Bundesamt für Sicherheit in der Informationstechnik

Technical Guideline TR-03112-3

eCard-API-Framework – Management-Interface

Version 1.1.5

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1 Overview of the eCard-API-Framework

The objective of the eCard-API-Framework is the provision of a simple and homogeneous interface to enable standardised use of the various smart cards (eCards) for different applications.

The eCard-API-Framework is sub-divided into the following layers:

- Application-Layer
- Identity-Layer
- Service-Access-Layer
- Terminal-Layer

The **Application-Layer** contains the various applications which use the eCard-API-Framework to access the eCards and their associated functions. Application-specific "convenience interfaces", in which the recurring invocation sequences may be encapsulated in application-specific calls, may also exist in this layer. However, these interfaces are currently *not* within the scope of the e-Card-API-framework.

The **Identity-Layer** comprises the eCard-Interface and the Management interface, and therefore functions for the use and management of electronic identities as well as for management of the eCard-API-Framework.

The *eCard-Interface* (refer to [TR-03112-2]) allows to request certificates as well as the encryption, signature and time-stamping of documents.

In the M*anagement-Interface* (refer to [TR-03112-3]), functions for updating the framework and the management of trusted identities, smart cards, card terminals, and default behaviour are available.

The **Service-Access-Layer** provides, in particular, functions for cryptographic primitives and biometric mechanisms in connection with cryptographic tokens, and comprises the ISO24727-3-Interface and the Support-Interface.

The *ISO24727-3-Interface* defined in the present document is a webservice-based implementation of the standard of the same name [ISO24727-3]. This interface contains functions to establish (cryptographically protected) connections to smart cards, to manage card applications, to read or write data, to perform cryptographic operations and to manage the respective key material (in the form of so-called "differential identities"). In the process, all functions which use or manage "differential identities" are parameterised by means of protocol-specific object identifiers so that the different protocols which are defined in the present document MAY be used with a standardised interface (refer to [TR-03112-7]).

The S*upport-Interface* (refer to [TR-03112-5]) contains a range of supporting functions.

The **Terminal-Layer** primarily contains the *IFD-Interface* (refer to [TR-03112-6]). This layer takes over the generalisation of specific card terminal types and various interfaces as well as communication with the smart card. For the user it is unimportant whether the card is addressed by PC/SC, a SICCT terminal or a proprietary interface, or whether it has contacts or is contact-less.

1.1 Key Words

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119]. The key word “CONDITIONAL” is to be interpreted as follows:

CONDITIONAL: The usage of an item is dependent on the usage of other items. It is therefore further qualified under which conditions the item is REQUIRED or RECOMMENDED.

1.2 XML-Schema

A XML-Schema is provided together with this Technical Guideline. In case of incongruencies, the specifications in this text take precedence. The graphical representations of the XML-Schema illustrate the schema. Note that the text of this Guideline might further restrict the presence or mulitplicity of elements as compared to the schema definition.

2 Overview of the Management-Interface

2.1 Objective

The Management-Interface provides important administration functions for the eCard-API-Framework.

2.2 Functions

The Management-Interface provides the following function groups:

- Management of the eCard-API-Framework
- Card management
- Card terminal management
- Trusted viewer management
- Identity management
- Service management

2.2.1 Management of the eCard-API-Framework

This function group includes functions for the management of the eCard-API framework itself:

- The `InitializeFramework` function initialises the eCard-API-Framework.
- The `TerminateFramework` function terminates all sessions and services of the eCard-API-Framework.
- The `APIACLList` function is OPTIONAL and MAY provide the currently defined access control regulations for access to the individual functions of the eCard-API-Framework. If this function is supported it MAY ONLY be made available to an ***administrator*** who is authenticated in accordance with the applicable security policies for the operation of the eCard-API-Framework.
- The `ACLModify` function is OPTIONAL and MAY be used to modify the access control rules which govern the access to the functions of the eCard-API-Framework. Via this access control mechanism it is possible, for example, to grant or refuse access of an application to the `Transmit` function in the IFD-Interface (also refer to [TR-03112-6]) for the implementation of a "transparent channel" to a card. As a consequence, it is also possible to define whether and under which circumstances remote eCard-API-Frameworks are allowed to access a local eCard-API-Framework. If this function is supported it MAY ONLY be made available to an ***administrator*** who is authenticated in accordance with the applicable security policies applicable for operation of the eCard-API-Framework.
- The `FrameworkUpdate` function checks whether an update is available for the eCard-API-Framework and performs such an update if necessary. The detailed processes during execution of this function are protocol-specific (refer to [TR-03112-7]).
- `GetDefaultParameters`: Default behaviour can be specified for the eCard-API-Framework to also permit the easiest possible invocations by the client application for potentially complex operations (e.g. for creating and verifying electronic signatures, refer to [TR-03112-2], Section

3.2.1 - 3.2.2). The currently specified default parameters MAY be read out with the `GetDefaultParameters` function.

- The `SetDefaultParameters` function is used to write the default parameters, which then determine the standard behaviour of the eCard-API-Framework.

2.2.2 Card management

- The `GetCardInfoList` function supplies the list of card types which are known from the `CardInfo` files.
- The `SetCardInfoList` function saves an ordered list of card types in form of URIs, which determine the steps during the card recognition procedure.
- With the `AddCardInfoFiles` function it is possible to add a series of `CardInfo` files.
- The `DeleteCardInfoFiles` function deletes a series of `CardInfo` files.

2.2.3 Card terminal management

- With the `RegisterIFD` function it is possible to add a card terminal with all configuration information.
- The `UnregisterIFD` function deletes a card terminal.

2.2.4 Trusted viewer management

- The `GetTrustedViewerList` function provides a list of available trustworthy display components (trusted viewer).
- The `GetTrustedViewerConfiguration` function reads the configuration information for a specific trusted viewer which is stored in the eCard-API-Framework.
- The `SetTrustedViewerConfiguration` function writes the configuration information for a specific trusted viewer.
- With the `AddTrustedViewer` function, a trusted viewer can be added with all configuration information.
- The `DeleteTrustedViewer` function deletes a trusted viewer.

2.2.5 Identity management

- The `GetTrustedIdentities` function provides a list of the trustworthy identities in form of Trust-Service status lists (TSL) and trustworthy certificates.
- With the `AddTrustedCertificate` function, a certificate can be added to the list of trusted certificates.
- With the `AddCertificate` function, a non-trustworthy certificate which can be used for signature verification or encryption can be added to the certificate database.
- With the `ExportCertificate` function, a (trustworthy or non-trustworthy) certificate can be exported.

- The `DeleteCertificate` function deletes an existing (trustworthy or non-trustworthy) certificate from the certificate database.
- With the `AddTSL` function, a Trust-Service status list can be added to the eCard-API-Framework.
- With the `ExportTSL` function, a Trust-Service status list can be exported.
- With the `DeleteTSL` function, a Trust-Service status list can be deleted from the list of trustworthy identities.

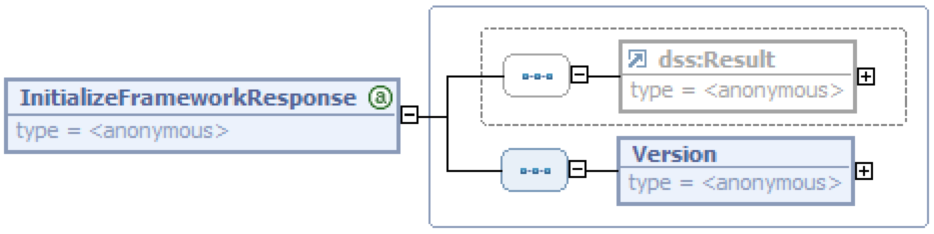
2.2.6 Service management

- The `GetOCSPServices` function reads the list of available OCSP responders together with the corresponding configuration information.
- The `SetOCSPServices` function writes the list of available OCSP responders together with the corresponding configuration information.
- The `GetDirectoryServices` function reads the list of the directory services accessible via LDAP or HTTP with all corresponding configuration information.
- The `SetDirectoryServices` function writes a list of the directory services accessible via LDAP or HTTP with all corresponding configuration information.
- The `GetTSServices` function reads the list of time stamping services with all corresponding configuration information.
- The `SetTSServices` function writes a list of time stamping services together with all corresponding configuration information.

3 Specification of the eCard Management-Interface

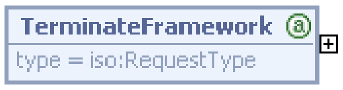
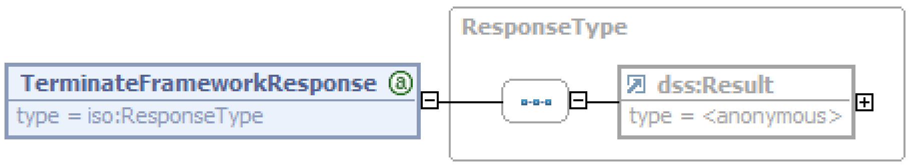
3.1 Management of the eCard-API-Framework

3.1.1 InitializeFramework

Name	**`InitializeFramework`**	
Description	The `InitializeFramework` function initialises the eCard-API-Framework and can be used to query the version of the framework implementation.	
Invocation parameters	InitializeFramework type = iso:RequestType Invocation of the `InitializeFramework` function.	
	No invocation parameters	
Return	 InitializeFrameworkResponse type = <anonymous> dss:Result type = <anonymous> Version type = <anonymous> Return of the `InitializeFramework` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	`Version`	States the version of the eCard-API-Framework started with this function and comprises up to three integers `Major`, `Minor` (optional) and `SubMinor` (optional). Compliance to this version of the eCard-API-Framework SHALL be indicated by (`Major.Minor.Subminor`) = (1.1.5).

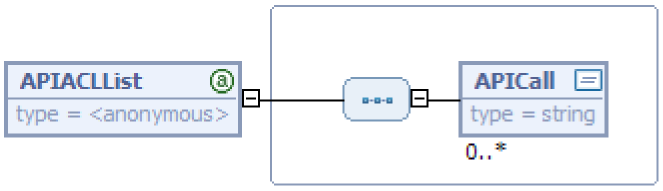
	Status information and errors in `InitializeFramework` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#internalError • /resultminor/al/common#parameterError
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition	The service required for initialisation of the eCard-API-Framework with `InitializeFramework` is started by mechanisms of the operating system.	
Postcondition	The eCard-API-Framework is initialised, and the functions available according to the APIACL (also refer to 3.1.3) can then be invoked by the client application.	
Note	For initialisation of the eCard-API-Framework, the function `Initialize` (also refer to [ISO24727-3]) is primarily invoked, and a context with the IFD layer is established with the function `EstablishContext` (also refer to [ISO24727-4]). As there is no error, if this function is called and the framework already has been initialized, this function MAY be used at any time to query its version.	

3.1.2 TerminateFramework

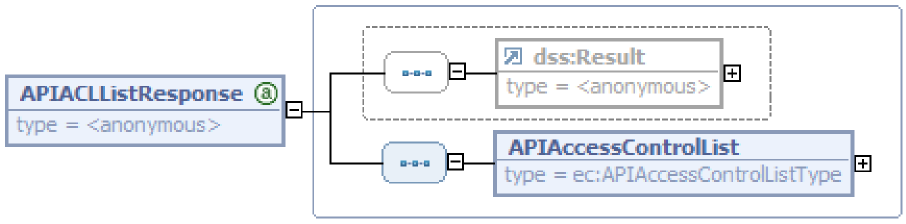
Name	**`TerminateFramework`**	
Description	The `TerminateFramework` function terminates the eCard-API-Framework, closes any open connections and executes any necessary updates (also refer to [TR-03112-7]).	
Invocation parameters	 Invocation of the `TerminateFramework` function.	
	No invocation parameters	
Return	 ResponseType TerminateFrameworkResponse type = iso:ResponseType dss:Result type = <anonymous> Return of the `TerminateFramework` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.

	Status information and errors in `Terminate` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error • /resultmajor#warning
	`ResultMinor`	• /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/common# sessionTerminatedWarning • /resultminor/al/common#notInitialized
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition	The eCard-API-Framework was initialised.	
Postcondition	The eCard-API-Framework was terminated so that only the `InitializeFramework` function can be invoked.	
Note	This function terminates all open card connections using `CardApplicationDisconnect` (also refer to [TR-03112-4]) and `Disconnect` (also refer to [TR-03112-6]) and then finally invokes `Terminate` (also refer to [TR-03112-4]), `ReleaseContext` (also refer to [TR-03112-6]) and `TC_API_Close` (also refer to [TR-03112-2]). In addition, any necessary updates are performed as a final action (also refer to [TR-03112-7]); these updates apply the next time the system is started.	

3.1.3 APIACLList

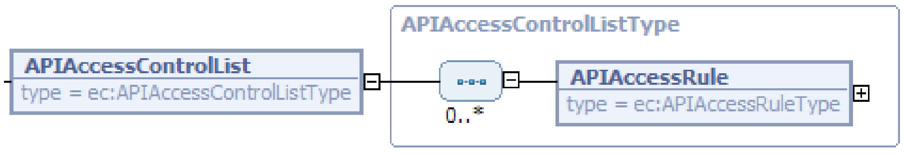
Name	**`APIACLList`**	
Description	The `APIACLList` function is OPTIONAL and returns the access control list for the stated `APICall`(s). If this function is supported it MAY ONLY be made available to an ***administrator*** who is authenticated in accordance with the applicable security policy for operation of the eCard-API-Framework.	
Invocation parameters	 APIACLList type = <anonymous> APICall type = string 0..* Invocation of the `APIACLList` function.	
	Name	**Description**

	`APICall`	MAY occur several times and contains the name of the `APICall` of the eCard-API framework for which the access control information is to be determined. In this context access control information for all functions defined in the framework of the eCard-API-Framework MUST be supported. In addition, access control information for functions MAY be managed in additional "convenience layers".
Return parameters		



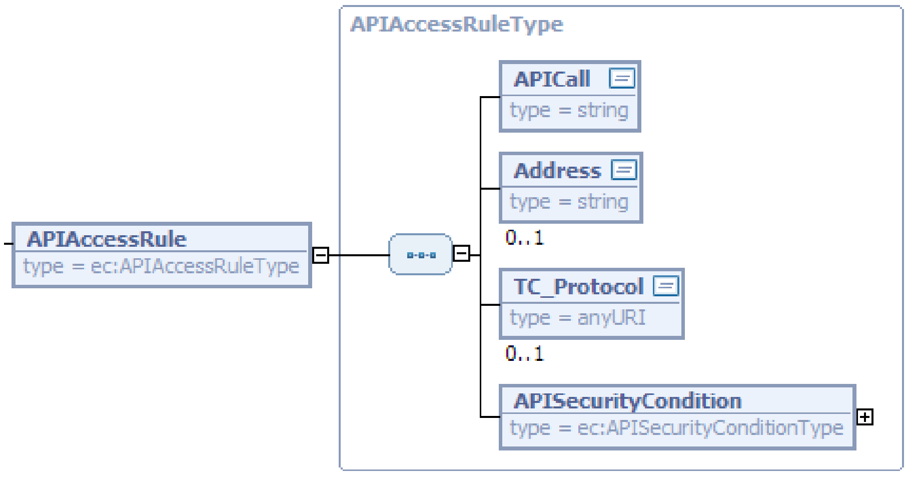
Return of the `APIACLList` function.

Name	**Description**
`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
`APIAccessControlList`	Contains the access control information for all stated `APICalls` of the eCard-API-Framework (see below for details).


APIAccessControlListType
APIAccessControlList
type = ec:APIAccessControlListType
0..*
APIAccessRule
type = ec:APIAccessRuleType

The `APIAccessControlList` element comprises a series of `APIAccessControlRule` elements which each defines an access control rule for access to the `APICalls` (see below for details).

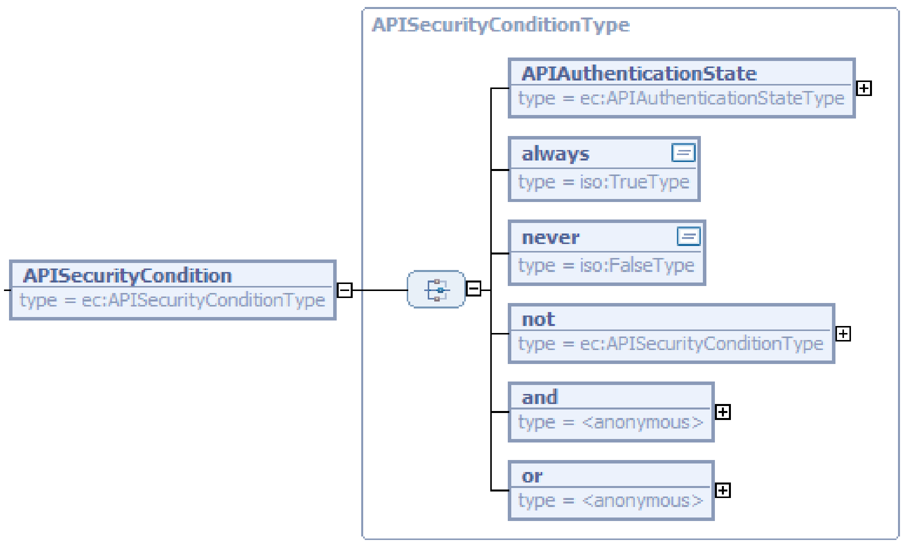
Name	**Description**
`APIAccessRule`	Contains an access control rule for an `APICall` (see below for details). In this context, the principle that an access which is not explicitly permitted is forbidden applies.



The `APIAccessControlRule` element is part of the `APIAccessControlList` element above and contains the access control information for an API function.

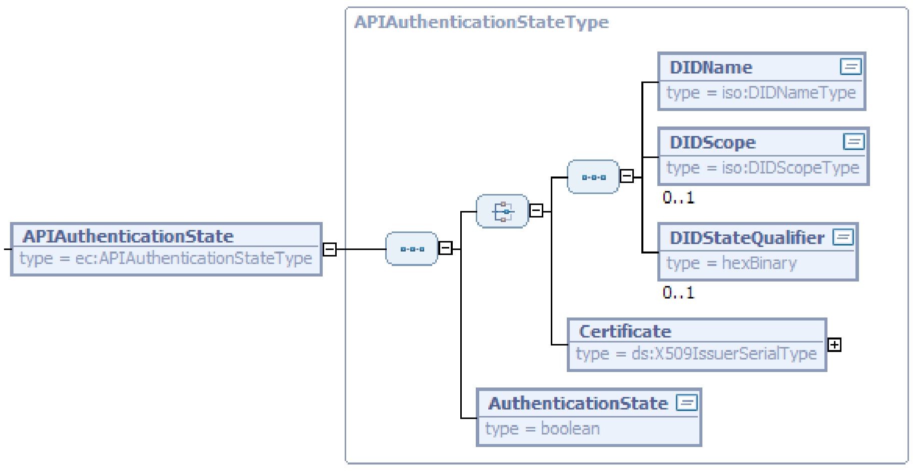
Name	**Description**
`APICall`	Contains the name of the API function. An overview of the eCard-API-Framework is provided in [TR-03112-1]. In addition, it MUST be possible to manage access control information for functions in "convenience layers" so that in certain application scenarios — and if necessary for certain smart card types (e.g. electronic health card) - only access to well-defined and especially verified special applications is possible.
`Address`	MAY specify permissible IP addresses and ports in the format *Address:Port* (d.h. aaa.bbb.ccc.ddd:Port) to which the respective access control rule refers. In this context, the wildcard "*" MAY also be used (e.g. "77.87.*.*:*"). If this element is missing, the access control rule refers to local access to the eCard-API-Framework via the C- or Java-interface (also refer to [TR-03112-1]).
`TC_Protocol`	MAY specify to which trusted channel protocol (also refer to `CardApplicationPath` in [TR-03112-4]) the access control rule refers. If this element is missing, no trusted channel protocol is assumed for the respective access control rule.

	APISecurityCondition	Contains the security condition for this access control rule. See below for details.



APISecurityCondition is part of APIAccessControlRule (see above). With this structure any Boolean expression can be stated from elementary authentication conditions in a manner similar to the SecurityCondition for AccessRules in accordance with [ISO24727-3] (also refer to [TR-03112-4]).

Such an APIAuthenticationState is defined as follows:

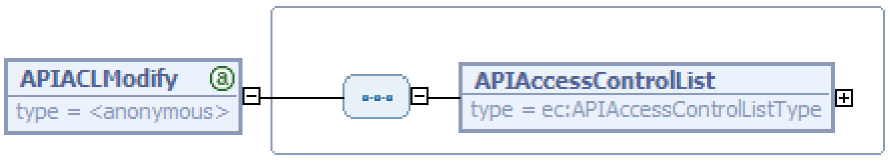
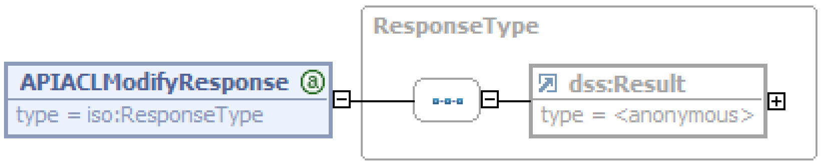


Name	Description
DIDName	Specifies the name of a DID in a *security module* which is permanently assigned to the eCard-API-Framework.
DIDScope	Is an optional parameter which resolves any ambivalence between local and global DIDs with the same name. If the DID is already uniquely specified by the stated DIDName, this element MAY be omitted.

	`DIDStateQualifier`	MAY be used for certificate-based authentication processes on cards (also refer to [TR-03112-7]).
	`Certificate`	Specifies the certificate stored in the certificate database which serves as trust anchor in the event of a non-card based authentication (e.g. by means of TLS, also refer to `CardApplicationPath` in [TR-03112-4] and `TC_API_Open` in [TR-03112-7].).
	`AuthenticationState`	States whether the respective authentication condition must be set or not (also refer to [ISO24727-3] and [TR-03112-4]).
	Status information and errors in `APIACLList` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error • /resultmajor#warning
	`ResultMinor`	• /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al#unknownAPIFunction • /resultminor/dp#unknownChannelHandle • /resultminor/sal# securityConditionsNotSatisfied
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition	For access to this function the ***administrator*** MUST be authenticated in accordance with the applicable security policies for the operation of the eCard-API-Framework.	
Postcondition		
Note	Also refer to `CardApplicationACL` in [TR-03112-4]. For successful access to card application services (also refer to [TR-03112-4], Section 3.1.3 ff), the access control conditions for the `APICalls` AND the specific card access control conditions MUST be met. For this reason access to these [ISO24727-3] functions SHOULD be permitted without restriction in general cases.	

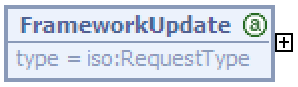
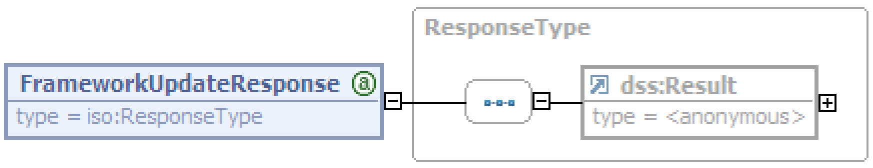
3.1.4 APIACLModify

Name	**`APIACLModify`**
Description	With the aid of the OPTIONAL `APIACLModify` function an access rule

	MAY be modified for a specific API function. If this function is supported it MAY ONLY be made available to an ***administrator*** who is authenticated in accordance with the applicable security policy for the operation of the eCard-API-Framework. Regardless of the support of this function it MUST be ensured that the applicable access control policy for API-calls is enforced.
Invocation parameters	 APIACLModify type = <anonymous> APIAccessControlList type = ec:APIAccessControlListType Invocation of the `APIACLModify` function.
	Name | **Description**
	`APIAccessControlList` | Contains the modified access control list for `APICalls`, which is activated at the latest the next time the eCard-API-Framework is started. Details on the `APIAccessControlListType` are given on page 13.
Return parameters	 ResponseType APIACLModifyResponse type = iso:ResponseType dss:Result type = <anonymous> Return of the `APIACLModify` function.
	Name | **Description**
	`dss:Result` | Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors in `APIACLModify` (also refer to [TR-03112-1] Sections 4.1 and 4.2).
	Name | **Error codes**
	`ResultMajor` | • /resultmajor#ok • /resultmajor#error • /resultmajor#warning

	ResultMinor	• /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al#unknownAPIFunction • /resultminor/dp#unknownChannelHandle • /resultminor/sal#invalidAccessControlInformation • /resultminor/sal#securityConditionsNotSatisfied
	ResultMessage	MAY contain more detailed information on the error which occurred if required.
Precondition	For access to this function the ***administrator*** MUST be authenticated in accordance with the definitive security policies applicable for operation of the eCard framework.	
Postcondition	The modified access control information becomes effective when the eCard-API-Framework is started the next time at the latest.	
Note	Also refer to CardApplicationACL in [TR-03112-4]. For successful access to card application services (also refer to [TR-03112-4], Section 3.1.3 ff), the access control conditions for the APICalls AND the specific card access control conditions MUST be met. For this reason access to these [ISO24727-3] functions SHOULD be permitted without restriction as a rule.	

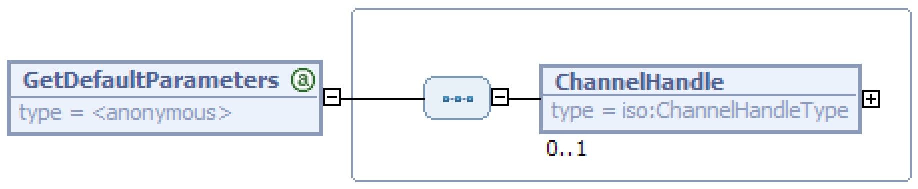
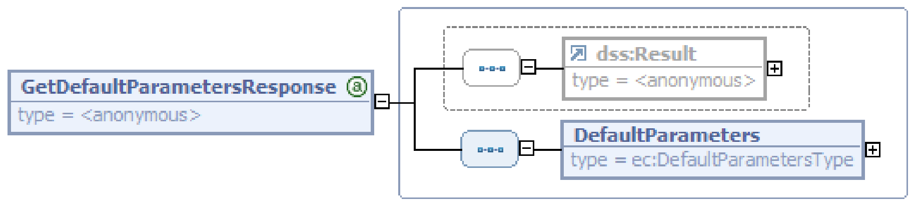
3.1.5 FrameworkUpdate

Name	**FrameworkUpdate**
Description	An installation of the eCard-API-Framework can be updated with the FrameworkUpdate function. As a result of calling FrameworkUpdate the eCard-API-Framework performs the "Basic Update Protocol" as specified in [TR-03112-7] with the update server defined by the UpdateService-element of the default parameters (cf. page 21).
Invocation parameters	 Invocation of the FrameworkUpdate function is performed without parameters.
Return	 ResponseType FrameworkUpdateResponse type = iso:ResponseType dss:Result type = <anonymous> Return of the FrameworkUpdate function.
	Name | **Description**

	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors with `FrameworkUpdate` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error • /resultmajor#warning
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/dp#communicationError • /resultminor/dp#trustedChannelEstablishmentFailed • /resultminor/dp#unknownProtocol • /resultminor/dp#unknownWebserviceBinding • /resultminor/al/FrameworkUpdate#serviceNotAvailable • /resultminor/al/FrameworkUpdate#unknownModule • /resultminor/al/FrameworkUpdate#invalidVersionNumber • /resultminor/al/FrameworkUpdate#operationSystemNotSupported • /resultminor/al/FrameworkUpdate#noSpaceAvailable • /resultminor/al/FrameworkUpdate#securityConditionsNotSatisfied • /resultminor/sal#digitalSignatureNotCorrect • /resultminor/il/signature#invalidSignatureFormat
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.1.6 GetDefaultParameters

Name	**`GetDefaultParameters`**

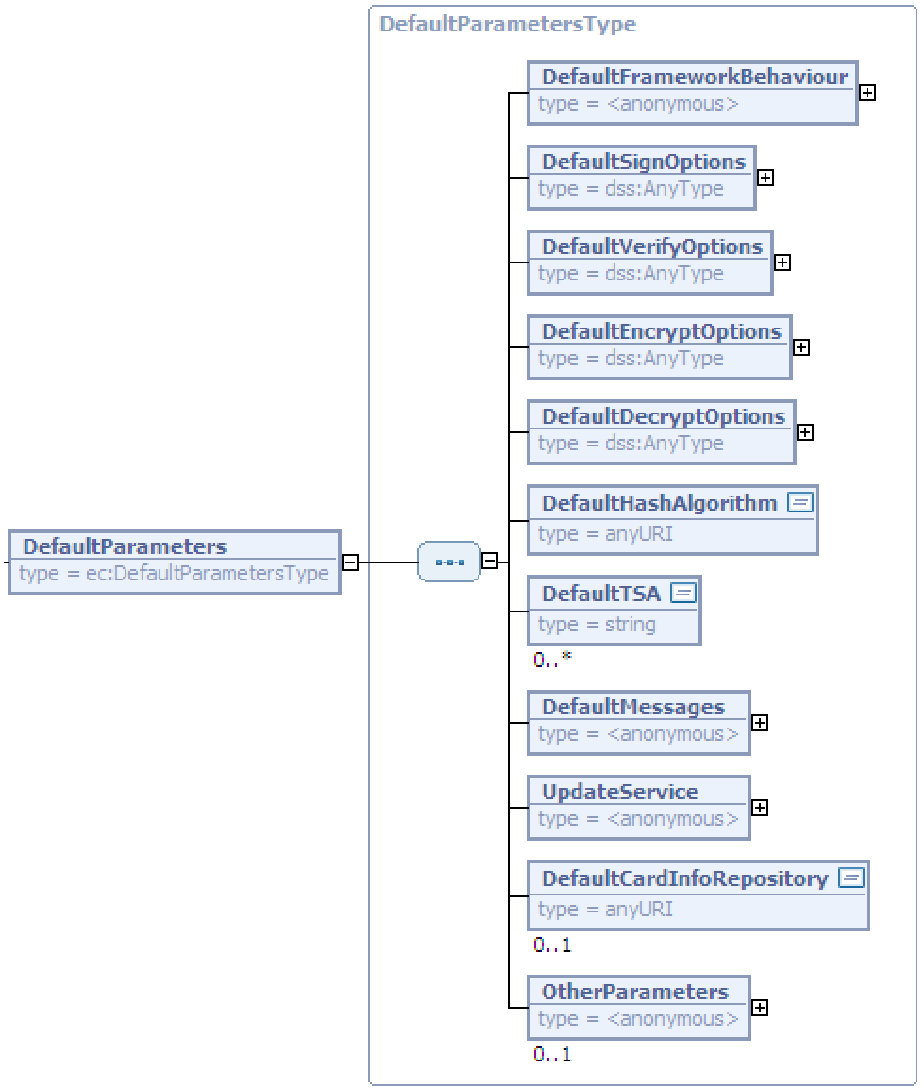
Description	The default parameters of the eCard-API-Framework are read out with the aid of the `GetDefaultParameters` function.
Invocation parameters	 GetDefaultParameters type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 Invocation of the `GetDefaultParameters` function.
Return parameters	 GetDefaultParametersResponse type = <anonymous> dss:Result type = <anonymous> DefaultParameters type = ec:DefaultParametersType Return of the `GetDefaultParameters` function.

Invocation parameters:

Name	**Description**
`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.

Return parameters:

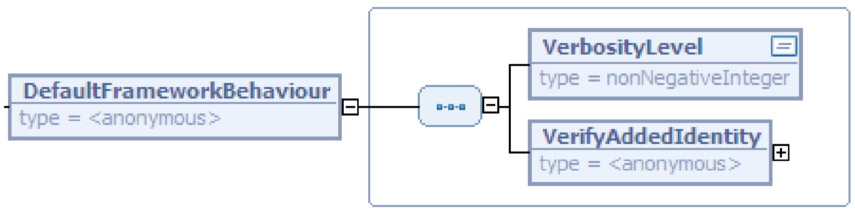
Name	**Description**
`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
`DefaultParameters`	Contains the configured default parameters of the eCard-API-Framework (see below for details).



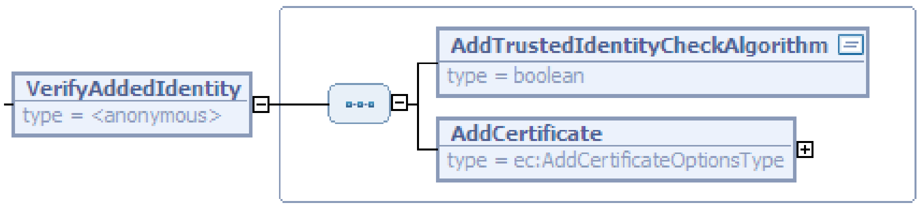
The `DefaultParamters` element contains standard parameters and is part of `GetDefaultParametersResponse` (see above).

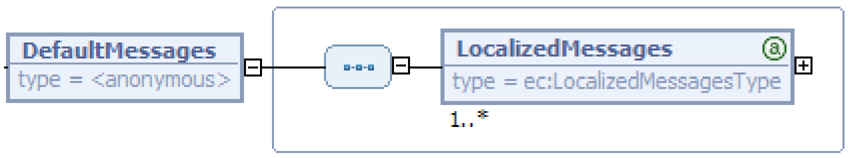
Name	**Description**
`DefaultFrameworkBehaviour`	Specifies the general behaviour of the eCard-API-Framework (see below for details).
`DefaultSignOptions`	Specifies the default signature options. The configured default content is automatically added to the `dss:OptionalInputs`-element in `SignRequest` (refer to [TR-03112-2], Section 3.2.1) as it would be provided by the client application. The default values MAY be overridden by explicitly providing an element of the same name in `dss:OptionalInputs`.

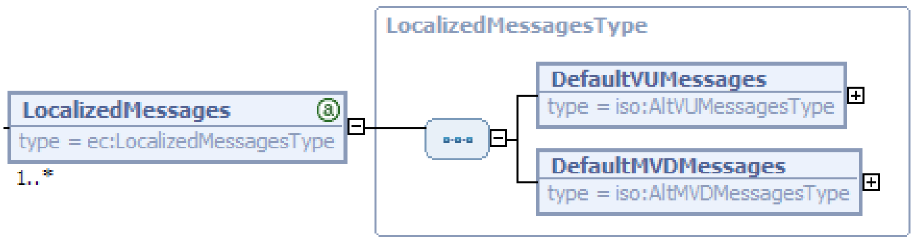
	`DefaultVerifyOptions`	Specifies the default verification options. The configured default content is automatically added to the `dss:OptionalInputs`-element in `VerifyRequest` (refer to [TR-03112-2], Section 3.2.2) as it would be provided by the client application. The default values MAY be overridden by explicitly providing an element of the same name in `dss:OptionalInputs`.
	`DefaultEncryptOptions`	Specifies the default encryption options. The configured default content is automatically added to the `dss:OptionalInputs`-element in `EncryptRequest` (refer to [TR-03112-2], Section 3.2.1) as it would be provided by the client application. The default values MAY be overridden by explicitly providing an element of the same name in `dss:OptionalInputs`.
	`DefaultDecryptOptions`	Specifies the default decryption options. The configured default content is automatically added to the `dss:OptionalInputs`-element in `DecryptRequest` (refer to [TR-03112-2], Section 3.2.1) as it would be provided by the client application. The default values MAY be overridden by explicitly providing an element of the same name in `dss:OptionalInputs`.
	`DefaultHashAlgorithm`	Defines the standard hash algorithm (also refer to [TR-03112-4], Annex A.3).
	`DefaultCipherSuite`	Defines the standard cipher suite which is to be used in the framework of `TC_API_Open` (also refer to [TR-03112-2]).

	`DefaultTSA`	Defines the standard time stamping services (also refer to Sections 3.6.5 and 3.6.6). If several time stamping services are configured for a corresponding time stamp type, the first suitable service in the list is addressed. If a time stamp service is referred to with the address `127.0.1.0`, the eCard-API-Framework is instructed to generate the time stamp *itself*.
	`DefaultMessages`	Defines the standard messages for recording and modifying PINs on a card terminal (see below for details).
	`UpdateService`	Contains information on the update service to be used (see below for details).
	`DefaultCardInfoRepository`	MAY specify the address of the standard CardInfo repository server (also refer to `GetCardInfoOrACD` in [TR-03112-5]).
	`OtherParameters`	MAY contain other (manufacturer-specific) parameters.
	 DefaultFrameworkBehaviour type = <anonymous> VerbosityLevel type = nonNegativeInteger VerifyAddedIdentity type = <anonymous> `DefaultFrameworkBehaviour` is part of `DefaultParameters` (see above).	
	Name	**Description**
	`VerbosityLevel`	Specifies in how much detail the framework reports on detailed processes. The following values are provided: • 0: No information is returned on the individual steps • >0: Information is returned on the individual steps An additional differentiation of the positive values for `VerbosityLevel` MAY be defined by the manufacturer.

	`VerifyAddedIdentity`	A digital identity (certificate or TSL) MAY ONLY be added to the certificate data base, if its digital signature is mathematically correct. Furthermore there MAY be additional verification steps required before an identity is added. The `VerifyAddedIdentity`-element states which additional verification steps MUST be performed before a digital identity is added (see below for details).

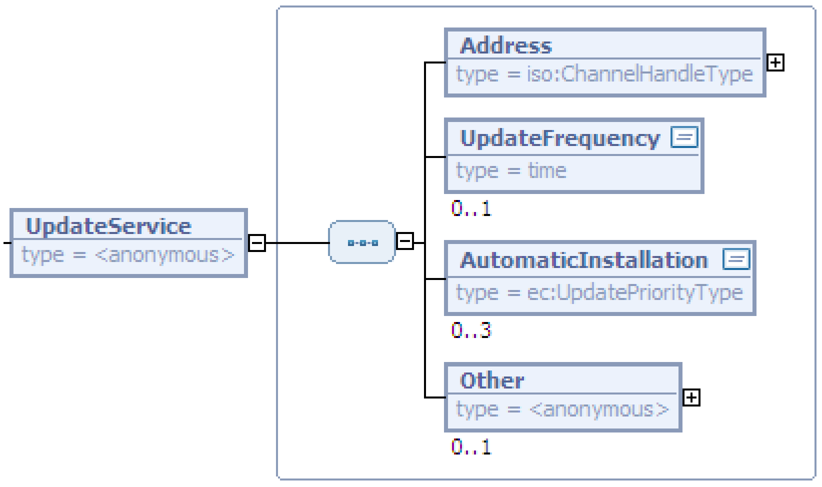
	 VerifyAddedIdentity
	type = <anonymous>
	AddTrustedIdentityCheckAlgorithm
	type = boolean
	AddCertificate
	type = ec:AddCertificateOptionsType `VerifyAddedIdentity` is part of `DefaultFrameworkBehaviour` (see above).	

	Name	**Description**
	`AddTrustedIdentity CheckAlgorithm`	States whether the suitability of the employed signature and hash algorithm MUST be verified when adding a root certificate, which is to be regarded as trustworthy.
	`AddCertificate`	Specifies which verifications MUST be performed when a certificate is added (also refer to Section 3.5.3).
	 DefaultMessages type = <anonymous> LocalizedMessages type = ec:LocalizedMessagesType 1..* `DefaultMessages` is part of `DefaultParameters` (refer to page 21).	
	Name	**Description**
	`LocalizedMessages`	Contains a set of standard messages for each supported language which is stated by the mandatory `xml:lang` attribute (see below for details).


LocalizedMessagesType
LocalizedMessages
type = ec:LocalizedMessagesType
1..*
DefaultVUMessages
type = iso:AltVUMessagesType
DefaultMVDMessages
type = iso:AltMVDMessagesType

`LocalizedMessages` is part of `DefaultMessages` and contains standard messages for a specific language.

Name	Description
`DefaultVUMessages`	Defines the standard messages which are used for user verifications (also refer to `VerifyUser` in [TR-03112-6]).
`DefaultMVDMessages`	Defines the standard messages which are used for modification of identification data (also refer to `ModifyVerificationData` in [TR-03112-6]).



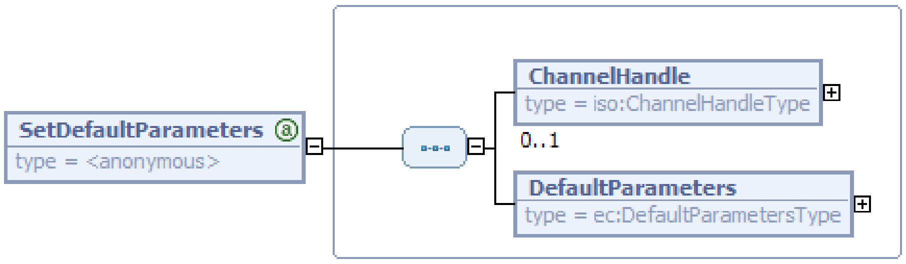
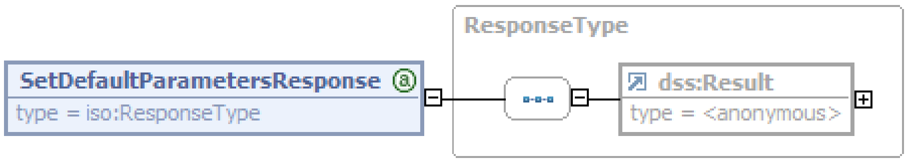
The `UpdateService` element is part of the `DefaultParameters` element (refer to page 21) and contains information for the update service which is to be used with the “Basic Update Protocol” specified in [TR-03112-7].

Name	Description
`Address`	Specifies the address of the update service, the applicable binding and the required security parameters if applicable. Note however that this MAY be a local address so that an update is also possible without network access.

	`UpdateFrequency`	Specifies the time interval after which an enquiry request is to be automatically sent to the update service. If this element is missing, no automatic enquiry is sent to the update service.
	`AutomaticInstallation`	MAY specify which class of updates (also refer to the `UpdatePriority` element in [TR-03112-7]) should be automatically loaded (when the eCard-API-Framework is terminated with `TerminateFramework`, also refer to Section 3.1.2). If this element is missing, no updates are automatically installed.
	`Other`	MAY contain other parameters.
	Status information and errors in `GetDefaultParameters` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle In addition, other protocol specific error messages MAY exist.
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.1.7 SetDefaultParameters

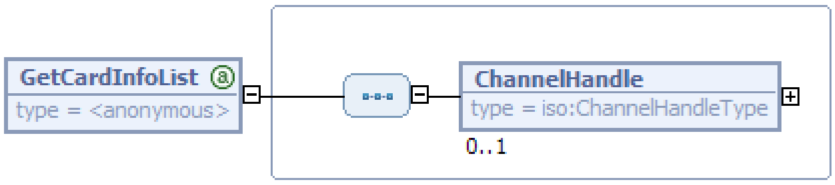
Name	**`SetDefaultParameters`**
Description	The default parameters of the eCard-API-Framework are stored with the aid of the `SetDefaultParameters` function.

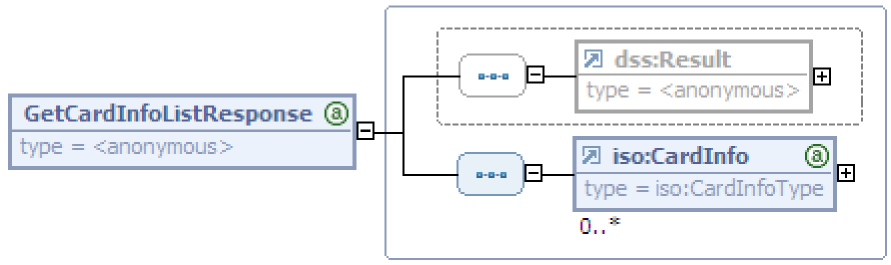
Invocation parameters	 SetDefaultParameters type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 DefaultParameters type = ec:DefaultParametersType Invocation of the `SetDefaultParameters` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`DefaultParameters`	Contains the configured default parameters of the eCard-API-Framework (refer to page 21 for details).
Return parameters	 SetDefaultParametersResponse type = iso:ResponseType ResponseType dss:Result type = <anonymous> Return of the `SetDefaultParameters` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors in `SetDefaultParameters` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error

	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/TrustedViewer#invalidID • /resultminor/dp#unknownChannelHandle • /resultminor/il/algorithm#hashAlgorithmNotSupported • /resultminor/il/encryption#encryptionFormatNotSupported • /resultminor/il/key#encryptionAlgorithmNotSupported • /resultminor/il/signature#signatureFormatNotSupported • /resultminor/il/signature#certificateFormatNotCorrect
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition	The modified default parameters become effective the next time the framework is started at the latest.	
Note		

3.2 Card management

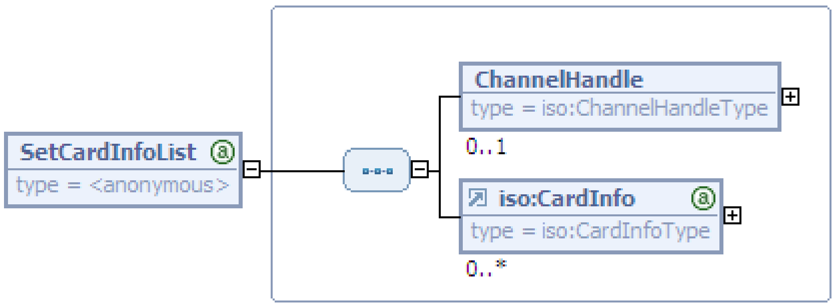
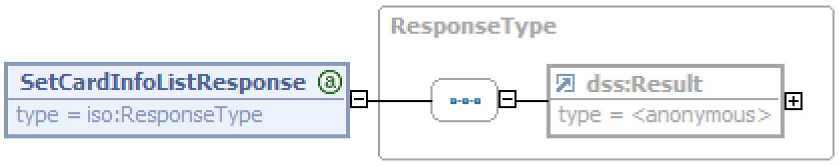
3.2.1 GetCardInfoList

Name	**`GetCardInfoList`**	
Description	The `GetCardInfoList` function supplies a list of known card types in the form of `CardInfo`-files (also refer to [TR-03112-4], Annex A).	
Invocation parameters	 GetCardInfoList type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 Invocation of the `GetCardInfoList` function.	
	Name	**Description**

	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
Return	 GetCardInfoListResponse type = <anonymous> dss:Result type = <anonymous> iso:CardInfo type = iso:CardInfoType 0..* Return of the `GetCardInfoList` function.	
	Name	**Description**
	`CardInfo`	Contains the `CardInfo` structure which is used for mapping of generic SAL-calls to card-specific APDUs. Details on this topic are contained in [TR-03112-4] (Annex A).
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors in `GetCardInfoList` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.2.2 SetCardInfoList

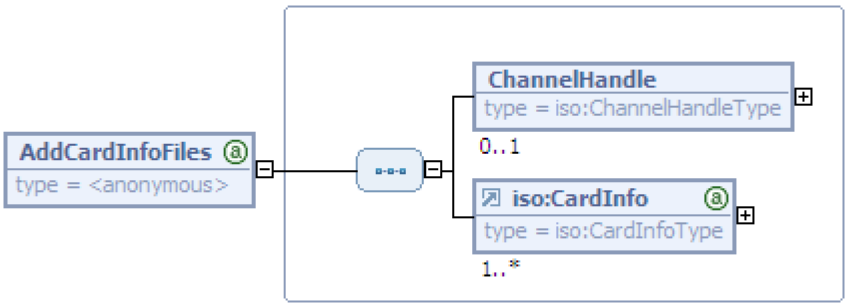
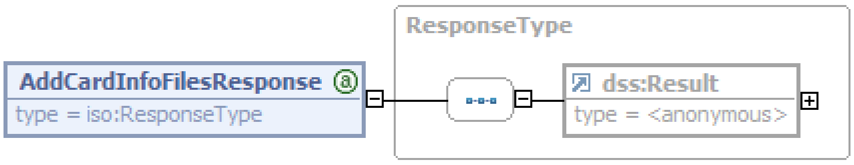
Name	**`SetCardInfoList`**
Description	The `SetCardInfoList` function stores a list of `CardInfo` structures which

	sequence may influence the sequence of steps and the performance of the card recognition procedure (also refer to [TR-03112-4], Annex A).	
Invocation parameters	 SetCardInfoList type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 iso:CardInfo type = iso:CardInfoType 0..* Invocation of the `SetCardInfoList` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`CardInfo`	Contains the `CardInfo` structure which is used for the mapping of generic ISO24727-3 calls to card-specific APDUs. Details on this topic are contained in [TR-03112-4] (Annex A). It must be noted that the sequence of the `CardInfo` structures transmitted here MAY have a significant influence on the sequence of steps in the card recognition process.
Return	 ResponseType SetCardInfoListResponse type = iso:ResponseType dss:Result type = <anonymous> Return of the `SetCardInfoList` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.

	Status information and errors in `SetCardInfoList` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/CardInfo#incorrectFile • /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note	The sequence of the transmitted `CardInfo` structures MAY have a significant influence on the sequence of steps and the performance of the card recognition process.	

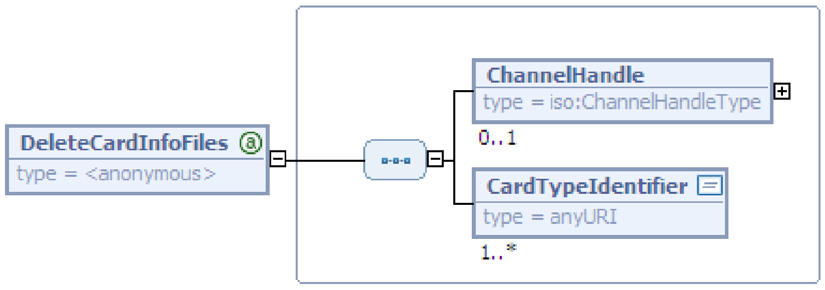
3.2.3 AddCardInfoFiles

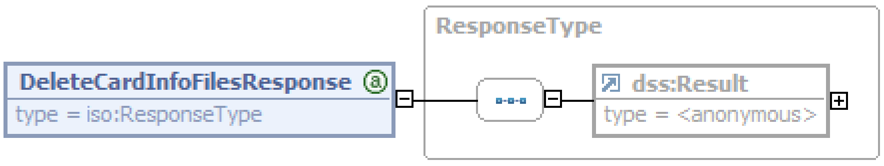
Name	**`AddCardInfoFiles`**
Description	The `AddCardInfoFiles` function provides a sequence of additional `CardInfo` structures to the eCard-API-Framework. The new `CardInfo` structures are added to the end of the existing list. During import of the `CardInfo` files, a series of semantic verifications must be performed which ensure that the `CardInfo` files can be used safely. The following tests MUST be performed in particular (also refer to [TR-03112-4], Annex A.7): • Test for content-related consistency (e.g. that URIs for protocols and algorithms are known) • Verification of any signatures • Verification that protected key references are not referenced from unsigned parts of a `CardInfo` file.

Invocation parameters	 AddCardInfoFiles type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 iso:CardInfo type = iso:CardInfoType 1..* Invocation of the `AddCardInfoFiles` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`CardInfo`	Contains the `CardInfo` structure which is used for the mapping of generic ISO24727-3 invocations to card-specific APDUs. Details on this topic are contained in [TR-03112-4] (Annex A). The new `CardInfo` structures are added to the end of the existing list. `CardInfo` structures which are already on this list are ignored, whereby a warning (error code /resultminor/al/CardInfo#alreadyExisting) is returned in this case.
Return	 ResponseType AddCardInfoFilesResponse type = iso:ResponseType dss:Result type = <anonymous> Return of the `AddCardInfoFiles` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.

	Status information and errors in `AddCardInfoFiles` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/CardInfo#addNotPossible • /resultminor/al/CardInfo#alreadyExisting • /resultminor/al/CardInfo#incorrectFile • /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.2.4 DeleteCardInfoFiles

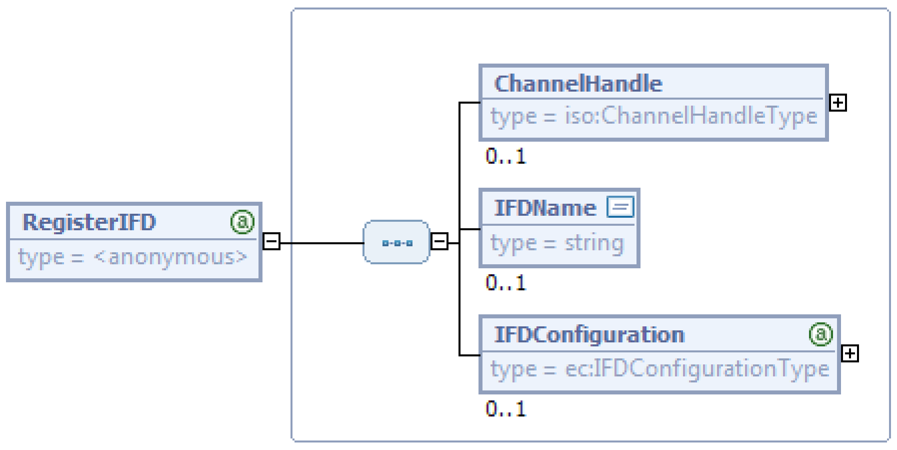
Name	**`DeleteCardInfoFiles`**	
Description	The `DeleteCardInfoFiles` function deletes a series of `CardInfo` files.	
Invocation parameters	 DeleteCardInfoFiles type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 CardTypeIdentifier type = anyURI 1..* Invocation of the `DeleteCardInfoFiles` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`CardTypeIdentifier`	Contains a series of unique identifiers of the `CardInfo` structures which are to be deleted (also refer to [TR-03112-4], Annex A.3)

Return	 ResponseType DeleteCardInfoFilesResponse type = iso:ResponseType dss:Result type = <anonymous> Return of the `DeleteCardInfoFiles` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors in `DeleteCardInfoFiles` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/CardInfo#notExisting • /resultminor/al/CardInfo#deleteNotPossible • /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

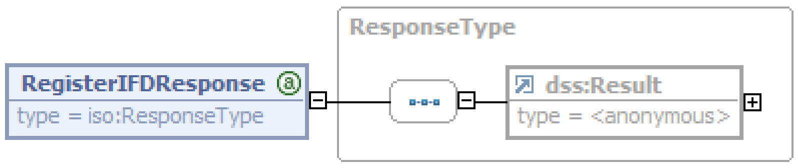
3.3 Card terminal management

3.3.1 RegisterIFD

Name	**`RegisterIFD`**
Description	With the `RegisterIFD` function it is possible to add a card terminal with all configuration information. Furthermore this function may be used to reactivate one or all suspended card terminals.

Invocation parameters	 RegisterIFD type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 IFDName type = string 0..1 IFDConfiguration type = ec:IFDConfigurationType 0..1 Invocation of the `RegisterIFD` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`IFDName`	If the `IFDName`-parameter is present the referenced IFD is • *added* to the registry, if it has not been present yet or • *reactivated*, if it is present and suspended. If the `IFDName`-parameter is missing, all registered IFDs, including the ones which have previously been suspended, will be reactivated.

	`IFDConfiguration`	Optionally contains the configuration information for the card terminal addressed with `IFDName`. The detailed specification of these configuration parameters depends on the card terminal type and is therefore dependent on the manufacturer.
		
		The `IFDConfigurationType` is defined as follows:
		`<complexType name="IFDConfigurationType">`
		`  <complexContent>`
		`    <extension base="anyType">`
		`      <attribute name="IFDType" type="anyURI" use="required" />`
		`    </extension>`
		`  </complexContent>`
		`</complexType>`
		
		Card terminal manufacturers SHOULD define corresponding structures for their products if required and register them at the Federal Office for Information Security.

Return	 RegisterIFDResponse type = iso:ResponseType ResponseType dss:Result type = <anonymous> Return of the `RegisterIFD` function.	

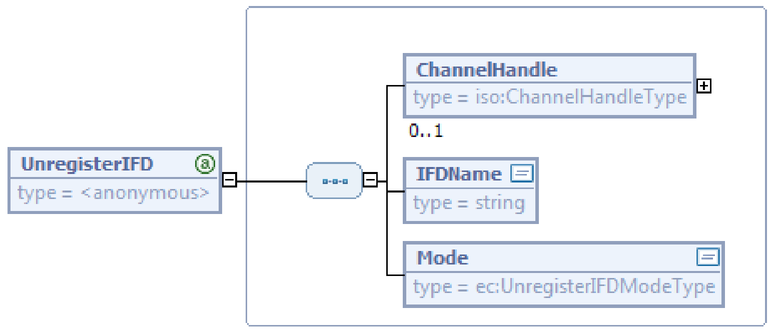
Name	**Description**
`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.

Status information and errors in `RegisterIFD` (also refer to [TR-03112-1] Sections 4.1 and 4.2).

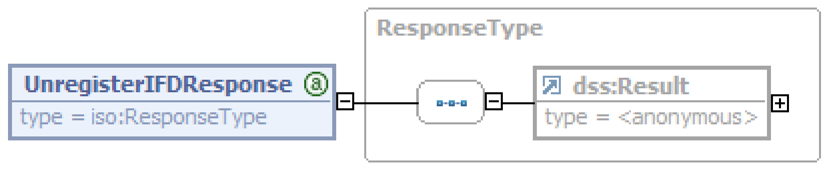
Name	**Error codes**
`ResultMajor`	• /resultmajor#ok • /resultmajor#error

	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/IFD#writeConfigurationNotPossible • /resultminor/al/IFD#couldNotAdd • /resultminor/al/IFD#addNotPossible • /resultminor/dp#unknownChannelHandle • /resultminor/ifdl/terminal#accessError
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition	In case of a new IFD the `IFDName` and, if applicable, the configuration parameters are added to the card terminal management of the eCard-API-Framework. If the IFD addressed by the given `IFDName` has already been registered and suspended it is reactivated. If no `IFDName` has been provided all previously registered and possibly suspended IFDs are activated.	
Note		

3.3.2 UnregisterIFD

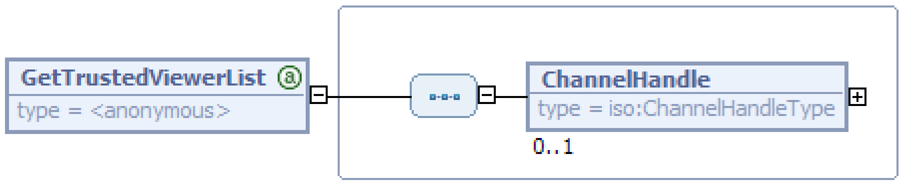
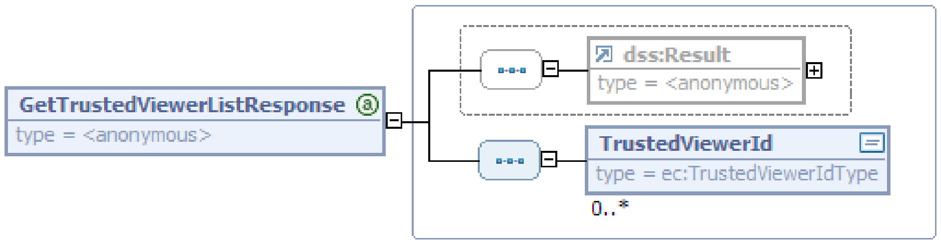
Name	**`UnregisterIFD`**	
Description	The `UnregisterIFD` function temporarily or permanently removes a card terminal from the card terminal management of the eCard-API-Framework.	
Invocation parameters	 UnregisterIFD type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 IFDName type = string Mode type = ec:UnregisterIFDModeType Invocation of the `UnregisterIFD` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`IFDName`	The name of the card terminal which is to be suspended or deleted.

	`Mode`	The `Mode` parameter specifies, whether the IFD is temporarily or permanently deactivated. It is of type `UnregisterIFDModeType`, which is defined as follows:
		`<simpleType name="UnregisterIFDModeType">`
		`        <restriction base="string">`
		`                <enumeration value="temporary" />`
		`                <enumeration value="permanent" />`
		`        </restriction>`
		`</simpleType>`

Return	 UnregisterIFDResponse type = iso:ResponseType ResponseType dss:Result type = <anonymous> Return of the `UnregisterIFD` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors in `UnregisterIFD` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/IFD#deleteNotPossible • /resultminor/dp#unknownChannelHandle • /resultminor/ifdl/terminal#unknownIFD • /resultminor/ifdl/terminal#accessError
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition	The card terminal addressed with `IFDName` was removed from card terminal management of the eCard-API-Framework.	
Note		

3.4 Trusted viewer management

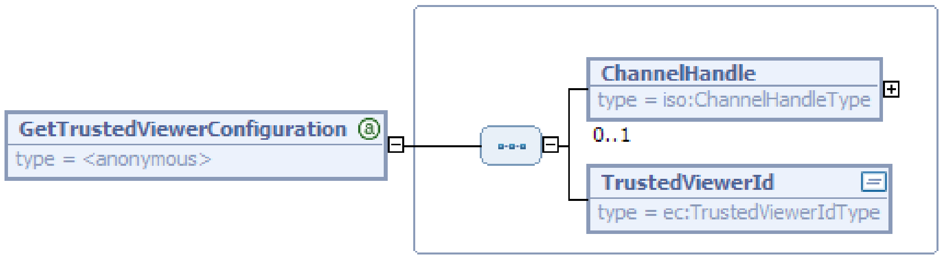
3.4.1 GetTrustedViewerList

Name	**GetTrustedViewerList**	
Description	The GetTrustedViewerList function provides a list of available trustworthy display components (trusted viewer).	
Invocation parameters	 GetTrustedViewerList type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 Invocation of the GetTrustedViewerList function.	
	Name	**Description**
	ChannelHandle	Optional parameter with which a remote system can be addressed (also refer to CardApplicationPath in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
Return	 GetTrustedViewerListResponse type = <anonymous> dss:Result type = <anonymous> TrustedViewerId type = ec:TrustedViewerIdType 0..* Return of the GetTrustedViewerList function.	
	Name	**Description**
	dss:Result	Contains the status information and the errors of an executed action. This element is described in more detail below.

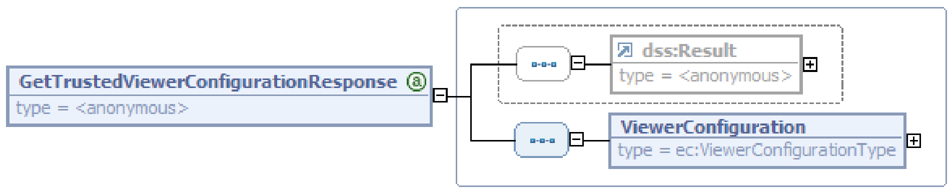
	TrustedViewerId	Contains the ID of the trusted viewer. The TrustedViewerId is defined as follows:
		`<simpleType name="TrustedViewerIdType">`
		`  <restriction base="string">`
		`      <maxLength value="64" />`
		`  </restriction>`
		`</simpleType>`

	Status information and errors in `GetTrustedViewerList` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.4.2 GetTrustedViewerConfiguration

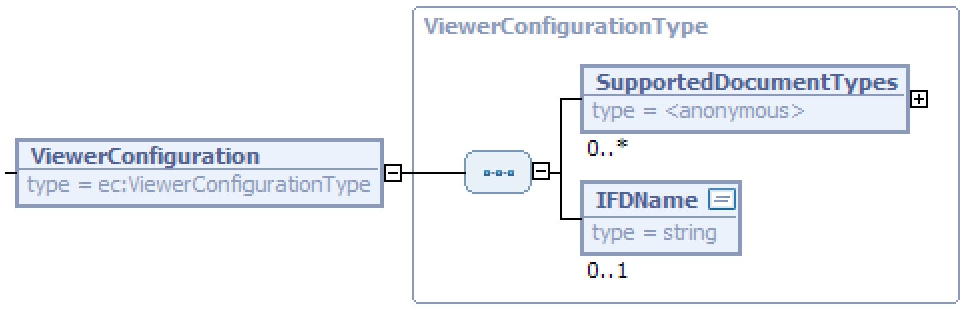
Name	**`GetTrustedViewerConfiguration`**	
Description	The `GetTrustedViewerConfiguration` function reads the configuration information which is saved in the eCard-API-Framework for a specific trusted viewer.	
Invocation parameters	 GetTrustedViewerConfiguration type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 TrustedViewerId type = ec:TrustedViewerIdType Invocation of the `GetTrustedViewerConfiguration` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`TrustedViewerId`	Contains the ID of the trusted viewer for which the configuration data are to be returned.

Return


GetTrustedViewerConfigurationResponse
type = <anonymous>
dss:Result
type = <anonymous>
ViewerConfiguration
type = ec:ViewerConfigurationType

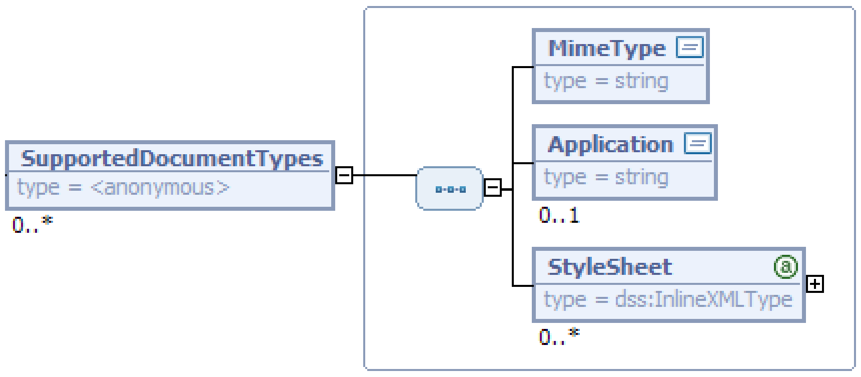
Return of the `GetTrustedViewerConfiguration` function.

Name	Description
`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
`ViewerConfiguration`	Contains the configuration data of the trusted viewer (see below for details).



The `ViewerConfiguration` element is part of `GetTrustedViewer ConfigurationResponse` (see above).

Name	Description
`SupportedDocumentTypes`	Contains information on those document types which are supported by the trusted viewer (see below for details).
`IFDName`	MAY contain a reference to a card terminal which logically links to the trusted viewer.

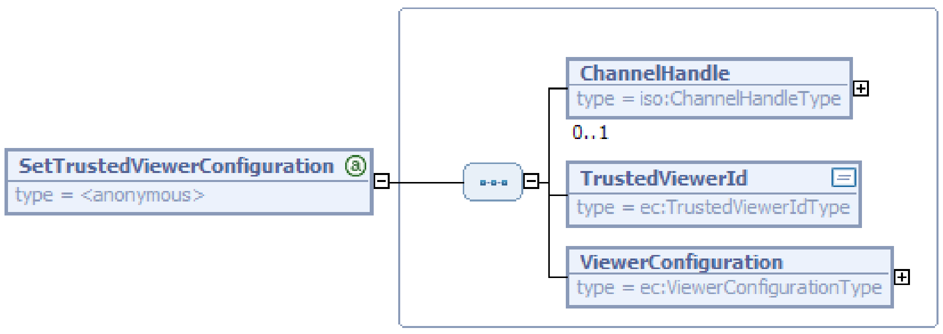


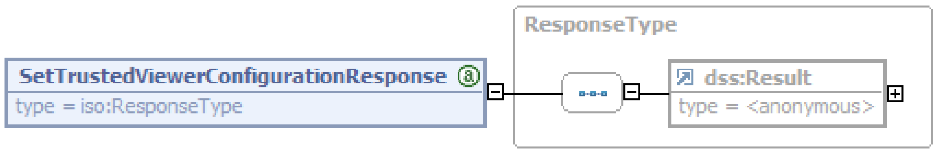
The `SupportedDocumentTypes` is part of `ViewerConfiguration` (see above).

Name	Description

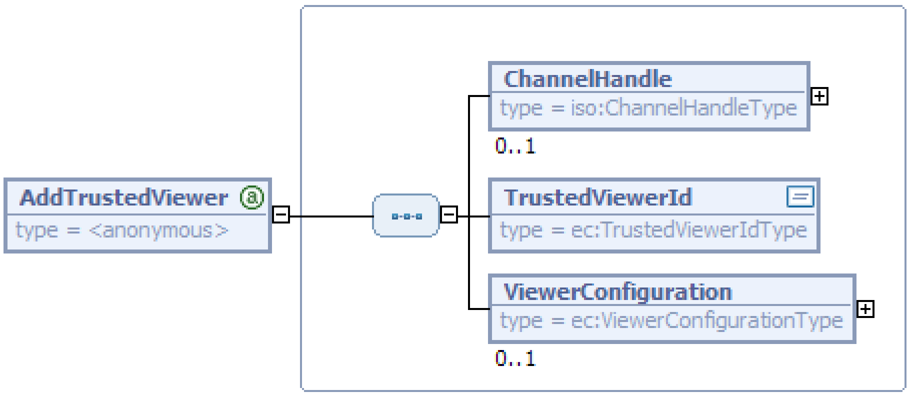
	`MimeType`	States the supported document type in accordance with [MIME].
	`Application`	MAY associate an application with this Mime type.
	`StyleSheet`	MAY contain a number of style sheets which are used for depiction of specific XML-based data.
	Status information and errors in `GetTrustedViewerConfiguration` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/TrustedViewer#invalidID • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.4.3 SetTrustedViewerConfiguration

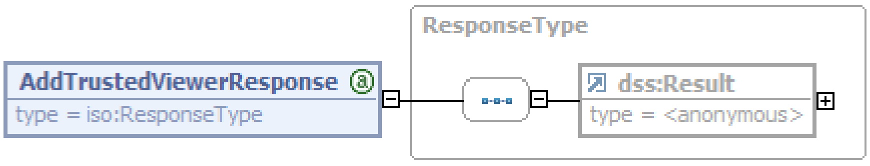
Name	**`SetTrustedViewerConfiguration`**	
Description	The `SetTrustedViewerConfiguration` function stores the configuration information for a specific trusted viewer.	
Invocation parameters	 SetTrustedViewerConfiguration type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 TrustedViewerId type = ec:TrustedViewerIdType ViewerConfiguration type = ec:ViewerConfigurationType Invocation of the `SetTrustedViewerConfiguration` function.	
	Name	**Description**

	ChannelHandle	Optional parameter with which a remote system can be addressed (also refer to CardApplicationPath in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	TrustedViewerId	Contains the ID of the trusted viewer for which the configuration data are stored.
	ViewerConfiguration	Contains the configuration information for the stated trusted viewer (for details refer to page 41).
Return	 ResponseType SetTrustedViewerConfigurationResponse type = iso:ResponseType dss:Result type = <anonymous> Return of the SetTrustedViewerConfiguration function.	
	Name	**Description**
	dss:Result	Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors in SetTrustedViewerConfiguration (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	ResultMajor	• /resultmajor#ok • /resultmajor#error
	ResultMinor	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/TrustedViewer#invalidID • /resultminor/al/TrustedViewer# invalidConfiguration • /resultminor/dp#unknownChannelHandle • /resultminor/ifdl/terminal#unknownIFD
	ResultMessage	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.4.4 AddTrustedViewer

Name	**`AddTrustedViewer`**
Description	With the `AddTrustedViewer` function, a trusted viewer can be added with all configuration information.
Invocation parameters	 AddTrustedViewer type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 TrustedViewerId type = ec:TrustedViewerIdType ViewerConfiguration type = ec:ViewerConfigurationType 0..1 Invocation of the `AddTrustedViewer` function.

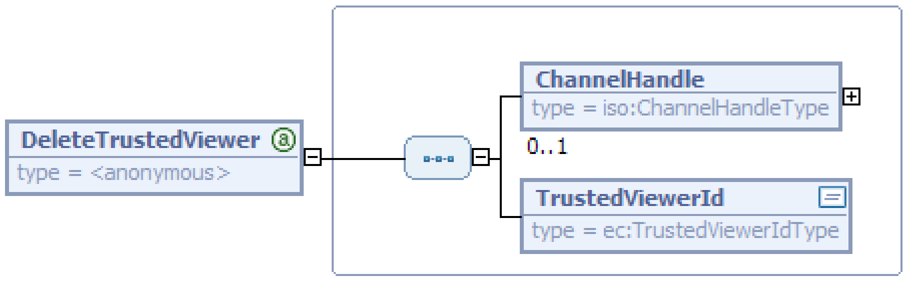
Name	Description
`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
`TrustedViewerId`	Contains the unique identifier of the trusted viewer which is to be added to the eCard-API-Framework.
`ViewerConfiguration`	MAY contain the configurations of the trusted viewer (for details refer to page 41).

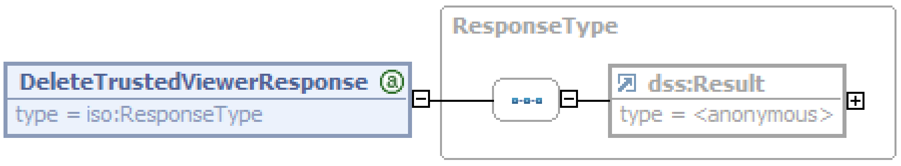
Return	 ResponseType AddTrustedViewerResponse type = iso:ResponseType dss:Result type = <anonymous> Return of the `AddTrustedViewer` function.

Name	Description
`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.

	Status information and errors in `AddTrustedViewer` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/TrustedViewer#invalidConfiguration • /resultminor/al/TrustedViewer#alreadyExisting • /resultminor/dp#unknownChannelHandle • /resultminor/ifdl/terminal#unknownIFD
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.4.5 DeleteTrustedViewer

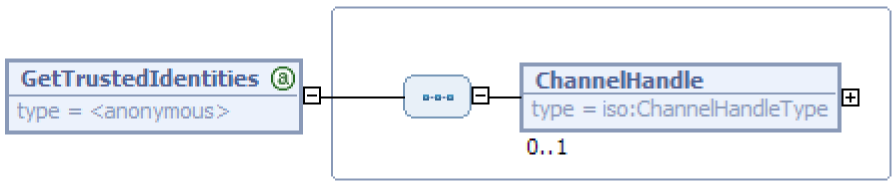
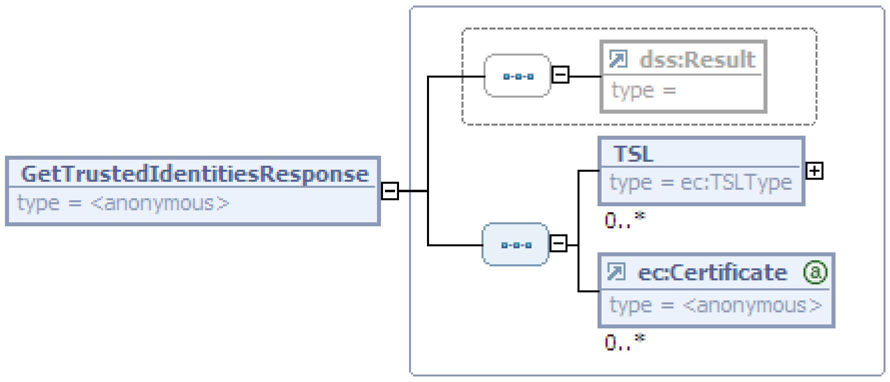
Name	**`DeleteTrustedViewer`**	
Description	The `DeleteTrustedViewer` function removes a trusted viewer.	
Invocation parameters	 DeleteTrustedViewer type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 TrustedViewerId type = ec:TrustedViewerIdType Invocation of the `DeleteTrustedViewer` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`TrustedViewerId`	Contains the ID of the trusted viewer which is to be removed.

Return	 DeleteTrustedViewerResponse type = iso:ResponseType ResponseType dss:Result type = <anonymous> Return of the `DeleteTrustedViewer` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors in `DeleteTrustedViewer` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/TrustedViewer#deleteNotPossible • /resultminor/al/TrustedViewer#invalidID • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.5 Identity management

3.5.1 GetTrustedIdentities

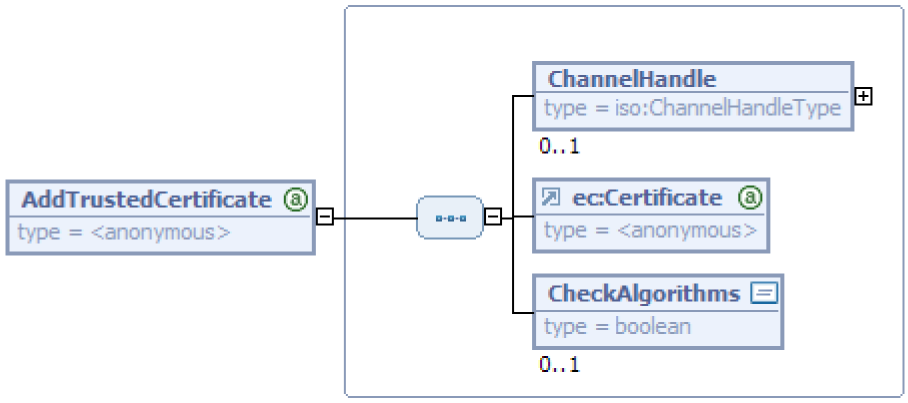
Name	**`GetTrustedIdentities`**
Description	The `GetTrustedIdentities` function creates a list of all trusted identities in the form of Trust-Service status lists (TSL) and certificates.

Invocation parameters	 GetTrustedIdentities type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 Invocation of the `GetTrustedIdentities` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
Return	 dss:Result type = GetTrustedIdentitiesResponse type = <anonymous> TSL type = ec:TSLType 0..* ec:Certificate type = <anonymous> 0..* Return of the `GetTrustedIdentities` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	`TSL`	MAY contain a series of Trust-Service Status Lists . See below for details concerning the structure of the `TSLType`.

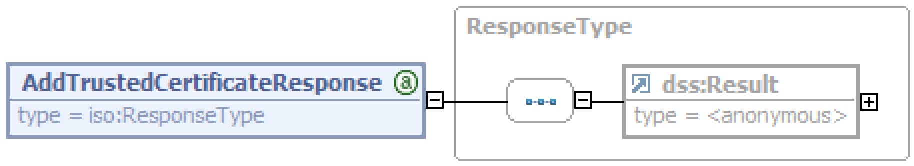
	`Certificate`	MAY contain a series of trusted certificates.
		The `ec:Certificate` element is defined as follows:
		`<element name="Certificate">`
		` <complexType>`
		`  <simpleContent>`
		`   <extension`
		`base="base64Binary">`
		`    <attribute name="Type"`
		`type="anyURI" use="optional"`
		`default="urn:ietf:rfc:3280">`
		`    </attribute>`
		`   </extension>`
		`  </simpleContent>`
		` </complexType>`
		`</element>`
		Here the type of the certificate MAY be specified in the `Type` attribute (also refer to `CertificateType` in [TR-03112-7]).

	The `TSLType` is used in the definition of `GetTrustedIdentities-Response` (see above), `AddTSL` (see Section 3.5.6).	
	Name	**Description**
	`TSLv3.1.2`	This element contains a TSL according to [TS102231] Version 3.1.2 as it is used by Bundesnetzagentur and other European accreditation and supervision bodies for qualified electronic signatures.
	`Other`	This element can be used to handle all other TSL-types.
	Status information and errors in `GetTrustedIdentities` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle In addition, other specific protocol error messages can exist.
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.5.2 AddTrustedCertificate

Name	**`AddTrustedCertificate`**
Description	With the `AddTrustedCertificate` function, a certificate can be added to the list of trusted identities.
Invocation parameters	 AddTrustedCertificate type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 ec:Certificate type = <anonymous> CheckAlgorithms type = boolean 0..1 Invocation of the `AddTrustedCertificate` function.

Name	Description
`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
`ec:Certificate`	Contains the trustworthy certificate which should be added to the certificate database (also refer to page 48).
`CheckAlgorithms`	Contains information on whether the current suitability of the algorithms used in the certificate should be verified. If an error occurs during this verification, the certificate is not added. If this element is missing, the configured `DefaultParameters` (refer to page 21) are used.

Return	 AddTrustedCertificateResponse type = iso:ResponseType ResponseType dss:Result type = <anonymous> Return of the `AddTrustedCertificate` function.

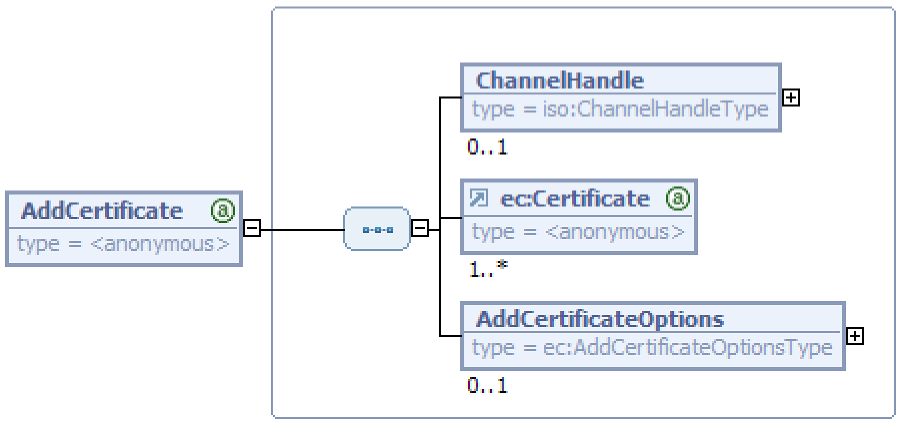
Name	Description
`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.

	Status information and errors in `AddTrustedCertificate` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/il/algorithm# hashAlgorithmNotSupported • /resultminor/il/algorithm# signatureAlgorithmNotSupported • /resultminor/il/signature# certificateFormatNotCorrect • /resultminor/il/signature# signatureAlgorithmNotSuitable • /resultminor/il/signature# hashAlgorithmNotSuitable • /resultminor/il/signature# invalidCertificateExtension • /resultminor/sal#digitalSignatureNotCorrect
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note	Before the certificate is added to the list of trustworthy certificates, the digital signature on the certificate is verified to ensure its mathematical validity and the current suitability of the algorithms is checked if necessary.	

3.5.3 AddCertificate

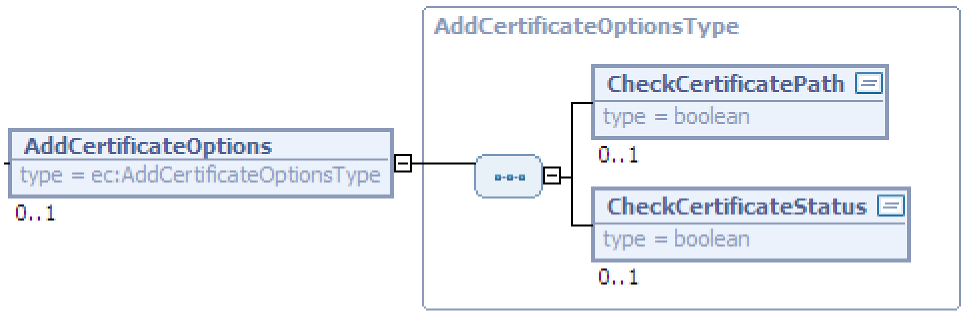
Name	**`AddCertificate`**
Description	With the `AddCertificate` function, a sequence of non-trusted certificates can be added to the certificate database. These certificates MAY be used for encryption or to support the signature verification.

Invocation parameters



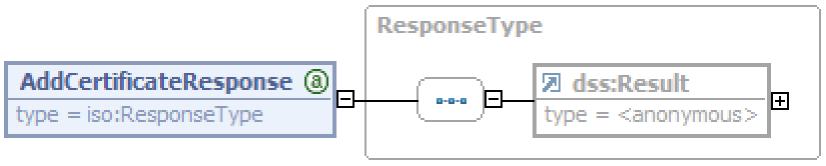
Invocation of the `AddCertificate` function.

Name	Description
`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
`ec:Certificate`	Contains a series of certificates which should be added to the certificate database (also refer to page 48).
`AddCertificateOptions`	This element MAY be present and defines which verification steps MUST be performed before a particular certificate is added (see below for details). If no options are specified, the configured `DefaultParameters` (refer to page 21) are used.



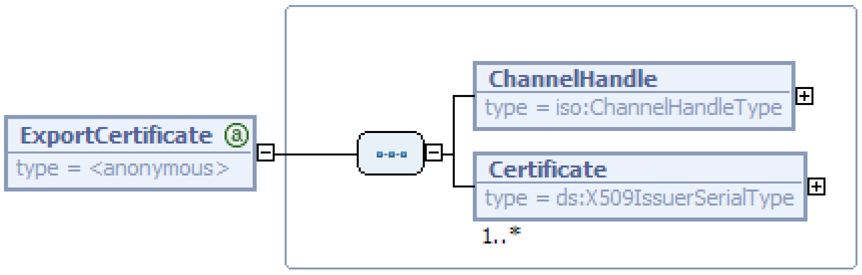
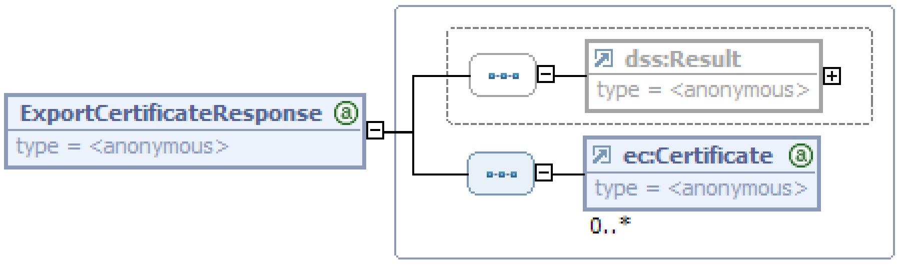
`AddCertificateOptions` defines which verification steps are performed before a certificate is added. This element MAY be part of `AddCertificate`.

Name	Description

	`CheckCertificatePath`	This option stipulates that the certificate path should be verified before the certificate is added to the certificate database. If an error occurs during this verification, the certificate is not added. If this element is missing, the configured `DefaultParameters` (refer to page 21) are used.
	`CheckCertificateStatus`	This option stipulates that the status of a certificate should be verified before it is added to the certificate database. If the address of an OCSP responder is included in a certificate, it SHOULD be used for the verification. Alternatively, a corresponding CRL MAY be evaluated. If an error occurs during this verification, the certificate is not added. If this element is missing, the configured `DefaultParameters` (refer to page 21) are used.
Return	 AddCertificateResponse type = iso:ResponseType ResponseType dss:Result type = <anonymous> Return of the `AddCertificate` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors in `AddCertificate` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error • /resultmajor#warning

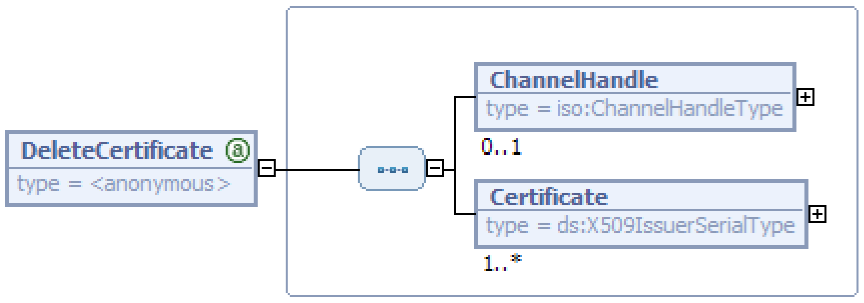
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/il/algorithm# hashAlgorithmNotSupported • /resultminor/il/algorithm# signatureAlgorithmNotSupported • /resultminor/il/service#ocspResponderUnreachable • /resultminor/il/service# directoryServiceUnreachable • /resultminor/il/signature#certificateNotFound • /resultminor/il/signature# certificateFormatNotCorrect • /resultminor/il/signature# invalidCertificateReference • /resultminor/il/signature# certificateChainInterrupted • /resultminor/il/signature# improperRevocationInformation • /resultminor/il/signature# signatureAlgorithmNotSuitable • /resultminor/il/signature#hashAlgorithmNotSuitable • /resultminor/il/signature#invalidCertificatePath • /resultminor/il/signature#certificateRevoked • /resultminor/il/signature# referenceTimeNotWithinCertificateValidityPeriod • /resultminor/il/signature# invalidCertificateExtension • /resultminor/sal#digitalSignatureNotCorrect • /resultminor/il/signature# certificatePathNotValidatedWarning • /resultminor/il/signature# certificateStatusNotCheckedWarning • /resultminor/il/signature# suiteabilityOfAlgorithmsNotCheckedWarning.
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

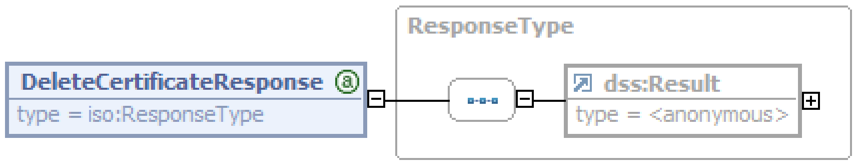
3.5.4 ExportCertificate

Name	**`ExportCertificate`**
Description	A certificate may be exported with the `ExportCertificate` function.
Invocation parameters	 ExportCertificate type = <anonymous> ChannelHandle type = iso:ChannelHandleType Certificate type = ds:X509IssuerSerialType 1..* Invocation of the `ExportCertificate` function.
	Name / **Description**
	`ChannelHandle`: Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`Certificate`: Specifies which certificates should be exported from the database. The `X509IssuerSerialType` is defined in [RFC3275].
Return	 ExportCertificateResponse type = <anonymous> dss:Result type = <anonymous> ec:Certificate type = <anonymous> 0..* Return of the `ExportCertificate` function.
	Name / **Description**
	`dss:Result`: Contains the status information and the errors of an executed action. This element is described in more detail below.
	`ec:Certificate`: MAY occur several times and contains the requested certificate (also refer to page 48).

	Status information and errors in `ExportCertificate` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/il/signature#certificateNotFound • /resultminor/il/signature# invalidCertificateReference
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.5.5 DeleteCertificate

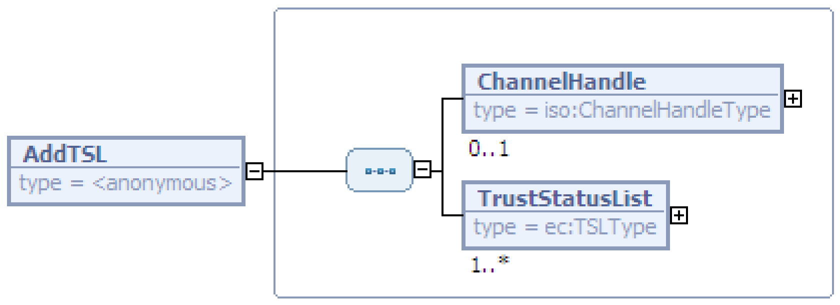
Name	**`DeleteCertificate`**	
Description	The `DeleteCertificate` function deletes an existing (trustworthy or non-trustworthy) certificate from the certificate database.	
Invocation parameters	 DeleteCertificate type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 Certificate type = ds:X509IssuerSerialType 1..* Invocation of the `DeleteCertificate` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`Certificate`	Specifies which certificate is to be deleted from the database. The `X509IssuerSerialType` is defined in [RFC3275].

Return	 ResponseType DeleteCertificateResponse type = iso:ResponseType dss:Result type = <anonymous> Return of the `DeleteCertificate` function. **Name** | **Description** `dss:Result` | Contains the status information and the errors of an executed action. This element is described in more detail below. Status information and errors in `DeleteCertificate` (also refer to [TR-03112-1] Sections 4.1 and 4.2). **Name** | **Error codes** `ResultMajor` | • /resultmajor#ok • /resultmajor#error `ResultMinor` | • /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/il/signature#invalidCertificateReference `ResultMessage` | MAY contain more detailed information on the error which occurred if required.
Precondition	
Postcondition	
Note	

3.5.6 AddTSL

Name	**`AddTSL`**
Description	A series of Trust-Service status lists according to [TS102231] can be added with the `AddTSL` function.

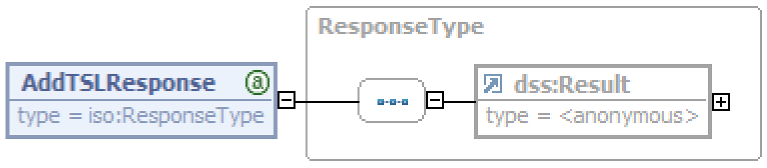
Invocation parameters



Invocation of the `AddTSL` function.

Name	Description
`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
`TrustStatusList`	MAY occur several times and contains a Trust-Service Status List according to [TS102231]. See page 48 for more information on the `TSLType`.

Return



Return of the `AddTSL` function.

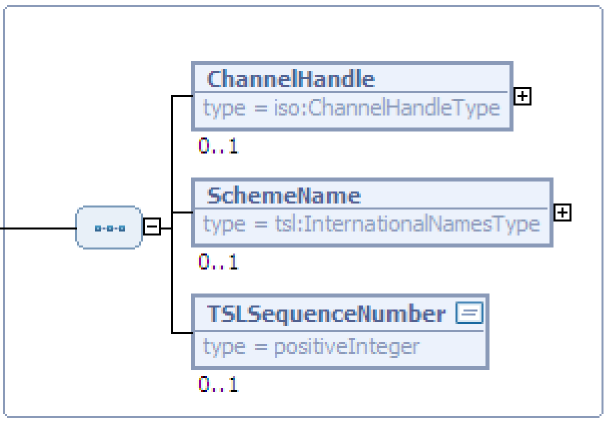
Name	Description
`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.

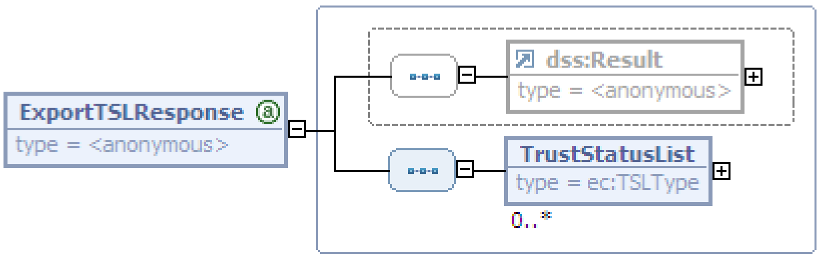
Status information and errors in `AddTSL` (also refer to [TR-03112-1] Sections 4.1 and 4.2).

Name	Error codes
`ResultMajor`	• /resultmajor#ok • /resultmajor#error • /resultmajor#warning

	ResultMinor	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/il/algorithm# hashAlgorithmNotSupported • /resultminor/il/algorithm# signatureAlgorithmNotSupported • /resultminor/il/service#ocspResponderUnreachable • /resultminor/il/service#directoryServiceUnreachable • /resultminor/il/service# timeStampServiceUnreachable • /resultminor/il/signature#certificateNotFound • /resultminor/il/signature# certificateFormatNotCorrect • /resultminor/il/signature# invalidCertificateReference • /resultminor/il/signature#certificateChainInterrupted • /resultminor/il/signature# resolutionOfObjectReferenceImpossible • /resultminor/il/signature# transformationAlgorithmNotSupported • /resultminor/il/signature#unknownViewer • /resultminor/il/signature# certificatePathNotValidated • /resultminor/il/signature# certificateStatusNotCheckedWarning • /resultminor/il/signature# suiteabilityOfAlgorithmsNotCheckedWarning • /resultminor/il/signature# improperRevocationInformation • /resultminor/sal#securityConditionsNotSatisfied
	ResultMessage	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

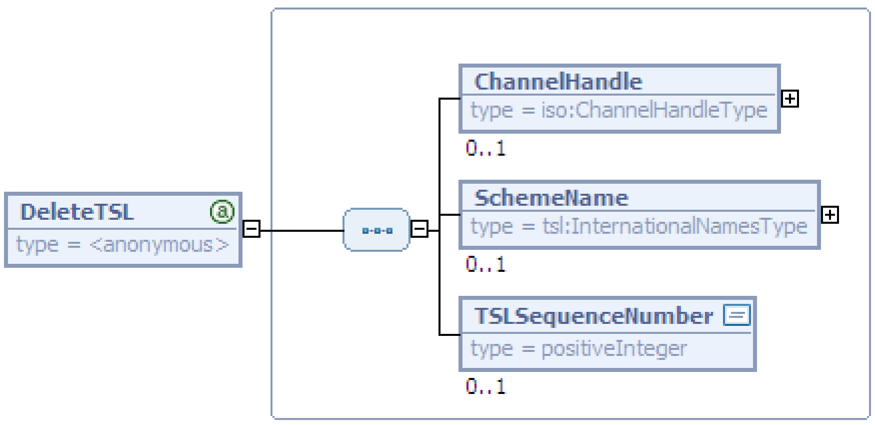
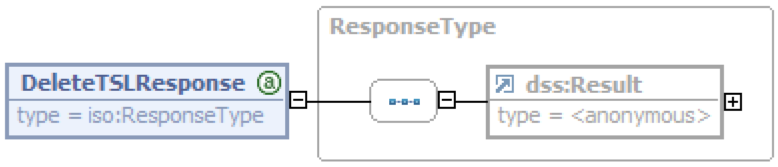
3.5.7 ExportTSL

Name	**`ExportTSL`**	
Description	With the `ExportTSL` function, a Trust-Service status list can be exported in accordance with [TS102231].	
Invocation parameters	 ChannelHandle type = iso:ChannelHandleType 0..1 ExportTSL type = <anonymous> SchemeName type = tsl:InternationalNamesType 0..1 TSLSequenceNumber type = positiveInteger 0..1 Invocation of the `ExportTSL` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`SchemeName`	MAY contain the name of a specific TSL scheme (also refer to [TS102231]) in order to specify what TSLs are to be exported.
	`TSLSequenceNumber`	MAY contain the serial number of the requested TSL, if the `SchemeName` is specified. If the `TSLSequenceNumber` is present, but the `SchemeName` is not specified, the `TSLSequenceNumber` element will be ignored and there will be a corresponding warning (/resultminor/al/TSL#TSLSequenceNumberIgnoredWarning) If this element is missing, all available TSLs (of the specified TSL scheme) are exported.

Return	 ExportTSLResponse type = <anonymous> dss:Result type = <anonymous> TrustStatusList type = ec:TSLType 0..* Return of the `ExportTSL` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	`TrustStatusList`	MAY occur several times and contain a Trust-Service Status List according to [TS102231]. See page 48 for more information on the `TSLType`.
	Status information and errors in `ExportTSL` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error • /resultmajor#warning
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/ TSL#TSLSequenceNumberIgnoredWarning • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.5.8 DeleteTSL

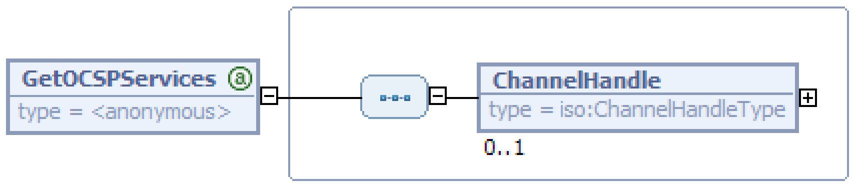
Name	**`DeleteTSL`**
Description	With the `DeleteTSL` function, a sequence of Trust-Service status lists can be deleted from the list of trusted identities.

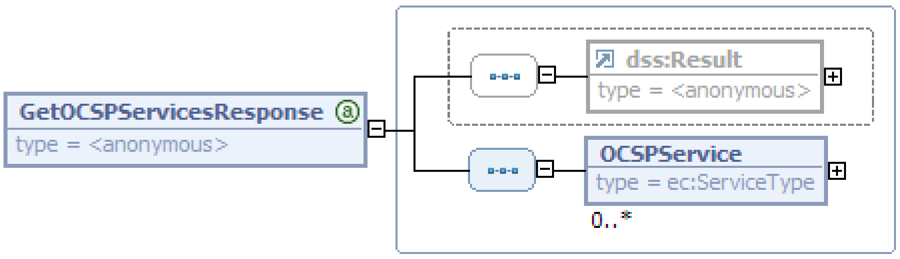
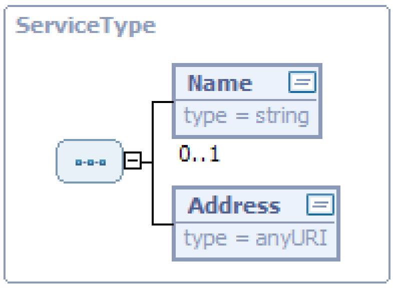
Invocation parameters	 DeleteTSL type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 SchemeName type = tsl:InternationalNamesType 0..1 TSLSequenceNumber type = positiveInteger 0..1 Invocation of the `DeleteTSL` **function.**	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`SchemeName`	MAY contain the name of a specific TSL scheme (also refer to [TS102231]) in order to specify what TSLs are to be exported.
	`TSLSequenceNumber`	MAY contain the serial number of the requested TSL, if the `SchemeName` is specified. If the `TSLSequenceNumber` is present, but the `SchemeName` is not specified, the TSLSequenceNumber will be ignored and there will be a corresponding warning (/resultminor/al/TSL #TSLSequenceNumberIgnoredWarning). If this element is missing, all available TSLs (of the specified TSL scheme) are exported.
Return	 DeleteTSLResponse type = iso:ResponseType ResponseType dss:Result type = <anonymous> Return of the `DeleteTSL` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.

	Status information and errors in `DeleteTSL` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error • /resultmajor#warning
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/al/TSL#TSLSequenceNumberIgnoredWarning • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.6 Service management

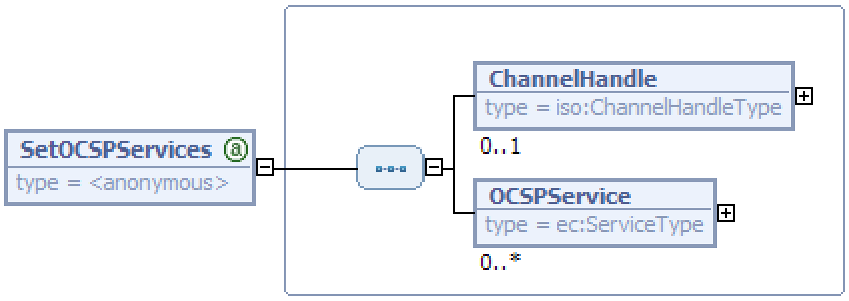
3.6.1 GetOCSPServices

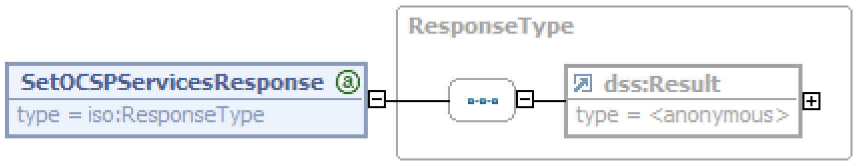
Name	**`GetOCSPServices`**	
Description	The `GetOCSPServices` function reads the list of known OCSP responders.	
Invocation parameters	 GetOCSPServices type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 Invocation of the `GetOCSPServices` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.

Return	 GetOCSPServicesResponse type = <anonymous> dss:Result type = <anonymous> OCSPService type = ec:ServiceType 0..* Return of the `GetOCSPServices` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	`OCSPService`	Contains information on the available OCSP responders which MAY be used if a certificate which is to be verified does not contain the address of the OCSP responder in the authority information access extension (also refer to [RFC3280], Section 4.2.2.1). Details on the `ServiceType` are given below.
	 ServiceType Name type = string 0..1 Address type = anyURI An element of `ServiceType` is part of `GetOCSPServicesResponse`, `SetOCSPServices`, `GetDirectoryServicesResponse` and `SetDirectoryServices`.	
	Name	**Description**
	`Name`	MAY contain the name of the service.
	`Address`	Contains the address of the service.

	Status information and errors in `GetOCSPServices` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.6.2 SetOCSPServices

Name	**`SetOCSPServices`**	
Description	The `SetOCSPServices` function writes the list of available OCSP responders.	
Invocation parameters	 SetOCSPServices type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 OCSPService type = ec:ServiceType 0..* Invocation of the `SetOCSPServices` function.	
	Name	**Description**
	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	`OCSPService`	Contains information on the available OCSP responders which MAY be used if a certificate which is to be verified does not contain the address of the OCSP responder in the authority information access extension (also refer to [RFC3280], Section 4.2.2.1). Details on the `ServiceType` are given on page 63. When the list is written, the availability of the configured OCSP responders is checked.

Return	 SetOCSPServicesResponse type = iso:ResponseType ResponseType dss:Result type = <anonymous> Return of the SetOCSPServices function.

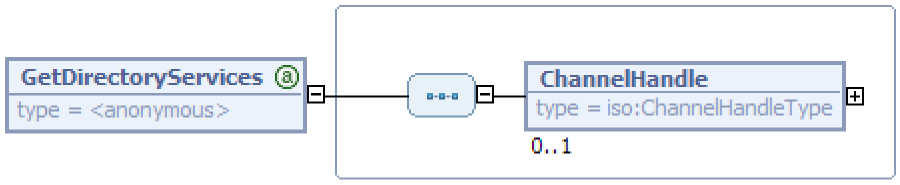
Name	**Description**
dss:Result	Contains the status information and the errors of an executed action. This element is described in more detail below.

Status information and errors in SetOCSPServices (also refer to [TR-03112-1] Sections 4.1 and 4.2).

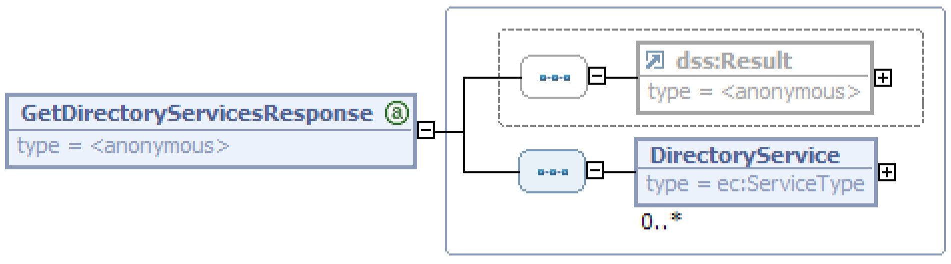
Name	**Error codes**
ResultMajor	• /resultmajor#ok • /resultmajor#error
ResultMinor	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/il/service#ocspResponderUnreachable
ResultMessage	MAY contain more detailed information on the error which occurred if required.

Precondition	
Postcondition	
Note	

3.6.3 GetDirectoryServices

Name	**GetDirectoryServices**
Description	The GetDirectoryServices function reads the list of the directory services accessible via LDAP or http.
Invocation parameters	 GetDirectoryServices type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 Invocation of the GetDirectoryServices function.

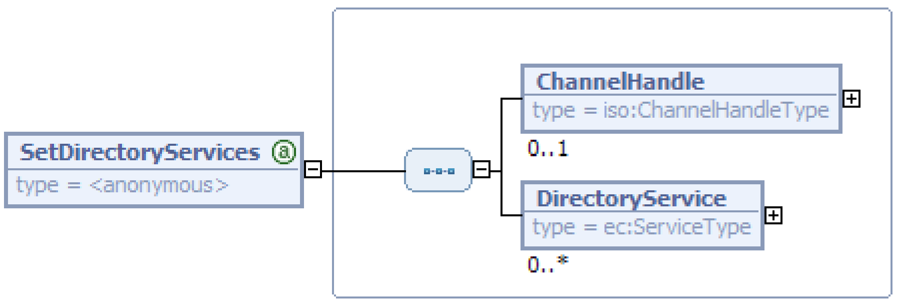
Name	**Description**

	`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
Return	 GetDirectoryServicesResponse type = <anonymous> dss:Result type = <anonymous> DirectoryService type = ec:ServiceType 0..* Return of the `GetDirectoryServices` function.	
	Name	**Description**
	`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.
	`DirectoryService`	Contains information on the available directory services which can be used for retrieval of certificates or blacklists (details on the `ServiceType` can be found on page 63).
	Status information and errors in `GetDirectoryServices` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.6.4 SetDirectoryServices

Name	**`SetDirectoryServices`**
Description	The `SetDirectoryServices` function writes the list of available directory services.

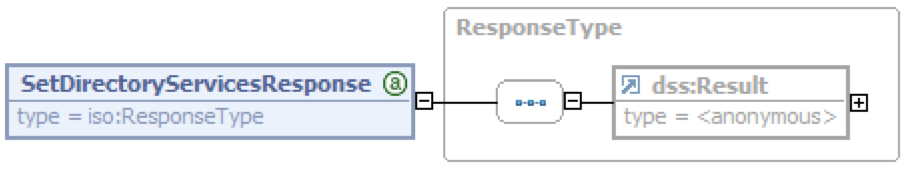
Invocation parameters



Invocation of the `SetDirectoryServices` function.

Name	Description
`ChannelHandle`	Optional parameter with which a remote system can be addressed (also refer to `CardApplicationPath` in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
`DirectoryService`	Contains information on the available directory services (details on the `ServiceType` are given on page 63). When the list is written, the availability of the configured directory services is checked.

Return



Return of the `SetDirectoryServices` function.

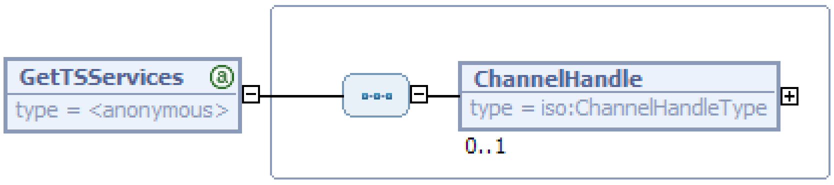
Name	Description
`dss:Result`	Contains the status information and the errors of an executed action. This element is described in more detail below.

Status information and errors in `SetDirectoryServices` (also refer to [TR-03112-1] Sections 4.1 and 4.2).

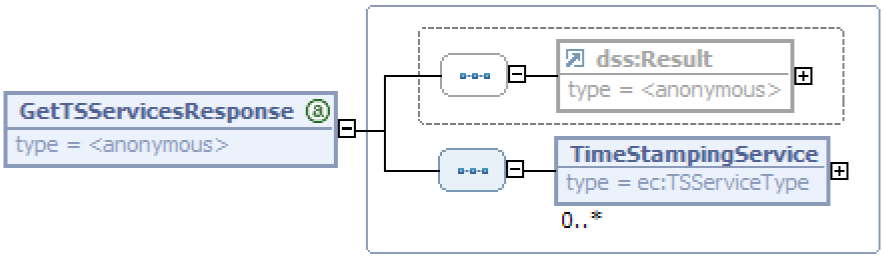
Name	Error codes
`ResultMajor`	• /resultmajor#ok • /resultmajor#error
`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/il/service#directoryServiceUnreachable

	ResultMessage	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

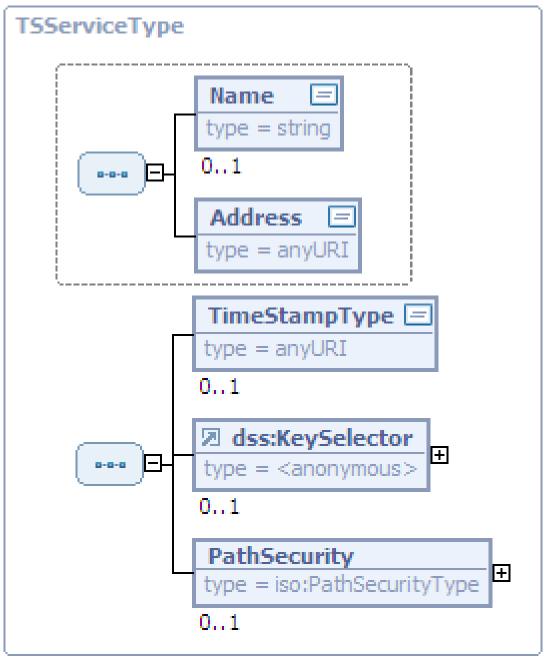
3.6.5 GetTSServices

Name	**GetTSService**
Description	The GetTSServices function reads the list of time stamping services with the corresponding configuration information.
Invocation parameters	 GetTSServices type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 Invocation of the GetTSServices function.

Name	Description
ChannelHandle	Optional parameter with which a remote system can be addressed (also refer to CardApplicationPath in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.

Return	 GetTSServicesResponse type = <anonymous> dss:Result type = <anonymous> TimeStampingService type = ec:TSServiceType 0..* Return of the GetTSServices function.

Name	Description
dss:Result	Contains the status information and the errors of an executed action. This element is described in more detail below.
TimeStampingService	MAY occur more than once and contains information in each case about one time stamp service (see below for details).



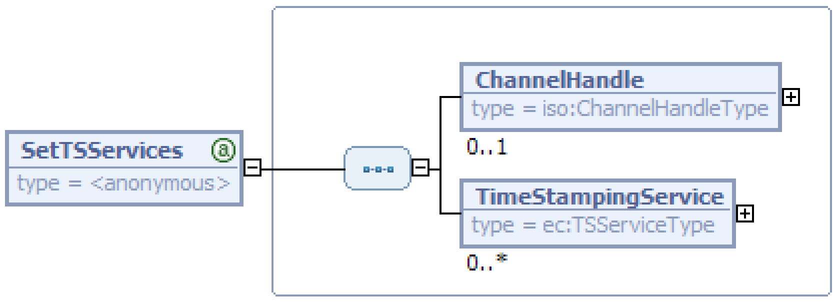
The `TimeStampingService` element in `GetTSServicesResponse` and `SetTSServices` is of the `TSServiceType`, which extends the `ServiceType` (also refer to page 63) by the elements described below.

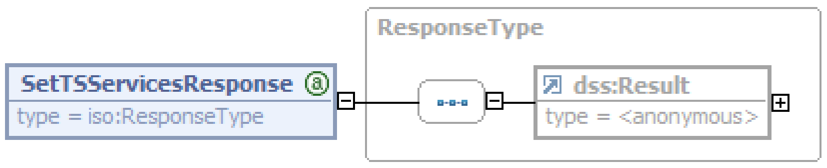
A unique name MUST be given here if the time stamp service is to be used as one of the configured default time stamping services (also refer to Section 3.1.6).

Name	Description
`TimeStampType`	MAY contain the time stamp type (also refer to `SignOptions` in [TR-03112-2]), which can be requested from this time stamping service. If `TimeStampToken` according to [RFC3161] are issued this element MAY be omitted.
`dss:KeySelector`	The presence of this optional element indicates, that the time stamp request MUST be signed with the specified key (refer to [DSS] and [TR-03112-2], Section 3.2.1). If the element is missing, the time stamp request is not signed.
`PathSecurity`	MAY state how the channel to the time stamp service should be protected (also refer to `CardApplicationPath` in [TR-03112-4]).

	Status information and errors in `GetTSService` (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	`ResultMajor`	• /resultmajor#ok • /resultmajor#error
	`ResultMinor`	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/dp#unknownCipherSuite • /resultminor/il/service#timeStampServiceUnreachable • /resultminor/il/signature#signatureFormatNotSupported • /resultminor/sal#nameAlreadyExisting • /resultminor/sal#unknownProtocol • /resultminor/sal#unknownCardType • /resultminor/sal#unknownDIDName • /resultminor/sal#fileNotFound
	`ResultMessage`	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note		

3.6.6 SetTSServices

Name	**`SetTSServices`**	
Description	The `SetTSServices` function writes a list of the time stamping services together with all corresponding configuration information.	
Invocation parameters	 SetTSServices type = <anonymous> ChannelHandle type = iso:ChannelHandleType 0..1 TimeStampingService type = ec:TSServiceType 0..* Invocation of the `SetTSServices` function.	
	Name	**Description**

	ChannelHandle	Optional parameter with which a remote system can be addressed (also refer to CardApplicationPath in [TR-03112-4]). If the local system is to be addressed, this parameter is omitted.
	TimeStampingService	MAY occur several times and contains information on a time stamping service (for details on the TSServiceType refer to page 69).
Return	 SetTSServicesResponse type = iso:ResponseType ResponseType dss:Result type = <anonymous> Return of the SetTSServices function.	
	Name	**Description**
	dss:Result	Contains the status information and the errors of an executed action. This element is described in more detail below.
	Status information and errors in SetTSServices (also refer to [TR-03112-1] Sections 4.1 and 4.2).	
	Name	**Error codes**
	ResultMajor	• /resultmajor#ok • /resultmajor#error
	ResultMinor	• /resultminor/al/common#noPermission • /resultminor/al/common#internalError • /resultminor/al/common#parameterError • /resultminor/dp#unknownChannelHandle • /resultminor/dp#unknownCipherSuite • /resultminor/il/service#timeStampServiceUnreachable • /resultminor/il/signature#signatureFormatNotSupported • /resultminor/sal#nameAlreadyExisting • /resultminor/sal#unknownProtocol • /resultminor/sal#unknownCardType • /resultminor/sal#unknownDIDName • /resultminor/sal#fileNotFound
	ResultMessage	MAY contain more detailed information on the error which occurred if required.
Precondition		
Postcondition		
Note	When new time stamping services are added, their availability SHOULD be checked.	

References

[TR-03112-1]	BSI: TR-03112-1: eCard-API-Framework – Part 1: Overview and Generic Mechanisms
[TR-03112-2]	BSI: TR-03112-2: eCard-API-Framework – Part 2: eCard-Interface
[TR-03112-3]	BSI: TR-03112-3: eCard-API-Framework – Part 3: Management-Interface
[TR-03112-4]	BSI: TR-03112-4: eCard-API-Framework – Part 4: ISO24727-3-Interface
[TR-03112-5]	BSI: TR-03112-5: eCard-API Framework – Part 5: Suppor- Interface
[TR-03112-6]	BSI: TR-03112-6: eCard-API-Framework – Part 6: IFD-Interface
[TR-03112-7]	BSI: TR-03112-7: eCard-API-Framework – Part 7: Protocols
[TS102231]	ETSI: TS 102 231: Provision of harmonized Trust Service Provider (TSP) status information, Technical Specification
[MIME]	IANA: MIME Media Types
[RFC2119]	IETF: RFC 2119: S. Bradner: Key words for use in RFCs to Indicate Requirement Levels
[RFC3161]	IETF: RFC 3161: C. Adams, P. Cain, D. Pinkas, R. Zuccherato: Internet X.509 Public Key Infrastructure Time-Stamp Protocol (TSP)
[RFC3275]	IETF: RFC 3275: D. Eastlage, J. Reagle, D. Solo: (Extensible Markup Language) XMLSignature Syntax and Processing
[RFC3280]	IETF: RFC 3280: R. Housley, W. Polk, W. Ford, D. Solo: Internet X.509 Public Key Infrastructure, Certificate and Certificate Revocation List (CRL) Profile
[ISO24727-3]	ISO: ISO/IEC 24727-3: Identification Cards — Integrated Circuit Cards Programming Interfaces — Part 3: Application Interface
[ISO24727-4]	ISO: ISO/IEC 24727-4: Identification Cards — Integrated Circuit Cards Programming Interfaces — Part 4: Application programming interface (API) administration
[DSS]	OASIS: Digital Signature Service Core Protocols, Elements, and Bindings