type	Description
	Line	int	Id number. It is used to prepare a Link.
	Link	string	Link. It can be used as identifier of specific PG27 record in error

			processing.
	PG27_ContainerLength	decimal	Container Length.
	PG27_ContainerNumber	string	Container Number.
	PG27_TypeOfContainer	string	Container Type. Has Possible Values.
	PGOI_CommercialDescription	string	PGOI commercial description.

Descriptions of all template classes are available in `SMS.Broker.Lists.PGATemplate` class as a static list: `PGATemplate.Items`

For detailed description of templates, please also look at 28. *Annex. PGA classes and interfaces.pdf, 1. List of PGA templates.*

How templates can be used, please look at 28. *Annex. PGA classes and interfaces.pdf, 2. Sample. Template usage. Adding of a new PGA document and 3. Sample. Template usage. Updating of existed PGA document.*

4.1. Entity Collection Info.

`EntityCollectionInfo` class allows to gather a collection of entities (`CustomsPort`, `Contact`) then can be requested from SMS-server using only `IPGAManager` interface `GetReferences(EntityCollectionInfo references)` method.

Class: `[DataContract]`
`[KnownType(typeof(CustomsPort))]`
`[KnownType(typeof(Contact))]`

`SMS.Broker.DataContracts.Info.EntityCollectionInfo`

Instance methods:

Attributes	Name	Type	Description
	<code>Apply(object receiver)</code>	<code>void</code>	Assign values returned from SMS-server by <code>GetReferences(EntityCollectionInfo references)</code> to template properties listed in entity collection.
	<code>Entries()</code>	<code>IEnumerable<EntityEntry></code>	Collection of entities returned as <code>Enumerable</code> .
	<code>RequestContact(string key, string code)</code>	<code>void</code>	Adds to the collection a new <code>Contact</code> object that then can be filed by <code>GetReferences(EntityCollectionInfo references)</code> method. key – the name (<code>nameof()</code>) of template

			property of Contact type. code – contact code.
	RequestCustomsPort(string key, string code)	void	Adds to the collection a new CustomsPort object that then can be filed by GetReferences(EntityCollectionInfo references) method. key – the name (nameof()) of template property of CustomsPort type. code – Customs port code.

Class: [**DataContract**]
EntityEntry

Properties:

Attributes	Name	Type	Description
[DataMember]	Entity	EntityBase	New object of CustomsPort or Contact type with its code.
[DataMember]	Key	string	key – the name (nameof()) of template property.