KSS 2.0: Integration interface

**Specification for integration with the subscription management service**

**T4**

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Author: Sergey Bilichenko

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# Introduction

## Document Purpose

The document contains a description of the requirements for integration of Service Provider infrastructure with the subscription management services of Kaspersky Lab (Kaspersky Subscription Service, or KSS) in the new Unified Provider Interface (UPI) format.

## Target Audience

The document is intended for technical specialists of Service Providers and Kaspersky Lab. It implies that the readers are already familiar with the description of available options (see T2) and general description of KSS2.0.

## Definitions and Abbreviations

***Operations with Subscription*** – operation performed with a subscription: activate, renew, hard-cancel, cancel, pause, and resume.

***KSS 2.0 Web Service*** – component implemented on the side of Kaspersky Lab and processing requests for operations with subscriptions.

***Web Service Client*** – component implemented on the Service Provider side sending the requests for operations with subscriptions to KSS2.0 web service. Being implemented by Service Provider or Service Partner

## References

|  |  |  |
| --- | --- | --- |
| **No.** | **Document** |  |
| T2 | KSS 2.0: Options overview | Description of the options available in KSS 2.0 |
| T4 | KSS 2.0: Integration interface | Current document |
| T5 | KSS 2.0: Integration plan | Plan for KSS 2.0 integration |
| T6 | KSS 2.0: WSDL description |  |
| T7 | KSS 2.0 Information security requirements for issuing and transferring digital certificates | Information security requirements for issuing and transferring Kaspersky Lab’s X.509 digital certificates |

# General Description

Service Providers manage subscriptions using the KSS2.0 web service implemented by Kaspersky Lab. The service supports the following operations with subscriptions:

* Activate subscription for the specified Subscriber with defined parameters (subscription until the specified date/time or open-ended subscription, subscription for selected product, etc.). Every Subscriber must have a unique identifier (Subscriber Id) on the Service Provider’s side.
* Renew subscription. It allows extending the subscription for the specified Subscriber (Subscriber Id) to the defined date/time or indefinitely.
* Hard-cancel subscription. It allows hard-cancel of a subscription for the specified Subscriber (Subscriber Id) since the defined date.
* Soft-cancel subscription. It allows soft-cancel of a subscription for the specified Subscriber (Subscriber Id) since the defined date with a grace period.
* Pause subscription. It allows pause a subscription for the specified Subscriber (Subscriber Id) since the defined date.
* Resume subscription. It allows resuming a paused subscription for the specified Subscriber (Subscriber Id).

Subscriptions are managed via the KSS 2.0 web service available to Service Provider over the Internet. To manage subscriptions, Service Providers send SOAP requests in established format via HTTPS (as described further). The web service uses bidirectional authentication based on digital certificates. Every Service Provider receives a username and a password for access to the web service, which must be placed in the header of subscription management requests. Username and password are transferred in the accessInfo part of the request. Clients for the web service are developed by Service Providers on their own based on the provided WSDL description.

In addition, filtering of IP addresses is implemented. Every Service Provider submits a list of IP addresses, from which Service Provider will send requests to the web service. Service Provider requests from other IP addresses will be rejected.

# Format of Requests for Operations with Subscription

Service Provider manages subscriptions using requests for operations with subscription. Each request may contain several commands of various types for operations pertaining to multiple Subscribers.

## Common Request Part Format

| **Field** | **Description** | **R/O/C[[1]](#footnote-1)** | **Field value type/limitations** |
| --- | --- | --- | --- |
| **SubscriptionRequestContainer** | Root element | R |  |
| Timestamp | Time stamp of the moment when a request has been created. Service Provider generates the timestamp while sending a request. | R | Date/time format: 2009-10- 20T18:00:00Z  A time zone different from UTC can be specified, for example:  2009-10- 20T18:00:00-05:00  Microseconds can be specified, for example:  2009-10- 20T18:00:00.120980Z  2009-10- 20T18:00:00.120980-05:30 |
| TransactionId | Unique transaction identifier used for the request-response association.  Service Provider generates it while creating a request. | R | 1-50 alphanumeric sequence  Unique transaction identifier within the Service Provider’s system. |
| **SubscriptionRequest** | Contains a set of commands for operations with subscriptions. | R | The following commands can be included into the set:   * [Activate](#_Subscription_activation) * [Renew](#_Продление_подписки) * [Hard-cancel](#_Отказ_от_подписки) * [Soft-cancel](#_Отмена_подписки) * [Pause](#_Приостановка_подписки) * [Resume](#_Возобновление_подписки) |

## Activate Command Format

| **Field** | **Description** | **R/O/C** | **Field value type/limitations** |
| --- | --- | --- | --- |
| Activate | Command “Activate” | O | One per each Subscriber. |
| UnitId | Internal command number in request | R | Commands in a request are numbered using integer numbers in sequence. |
| SubscriberId | Unique Subscriber identifier | R | 1-50 alphanumeric sequence  Unique Subscriber identifier within the Service Provider’s system. |
| ActivationType | Field in which type of activation can be specified | O | Possible values: “Standard”, “Secondary”.  If not specified, “Standard” is selected by default. |
| StartTime | Date/time since which the subscription will be activated (date/time of subscription purchase) | R | Date/time format:  See paragraph [Common request part format](#_Format_of_the), description of the Timestamp field. |
| EndTime | Date/time of subscription expiry (last day of subscription maintenance inclusive). If a subscription is activated for an indefinite period, then the “indefinite” value must be specified in the field. | R | Value “indefinite”  or  Date/time format:  See paragraph [Common request part format](#_Format_of_the), description of the Timestamp field. |
| LicenseCount | The number of licenses for subscription. Licenses count cannot be changed during the subscription period. | O | 1 is selected by default if the value is not specified.  Acceptable values are defined individually for each service provider |
| ProductId | Unique identifier of the application, for which the subscription is being activated. Application type cannot be changed during the subscription period. | R | String value.  Acceptable values are defined individually for each service provider. |

## Renew Command Format

| **Field** | **Description** | **R/O/C** | **Field value type/limitations** |
| --- | --- | --- | --- |
| Renew | Command “Renew” | O | One per each Subscriber. |
| UnitId | Internal command number in request | R | Commands in a request are numbered using integer numbers in sequence. |
| SubscriberId | Unique Subscriber identifier. | R | 1-50 alphanumeric sequence |
| EndTime | New date/time of subscription expiry (last day of subscription maintenance inclusive). If a subscription is renewed for an indefinite period, then the “indefinite” value must be specified in the field. | R | Value “indefinite”  or  Date/time format:  See paragraph [Common request part format](#_Format_of_the), description of the Timestamp field. |
| Amendment | Flag differenting the renewals performed by the subscriber’s requests from those initiated by the service provider for amendment purposes | O | Acceptable values: “true”, “false”.  If not specified, the default value is “false” (the renewal is not an amendment) |

## Hard-cancel Command Format

| **Field** | **Description** | **R/O/C** | **Field value type/limitations** |
| --- | --- | --- | --- |
| HardCancel | Command “HardCancel” | О | One per each Subscriber. |
| UnitId | Internal command number in request | R | Commands in a request are numbered using integer numbers in sequence. |
| SubscriberId | Unique identifier of the Subscriber whose subscription must be discontinued. | R | 1-50 alphanumeric sequence |
| EndTime | Date/time of subscription hard cancel (last day of subscription maintenance inclusive). | R | Date/time format:  See paragraph [Common request part format](#_Format_of_the), description of the Timestamp field. |

## Soft-cancel Command Format

| **Field** | **Description** | **R/O/C** | **Field value type/limitations** |
| --- | --- | --- | --- |
| SoftCancel | Command “SoftCancel” | О | One per each Subscriber. |
| UnitId | Internal command number in request | R | Commands in a request are numbered using integer numbers in sequence. |
| SubscriberId | Unique identifier of the Subscriber whose subscription must be discontinued. | R | 1-50 alphanumeric sequence |
| EndTime | Date/time of subscription soft cancel (last day of subscription maintenance inclusive). | R | Date/time format:  See paragraph [Common request part format](#_Format_of_the), description of the Timestamp field. |

## Pause Command Format

| **Field** | **Description** | **R/O/C** | **Field value type/limitations** |
| --- | --- | --- | --- |
| Pause | Command “Pause” | O | One per each Subscriber. |
| UnitId | Internal command number in request | R | Commands in a request are numbered using integer numbers in sequence. |
| SubscriberId | Unique identifier of the Subscriber | R | 1-50 alphanumeric sequence |
| PauseTime | Date/time of subscription pause (last day of subscription inclusive). | R | Date/time format:  See paragraph [Common request part format](#_Format_of_the), description of the Timestamp field. |

## Resume Command Format

| **Field** | **Description** | **R/O/C** | **Field value type/limitations** |
| --- | --- | --- | --- |
| Resume | Command “Resume” | О | One per each Subscriber. |
| UnitId | Internal command number in request | R | Commands in a request are numbered using integer numbers in sequence. |
| SubscriberId | Unique identifier of the Subscriber | R | 1-50 alphanumeric sequence |

# Response Format

In response to a request, KSS2.0 web service returns to Service Provider information about performance of each subscription management command from the request. If command processing results in an error, corresponding error code and description will be included in the response (see [Subscription management errors](#_Ошибки_операций_по)).

If an error occurs on the transport or system level while processing a request (e.g., the Service Provider authentication has failed), the response will contain no individual result for every command; the response will contain the code and description of a single transport or system error (see [Transport and system errors](#_Ошибки_транспортного_и)).

## Common Response Part Format

| **Field** | **Description** | **R/O/C** | **Field value type/limitations** |
| --- | --- | --- | --- |
| **SubscriptionResponseContainer** | Root element | R |  |
| Timestamp | Time stamp of the moment when a response has been created. KSS generates the timestamp while sending a response. | R | Date/time format:  See paragraph [Common request part format](#_Format_of_the), description of the Timestamp field. |
| TransactionId | Unique transaction identifier used for the request-response association. | R | 1-50 alphanumeric sequence  Unique transaction identifier within the Service Provider’s system. Service Provider generates it while creating a request. |
| TransactionError | Contains the error code of a system or transport error and its description. Such errors are not related to any specific subscription. | C | Note: «Transaction Error» cannot appear in a response together with «Subscription Response» and «Subscription Error». |
| ErrorCode | Contains the error code of a system or transport error. Error code does not pertain to performance of any specific operation with subscription. | R | See [Transport and system errors](#_Ошибки_транспортного_и) |
| ErrorMessage | Description for the code of a transport or system error. | R | See [Transport and system errors](#_Ошибки_транспортного_и) |
| **SubscriptionResponse** | Contains a set of items describing the result of request processing. | С | See [Subscription response](#_Subscription_Response)  Note: «Subscription Response» cannot appear in a response together with «Transaction Error». |
| **SubscriptionError** | Contains a group of one or more items describing an error pertaining to each Subscriber. | С | See [Subscription error](#_Subscription_Errors)  Note: «Subscription Response» cannot appear in a response together with «Transaction Error» |

## Subscription Response Section Format

| **Field** | **Description** | **R/O/C** | **Field value type/limitations** |
| --- | --- | --- | --- |
| <Command> | Command for which the response is provided. | O | One of the following values:   * Activate * Renew * HardCancel * SoftCancel * Pause * Resume |
| UnitId | Internal command number from the request corresponding to the response part. | R |  |
| SubscriberId | Unique Subscriber Id for which the subscription is activated. | R | 1-50 alphanumeric sequence. |
| ActivationCode | Activation code required for the application to start working as provided for in the subscription. | R | 20-character alphanumeric sequence made up of 4 quintets. Format: XXXXX-XXXXX-XXXXX-XXXXX  It appears and is required in the response to the [Activate](#_Subscription_activation) command only. |

## Subscription Error Section Format

| **Field** | **Description** | **R/O/C** | **Field value type/limitations** |
| --- | --- | --- | --- |
| <Command>Error | Requested command to which the error pertains. | O | One of the following values:   * ActivateError * RenewError * HardCancelError * SoftCancelError * PauseError * ResumeError |
| UnitId | Internal command number in request to which the error corresponds. | R |  |
| SubscriberId | Unique Subscriber identifier. | R | 1-50 alphanumeric sequence |
| ErrorCode | Error code associated with the specified SubscriberId. | R | See [Error codes](#_Коды_ошибок_1). |
| ErrorMessage | Error code description | R | See [Error codes](#_Коды_ошибок_1). |

# Examples of SOAP messages

## Sample Request for Operations with Subscription

<?xml version='1.0' encoding='UTF-8'?>

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">

<soapenv:Header>

<AccessInfo xmlns="http://schemas.kaspersky.com/services/subscription/2.0/">

<UserName>XXX</UserName>

<Password>XXX</Password>

</AccessInfo>

</soapenv:Header>

<soapenv:Body>

<SubscriptionRequestContainer xmlns="http://schemas.kaspersky.com/services/subscription/2.0/">

<Timestamp>2008-10-10T10:10:10.120980Z</Timestamp>

<TransactionId>010000001</TransactionId>

<SubscriptionRequest>

<Activate UnitId="1" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C1" ActivationType="Secondary" StartTime="2008-04-09T10:10:10Z" EndTime="2009-04-08T10:10:10Z" LicenseCount="1" ProductId="KIS"/>

<Activate UnitId="2" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C2" StartTime="2008-04-09T10:10:10.120980Z" EndTime="2009-04-08T10:10:10.120980Z" LicenseCount="1" ProductId="KIS"/>

<Renew UnitId="3" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C3" EndTime="indefinite"/>

<Activate UnitId="4" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C4" StartTime="2008-04-09T10:10:10-05:00" EndTime="2009-04-08T10:10:10-05:00" LicenseCount="1" ProductId="KIS"/>

<SoftCancel UnitId="5" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C1" EndTime="2010-04-08T10:10:10.120980-05:30"/>

<Renew UnitId="6" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C1" EndTime="indefinite"/>

<Resume UnitId="7" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C9" />

<HardCancel UnitId="8" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C9" EndTime="2010-04-08T10:10:10.120980Z"/>

<Pause UnitId="9" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C5" PauseTime="2010-04-15T10:10:10.120980Z"/>

</SubscriptionRequest>

</SubscriptionRequestContainer>

</soapenv:Body>

</soapenv:Envelope>

## Sample Response

<?xml version='1.0' encoding='UTF-8'?>

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">

<soapenv:Body>

<SubscriptionResponseContainer xmlns="http://schemas.kaspersky.com/services/subscription/2.0/">

<Timestamp>2008-10-10T10:11:10.120980Z</Timestamp>

<TransactionId>010000001</TransactionId>

<SubscriptionResponse>

<Activate UnitId="1" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C1" ActivationCode="XXXXX-XXXXX-XXXXX-XXXXX" />

<Renew UnitId="3" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C2"/>

<Activate UnitId="4" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C4" />

<SoftCancel UnitId="5" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C1"/>

<Renew UnitId="6" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C1"/>

<Resume UnitId="7" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C9"/>

<HardCancel UnitId="8" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C1"/>

<Pause UnitId="9" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C5"/>

</SubscriptionResponse>

<SubscriptionError>

<ActivateError UnitId="2" SubscriberId="C8147E02-8A91-43B2-AD48-5D04DAFD38C2" ErrorCode="01" ErrorMessage="SubscriberId specified in the activate order was previously activated."/>

</SubscriptionError>

</SubscriptionResponseContainer>

</soapenv:Body>

</soapenv:Envelope>

## Sample Response with a System or Transport Error

<?xml version='1.0' encoding='UTF-8'?>

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">

<soapenv:Body>

<SubscriptionResponseContainer xmlns="http://schemas.kaspersky.com/services/subscription/2.0/">

<Timestamp>2008-10-10T10:11:10.120980Z</Timestamp>

<TransactionId>010000001</TransactionId>

<TransactionError ErrorCode="12" ErrorMessage="Authentication error" />

</SubscriptionResponseContainer>

</soapenv:Body>

</soapenv:Envelope>

# Appendix

## Service Provider Activities

1. Service Provider must implement a *web service client* that will be used to send subscription management requests. The client must send requests and receive responses in the format described herein. Service Provider must submit a list of IP addresses, from which the requests will be sent, and a digital certificate used to establish a HTTPS connection to the subscription management service. Digital certificate must be issued by a well-known authentication center. Username/password for access to the subscription management service will be provided by Kaspersky Lab.
2. Service Providers must arrange storage of the «Subscriber Id – activation code» association in their databases for every Subscriber.

Sample table containing the Subscriber Id and activation code:

|  |  |  |
| --- | --- | --- |
| **Field** | **Value type** | **Description** |
| Subscriber Id | STRING | Unique Subscriber identifier in the Service Provider system |
| Activation Code | STRING | Activation code |

Table 1

1. Service Provider must offer a link to the subscription management section at its web site; the link will appear in the application interface (in the license information) after application setup on the Subscriber’s computer.
2. If «Parallel» value is selected for the "The order for provision of activation codes" option, Service Provider must regularly order new pools of activation codes and Subscriber Id (as old pools become depleted).
3. Service Provider may provide hosting for product distribution packages. In this case Service Provider’s server is to be included into Kaspersky Lab update replication system. Service provider must redirect to its server all customers’ requests to the Kaspersky Lab update server (for example, via DNS configurations).

## Subscriber Id Format

It is an alphanumeric sequence that may contain up to 50 characters. The range of allowed characters includes Latin letters and Arabic numerals. Delimiters «-» can be used, too. Each identifier must be unique.

Example: C8147E02-8A91-43B2-AD48-5D04DAFD38CD

## Error Codes

### Transport and System Errors

| **Code** | **Description** |
| --- | --- |
| 11 | SOAP request contains invalid data |
| 12 | Service provider authentication error |
| 13 | Service unavailable |
| 14 | Duplicated request. KSS has not processed the request within the time-out, the request is being processed |

### Subscription Management Errors

| **Code** | **Description** |
| --- | --- |
| 01 | SubscriberId specified in the activate order was previously activated. |
| 02 | The Subscription with the specified SubscriberId is not yet activated. |
| 03 | Incorrect subscription end time: the end time specified in the renew order is less than the previous subscription end time. |
| 04 | The subscription with the specified SubscriberId is already hard-cancelled. |
| 05 | The SubscriberId does not exist in KSS. |
| 06 | Duplicated order. |
| 08 | Activation code pool for the service provider is empty |
| 09 | Unknown product in the activate order. |
| 99 | Unknown error. |
| 101 | The difference between subscription end time and the subscription start time specified in the activate order is less than 28 days. Subscription period must not be less than 28 days. For limited subscriptions only. |
| 103 | Subscription start time specified in the activate order is greater than the current time or the request timestamp. The subscription cannot start in future. |
| 105 | The subscription with specified SubscriberId is soft-cancelled and will not be activated. |
| 202 | The renew request received for open-ended subscription. Open-ended subscriptions cannot be renewed. |
| 204 | The subscription with specified SubscriberId is paused and will not be renewed. Use the resume order to resume the subscription. |
| 303 | The subscription with the SubscriberId specified cannot be soft-cancelled: the subscription is paused. |
| 304 | The subscription with the SubscriberID cannot be soft-cancelled or hard-cancelled (new subscription end time should not be earlier than 14 days before the current date). |
| 401 | The subscription with the SubscriberId specified cannot be paused (only open-ended subscriptions can be paused). |
| 402 | The subscription with the SubscriberId specified in the pause order is already paused. |
| 403 | The subscription with the SubscriberID cannot be paused (pause time should not be earlier than 14 days before the current date). |
| 501 | The subscription with the SubscriberId specified in the resume order is not paused (is active). |
| 601 | The order is not allowed for the service provider. |
| 602 | Incorrect order attributes.  The date could not be earlier then 2008-01-01.  The date could not be earlier then the subscription start date. |

1. R- required field

   O – optional field

   С – choice between two fields. [↑](#footnote-ref-1)