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ADIT, RBCM, DN	P58-022-RE	Version C01	Date 06.07.2012	Author Püscher / Schlie

Documentation of the API Extension of the Magento Web Shop

Overview

Customers
1) Robert Bosch Car Multimedia GmbH

Contact Person
Barkowski, Andre (CM-AI/EAR)

Contractors
1) Advanced Driver Information Technology GmbH

Contact Person
W. Detlefsen

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Glossary and References

Glossary (in alphabetical order)

Abbreviation	Description
ADIT	ADIT.G and ADIT.J
ADIT.G	Advanced Driver Information Technology GmbH
ADIT.J	Advanced Driver Information Technology Corporation
RBCM	Robert Bosch Car Multimedia
Bosch, RB	Robert Bosch GmbH
DA	"Development Agreement" concluded by and between Customers and Contractors on 19 th April 2004.
DENSO, DN	DENSO CORPORATION
IDO	Individual Development Order

References

No.	Referenced document

History

Version	Date	Comment
1.0	08.06.2010	Initial Version
1.1	01.09.2010	Enhanced Version
1.2	24.09.2010	Updates code example files with HTTP Response Codes
1.3	06.10.2010	Added XML-Example Code, changed: getCategoryes, getItemsOfCategoryAtIndex
1.4	09.11.2010	Added userparam to all getItem-Functions
1.5	23.11.2010	Completed basic functions
1.6	23.11.2010	Bugfix
1.7	25.11.2010	
1.8	09.12.2010	Changed: asales.getCategoryes, asales.getItemDetails
1.9	04.04.2010	Added: asales.getPurchasedDownloadLink, asales.getStatus, asales.setStatus Updated: xml output
1.10	06.07.2012	Jens-Birger Schlie / PJ-VC45: General document rework.
1.11	02.10.2012	Binu John / CM-AI/EAR: Added product review api's
1.12	14.05.2013	Binu John / RBEI-ECP2: Added new api's to store user target platform information to display apps based on the used target.
1.13	23.07.2013	Binu John / RBEI-ECP2: Added app version info to getItemDetails, getPurchasedDownloadLink and getPurchasedDownloadLinks API so that the client can implement update feature by comparing the versions present in the server and the version installed in the target.
1.14	24.10.2013	Binu John / RBEI-ECP2: Added user password support for registerdevice api which is required to login in web frontend.

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Introduction

The Magento Web Shop has an enhanceable API, based on PHP5 and XML. The extensions are delivered as a package that can be installed on top of an existing magento installation or will update the extensions already installed in a magento installation.

Unlike most other web shop APIs this one is designed for customer access from a remote mobile client. To improve security and flexibility encryption is used on the connection (https) and key parameters such as customer and device are replaced by a hash that is used exclusively when communicating with the target.

Following design considerations went into the API design:

- 1.) The API is stateless.
- 2.) At least a minimum of security (forging, eavesdropping).
- 3.) The API handles connection interruption gracefully.
- 4.) Big XML-Elements like list of many catalog items are cached in the file system of the server bound to a customer's user id and transferred in small peaces to the target as requested by an index.

The API was laid out to conform to the needs of HMI display in the target.

Security

Base security is archived through usage of HTTPS which turns all communications encrypted. Also the API uses only the POST, parameters being x-www-form-urlencoded, scheme so the parameters of the request are covered. The identification data is sent as hashes and never stored plain text on the targets side.

This makes sure, the identification keys of the clients are kept secret and are only readable by the server.

As an future extension it would be desirable to ensure the authenticity of the clients by enforcing that each client must additionally sign it's identification key with it's private key, so the server can verify it by the public key of the client.

Additionally to the identification of the target an identification of the user is required because each target can be used by multiple persons that require different content. On this user id the same obligations should be applied. Both obligations would need to be implemented on the target side and server side, and as there is currently no concept on how to do, it has not yet been implemented.

API

Interface Protocol & Format

Wrapping

Every call and return is wrapped inside a http transaction. Calls are done using an HTTP POST request; the return is transmitted in the response code header of the reply and the body of the response.

Call Format

The input parameters are posted using the HTTP Post scheme, url encoded syntax, to the API. One

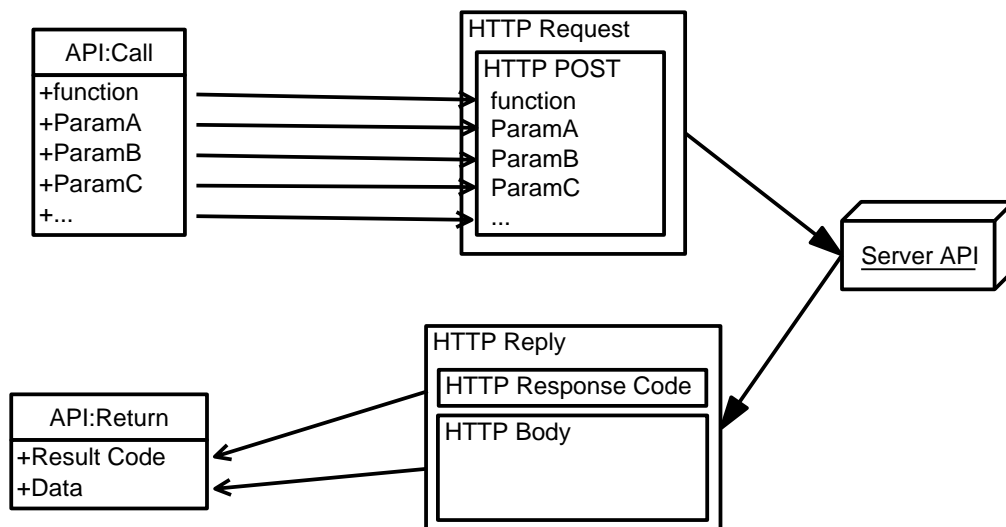


Figure 1: Schema of Protocol Usage

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parameter needs to be present always, "function", which can also never be a parameter name for the actual function call.

The function is addressed as "asales.<funcname>". Every input parameter has a name tag and is a string, the order does not matter.

Return Format

The output is wrapped inside a HTTP reply which contains an HTTP response code. Depending on the HTTP response code and function call the body content differs.

The result code of classes other than 2 indicates the error cause. The body may contain an informative error message, but this is informative only, may be subject to change even without update to the API spec and must not be taken to decide upon the error cause.

In case of HTTP response class 2 (success), the content differs as layed in the function descriptions.

Format Details

Return Data and Entities

The data returned is either an informative string in case of errors, or in most cases the data is returned inside XML. On success the functions return single instances or sets of them, very few return non XML data and some return an empty body.

A set of an entity types will be included inside a tag usually named as plural of the entity enclosed, e.g. "<categories> <category>...</category> ... <category>...</category> </categories>".

The detailed description of the entities follows. For more details on the layout of the XML refer to "DTDs of the Entities Used" in the appendix.

Version

The version entity carries the version ID. XML Example:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<version>Adit_Asales_Model_Api Version 1.01 c2011</version>
```

Customer

This entity contains the customer ID hash. XML Example:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<customer>
<customer_id>kHczotvae21ZuY6wkjkQ1jmljCMiioTihcpcTZfLjGLy0Rh2RrD9TSY0rhWSky6GEXQfY7FntChAE1Szz
aveR0zLz3V1BGR1H_FKocLFODaReGfdHnpLyJHEGziTpDGSbismekMKxMINzaDWeI8J4EjHxmycwIBixpGKBH-
i5GIPaqJygJLMzxEOQqAKHC0ns8YTQvMEupLGxjHsaA5p-
Mq97PwRmhd70QTyhQtv0naGXawZ1jCzvr17AUiRR_1Gd_OdzQw8dyWQAEjLF46m1bwbvfyfsX0ohsXmo31hdc21w2btdH1A
ha6M4VNzDuOMPJI5gm5R12s1LjMg-oxG6uw,,</customer_id>
</customer>
```

Category

This entity describes a category. XML Example:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<category>
<category_id>15</category_id>
<category_name>Travel</category_name>
<description/>
<icon_thumbnail>http://hi-
z5451.hi.de.bosch.com/boschstore/media/catalog/category/travel.png</icon_thumbnail>
<meta_keywords/>
</category>
```

Product

This entity describes a product. XML Example:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
```

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```

<product>
  <product_id>19</product_id>
  <sku>2011090701</sku>
  <category_ids>
    <category_id>10</category_id>
  </category_ids>
  <product_name>MusicApp</product_name>
  <long_description>Music app for Robert Bosch Car Multimedia Reference System. This nice
tiny app plays our favourite mp3 collection.</long_description>
  <short_description>Music app for Robert Bosch Car Multimedia Reference
System.</short_description>
  <old_id/>
  <created_date>2011-09-07 14:54:26</created_date>
  <update_date>2012-06-28 08:08:51</update_date>
  <price>5.0000</price>
  <icon_thumbnail>http://hi-
z5451.hi.de.bosch.com/boschstore/media/catalog/product/m/u/music-1.png</icon_thumbnail>
  <screenshots/>
  <author>Robert Bosch Car Multimedia GmbH</author>
  <status>1</status>
  <average_rating>0</average_rating>
  <number_of_ratings>0</number_of_ratings>
  <file_size>23 KB</file_size>
  <launcher_config>http://hi-
z5451.hi.de.bosch.com/boschstore/downloads/encrypted/Musicapp_config.xml</launcher_config>
  <app_version>1</app_version>
  <appstate/>
  <platform/>
</product>

```

Purchased_Download_Link

This entity describes a download purchased, and contains the url, state and other data.

```

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<purchased_download_link>
  <item_id>555</item_id>
  <order_id>555</order_id>
  <product_id>19</product_id>
  <link_hash>MC44NDMyMTMwMCAxMzQyMDA0NjQ1NTU1NTU1MTk,</link_hash>
  <link_url>http://hi-
z5451.hi.de.bosch.com/boschstore/index.php/downloadable/download/link/id/MC44NDMyMTMwMCAxMzQyMDA0NjQ1NTU1NTU1MTk,</link_url>
  <app_version>1</app_version>
  <status>3</status>
  <link_file>MusicApp-1.1-1.i386.rpm</link_file>
</purchased_download_link>

```

Status

This entity describes the product status by integer. The possible states are:

- 1.) none / new
- 2.) selected / purchased
- 3.) ready to download / waiting
- 4.) downloading
- 5.) installing
- 6.) installed / latest version.
- 7.) Updateable
- 8.) uninstalled

The states are partitioned. States 1 to 3 must only be set by the server, while 4 to 8 may and should be set by the target. Also the target is only allowed to take transitions when the product is in state 3 to 6. The API will check this and return an error in case of invalid transitions.

XML Example:

```

<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<status>3</status>

```

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Review

This entity describes the reviews available in the product which includes name, title, comment, date and the rating score.

```
<reviews>
  <element id="0">
    <name>boschstore</name>
    <title>Good App</title>
    <comment>Superb !!</comment>
    <date>2012-08-17 11:28:43</date>
    <score>4</score>
  </element>
  <number_of_items>1</number_of_items>
</reviews>
```


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Parameter's Index and Description

Index, Name	Description	Values
P1 devicenumber_target	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	Text
P2 firstname	The first name of the customer to register.	Varchar(255)
P3 lastname	The lastname of the customer to register	Varchar(255)
P4 e_mail	The email address of the customer.	Varchar(255)
P5 order_newsletter	Boolean, does the customer want to receive the newsletter on the given email address	ENUM('YES','NO')
P6 telephone	Phone number of the customer	Varchar(255)
P7 streetname_housenumber	The street name and house number, Address	Text
P8 city	City, Address	Varchar(255)
P9 postalcode	Post code, Address	Varchar(255)
P10 state	State, Address	Varchar(255)
P11 country	Country, Address	Varchar(255)
P12 customer_id	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	Text
P13 category_id	Id of a category as returned by get categories.	Unsigned int(10)
P14 startIndex	The requested index.	Unsigned int(10)
P15 number2display	The number of results per segment to return.	Smallint(2)
P16 product_id	The id of a certain product.	Unsigned int(10)
P17 status	The new desired product state	Smallint(2)
P18l searchstring	A string contain a word or text to search for.	Text
P19 password	User provided password required for web frontend login.	Text

Default HTTP Result Codes

These are the HTTP result codes that can be returned on any invocation of the interface:

Case	Code	Description
Success	200	The output will usually contain XML data.
Success – Created	201	The output will usually be empty or contain a reference to the object created, in XML.
Success – No Content	204	The operation was carried out successful and the intended state has been reached (a value set, a object is deleted or similar).
Function addressed was not found	400	Function name is not available.
Hash verification failed	400	The deviceparam or the customerparam hash values where found to be invalid.
Function failed without result	400	The function called failed and could not provide more detail on the cause.
Initialization failed (Magento® shop and/or extension code).	500	The server code failed to initialize magento, access dirs before even doing resolution of the function requested.
Function not yet implemented.	501	The function is planned and an API exists, but the implementation is missing yet.
Maintainance flag set on server	503	Server is down due to maintainence.

Special characters in XML Values must be encoded and decoded on both sides (server and target) the same way. The html entities as documented on <http://php.net/manual/de/function.htmlentities.php> are used for this purpose. The encoding, as indicated by the processing instruction, will be UTF8. The client has to evaluate this in case of changes.

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These five special chars must be encoded as they would interfere with XML syntax otherwise:

Sign	Encoding
&	&
'	'
<	<
>	>
"	"

Encrypted values that might contain special chars are transferred base64 encoded. These are the authentication strings deviceparam and userparam: <http://en.wikipedia.org/wiki/Base64>

Please also note that the order of child tags within a tag and the layout may differ from the examples given. This is a property of XML, as it allows to change such order during processing. In any case a proper XML parser needs to be used.

Function Descriptions

Notation

In the notation of functions their call name is mentioned, the required parameters are named and the return conditions are named.

There is a C prototype similar notion, left the return cases are defined, then the function call name is given and the parameters are named.

The first block, the return cases and body content, contains the http result code and the body content in quotes or the entity that is returned.

For example this statement means:

```
{ 200 => Scoop,
  404 => 'request could not be fulfilled'
  /* will occur if you request a flavour that is not on stock. */ }
asales.getIcecream(flavour)
```

The function is to be called as function='asales.getIcecream', flavour=<desired flavour > and will return either HTTP code 200 and an Scoop entity in the body or a 404, in this case the body will contain 'request could not be fulfilled'

In case a set of entities is returned this is noted as follows, with the meaning that an entity cup will contain a number of single Scoops and a wafer.

```
{ 200 => Cup ( Scoop*, wafer ) } asales.getCupOfIcecream(flavour1, flavour2 ...)
```

asales.getVersion

Returns the version of this API.

```
{ 200 => version } asales.getVersion(device)
```

asales.registerDevice

Registers the device to the webshop. Device and customer specific data is stored into the database of the webshop.

```
{ 201 => Customer,
  400 => 'request could not be fullfilled' }
asales.registerDevice(device, firstname, lastname, e_mail, password, order_newsletter,
telephone, streetname_housenumber, city, postalcode, state, country)
```

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asales.getCategories

This function delivers an XML List of all available categories. The contained category_id can be used later to fetch the related products by the function asales.getItemsOfCategoryAtIndex.

```
{ 200 => Categories ( Category* ) } asales.getCategories(device)
```

It is advised not to use the categories with the ids 1 (Root Catalog) and 2 (Default Category) as the magento webshop supports a hierarchy and these serve as roots to the other categories and also the information on the hierarchy cannot be obtained using the current API. The leaf categories like "Maps" will all have a low id greater than 2.

asales.getItemsOfCategoryAtIndex

Returns the items within a category given by category id in segments of a user definable size.

For startIndex == 0:

```
{ 200 => Products ( Product*, number_of_products),
  204 => '' /* if the category does not have any products. */ }
asales.getItemsOfCategoryAtIndex(device, customer_id, category_id, startIndex, number2display)
```

For startIndex != 0:

```
{ 200 => Products ( Product*, number_of_products),
  204 => '' /* if the category does not have any products. */,
  500 => 'Cache file unavailable' }
asales.getItemsOfCategoryAtIndex(device, customer_id, category_id, startIndex)
```

For a specific category and at any time the client wishes to get fresh information or change the segment size a call for index 0 must be done and the size of the segment needs to be given.

This is mandatory as a cache is built and refreshed only on the first call for the request.

The successive calls may query any index up to the number of items returned in each call.

All items are returned that fall into the segment range the index falls into, e.g. req. index 0, 0 to no. of items is returned, req. index 27, all items from floor(27/no of items) to floor(27/no of items)+no of items – 1 are returned.

The last segment is truncated if the total number of items to return is not a multiple of no of items.

asales.searchItemsAtIndex

Searching all products in the shop that fit on searchstring by name or description.

Shows all items that are available in the search result beginning at startindex stopping after number2display elements using a cache as in asales.getItemsOfCategoryAtIndex.

The same warning and notes apply as in asales.getItemsOfCategoryAtIndex!

```
{ 200 => Products ( Product*, number_of_products),
  204 => '' /* empty search result. */ }
asales.getItemsOfCategoryAtIndex(device, customer_id, searchstring, startIndex,
number2display)
```

For startIndex != 0:

```
{ 200 => Products ( Product*, number_of_products),
  204 => '' /* empty search result. */,
  500 => 'Index file is missing.' }
asales.getItemsOfCategoryAtIndex(device, customer_id, searchstring, startIndex)
```

asales.getItemDetails

Shows all supported details of the item with id product_id.

```
{ 200 => Product,
```

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```
404 => 'no such product available' }
asales.getItemDetails(device, customer_id, product_id)
```

asales.orderItem

Order a product by product id.

```
{ 201 => 'order created',
  400 => 'product already purchased',
  404 => 'product not found',
  500 => '' /* for exceptions inside the magento calls */ }
asales.orderItem(device, customer_id, product_id)
```

asales.getPurchasedDownloadLinks

(see *asales.getPurchasedDownloadLinks*)

```
{ 200 => Purchased_Download_Link,
  204 => '' /* In case no download links exist. */ }
asales.getPurchasedDownloadLink(device, customer_id, product_id)
```

asales.getPurchasedDownloadLink

Delivers a list of all download links the user has already purchased or the download link for a certain product. Only links are delivered for products that are **that are not** in the state

1.) none / new

but **in one of these states** instead:

- 2.) selected / purchased
- 3.) ready to download / waiting
- 4.) downloading
- 5.) installing
- 6.) installed / latest version.
- 7.) Updateable

```
{ 200 => Purchased_Download_Links (Purchased_Download_Link* ),
  204 => '' /* In case no download links exist. */ }
asales.getPurchasedDownloadLinks(device, customer_id)
```

asales.getStatus

Returns the status of purchase and installation of one product, concerning a certain target and user.

```
{ 200 => Status } asales.getStatus(device, customer_id, product_id)
/* There is no error case. If the product does not exist status 1 will be returned. */
```

asales.setStatus

Sets the status of purchase and installation of one product, concerning a certain target and user.

```
{ 200 => Status,
  404 => 'no item in queue' /* The product is in state initial. */
  500 => 'invalid request' /* The product is in state purchased or updateable. */ }
asales.setStatus(device, customer_id, product_id)
```

asales.reviewProduct

This API is used to create a review along with the rating to the product

Required input parameters:

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Parameter Key	Description	Required	Values
1.) deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
2.) userparam	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
3.) title	<i>a title for this review</i>	yes	varchar(255)
4.) name	<i>under this nick name the customer publishes his review. Default name is the first name present in userparam.</i>	yes	varchar(255)
5.) comment	<i>the review text</i>	yes	text (Stringlength + 2 Bytes)
6.) score	Integer rating from 1 to 5 where 5 is the best.	yes	smallint(1)
7.) product_id	<i>derived from sku</i>	yes	varchar(255)

Required output parameters:

Parameter Key	Description	Required	Values
1.) success	HTTP response codes	yes	Expected value: 201 Error: 204 APPENDIX DTDs of the Entities Used Planned API Functions asales.selectLanguage Sets up the language for the current user that is preferred when shopping online. This language is stored for each target and user in the database of the webshop. Magento then should have different store views that were configured by an administrator for one special language each and depending on this setting one shop view is chosen. Each language is configured in one CSV File: Example: app/locale/de_DE/Mage_Customer.csv. With the help of this file all content from the files of Magento and the content in the database tables are translated from the master language to the preferred translation. Changing the content in the master language can spoil this translation and the effect will be that the content will

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			<p><i>as asales.showItemsOfCategoryAtIndex</i></p> <p>asales.getTopRatedItemsAtIndex</p> <p>Shows number2display items having the best rating beginning at startindex stopping after number2display elements using the XML File Cache on the server.</p> <p>Required input parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1.) deviceparam</td> <td>Device number (of the target RSA) with the servers signed with the p of the target and encoded.</td> </tr> <tr> <td>2.) startindex</td> <td></td> </tr> <tr> <td>3.) number2display</td> <td></td> </tr> </tbody> </table> <p>Required output parameters: <i>the same as asales.showItemsOfCategoryAtIndex</i></p> <p>asales.getItemsAtIndex</p> <p>Shows all items sorted by name that are available in the shop beginning at startindex stopping after number2display elements using the XML File Cache on the server.</p> <p>Required input parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1.) deviceparam</td> <td>Device number (of the target RSA) with the servers signed with the p of the target and encoded.</td> </tr> <tr> <td>2.) userparam</td> <td></td> </tr> <tr> <td>3.) startindex</td> <td></td> </tr> <tr> <td>4.) number2display</td> <td></td> </tr> </tbody> </table> <p>Required output parameters: <i>the same as asales.showItemsOfCategoryAtIndex</i></p> <p>asales.getNumberOfAvailableUpdates</p> <p>Required input parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1.) deviceparam</td> <td>Device number of the target RSA encrypted with public key, signed with private key of the</td> </tr> </tbody> </table>	Parameter Key	Description	1.) deviceparam	Device number (of the target RSA) with the servers signed with the p of the target and encoded.	2.) startindex		3.) number2display		Parameter Key	Description	1.) deviceparam	Device number (of the target RSA) with the servers signed with the p of the target and encoded.	2.) userparam		3.) startindex		4.) number2display		Parameter Key	Description	1.) deviceparam	Device number of the target RSA encrypted with public key, signed with private key of the
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				and base64 encoded.
			2.) userparam	The user's id, RSA encrypted with the server's public key, signed with the target's private key of the target and base64 encoded.
			Required output parameters:	
			Parameter Key	Description
			1.) success	HTTP response
			2.) number	The number of updates.
			asales.getIdsOfUpdateableItems	
			Required input parameters:	
			Parameter Key	Description
			1.) deviceparam	Device number of the target RSA encrypted with the server's public key, signed with the target's private key of the target and base64 encoded.
			2.) userparam	The user's id, RSA encrypted with the server's public key, signed with the target's private key of the target and base64 encoded.
			Required output parameters:	
			Parameter Key	Description
			1.) success	HTTP response
			2.) XML list containing all sku	The IDs (sku) of available updates
			asales.getItem	
			Required input parameters:	
			Parameter Key	Description
			1.) deviceparam	Device number of the target RSA encrypted with the server's public key, signed with the target's private key of the target and base64 encoded.
			2.) userparam	The user's id, RSA encrypted with the server's public key, signed with the target's private key of the target and base64 encoded.

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			3.) sku	
			Required output parameters:	
			Parameter Key	Description
			1.) success	HTTP response
			2.) link to new menu entry package	url
			asales.getUpdateAllItems	
			Required input parameters:	
			Parameter Key	Description
			1.) deviceparam	Device number of the target RSA encrypted with public key, signed with private key of the target and base64 encoded.
			2.) userparam	The user's id, RSA encrypted with public key, signed with private key of the target and base64 encoded.
			Required output parameters:	
			Parameter Key	Description
			1.) success	HTTP response
			2.) XML List of links to new menu entry packages.	List of urls.
			HTTP response status codes	

asales.getProductReviews

This API returns all the available reviews for the requested product.

Required input parameters:

Parameter Key	Description	Required	Values
1.) deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
2.) product_id	<i>derived from sku</i>	yes	varchar(255)

Required output parameters:

Parameter Key	Description	Required	Values
1.) success	HTTP response codes	yes	Expected value: 200

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			<p style="text-align: center;">APPENDIX</p> <p><i>DTDs of the Entities Used</i></p> <p><i>Planned API Functions</i></p> <p>asales.selectLanguage</p> <p>Sets up the language for the current user that is preferred when shopping online. This language is stored for each target and user in the database of the webshop. Magento then should have different store views that were configured by an administrator for one special language each and depending on this setting one shop view is chosen. Each language is configured in one CSV File: Example: app/locale/de_DE/Mage_Customer.csv. With the help of this file all content from the files of Magento and the content in the database tables are translated from the master language to the preferred translation. Changing the content in the master language can spoil this translation and the effect will be that the content will not be translated completely.</p> <p>Input parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>4.) deviceparam</td> <td>Device number of the target RS encrypted with public key, signed with private key of the target and base64 encoded.</td> </tr> <tr> <td>5.) userparam</td> <td>The user's id, R encrypted with public key, signed with private key of the target and base64 encoded.</td> </tr> <tr> <td>6.) language</td> <td>The user's preferred language.</td> </tr> </tbody> </table> <p>Output parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>2.) success</td> <td>HTTP response</td> </tr> </tbody> </table>	Parameter Key	Description	4.) deviceparam	Device number of the target RS encrypted with public key, signed with private key of the target and base64 encoded.	5.) userparam	The user's id, R encrypted with public key, signed with private key of the target and base64 encoded.	6.) language	The user's preferred language.	Parameter Key	Description	2.) success	HTTP response
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			<p>asales.getNewItemAtIndex</p> <p>Shows all items that are available in the search result beginning at startindex stopping after number2display elements using the XML File Cache on the server.</p> <p>Required input parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>6.) deviceparam</td> <td>Device number (serial) of the target (encrypted with servers public key with the private target and base encoded).</td> </tr> <tr> <td>7.) userparam</td> <td>The user's id, (encrypted with servers public key with the private target and base encoded). Required to show user the items new since the user visited the shop.</td> </tr> <tr> <td>8.) date</td> <td><i>This feature requires administrator to set product information "Product as New Date" and "Set as New to Date"</i></td> </tr> <tr> <td>9.) startindex</td> <td></td> </tr> <tr> <td>10.) number2display</td> <td></td> </tr> </tbody> </table> <p>Required output parameters: <i>the same as asales.showItemsOfCategoryAtIndex</i></p> <p>asales.getMostBoughtItemsAtIndex</p> <p>Shows all items that are available in the search result beginning at startindex stopping after number2display elements using the XML File Cache on the server.</p> <p>Required input parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>5.) deviceparam</td> <td>Device number (serial) of the target (encrypted with servers public key with the private target and base encoded).</td> </tr> </tbody> </table>	Parameter Key	Description	6.) deviceparam	Device number (serial) of the target (encrypted with servers public key with the private target and base encoded).	7.) userparam	The user's id, (encrypted with servers public key with the private target and base encoded). Required to show user the items new since the user visited the shop.	8.) date	<i>This feature requires administrator to set product information "Product as New Date" and "Set as New to Date"</i>	9.) startindex		10.) number2display		Parameter Key	Description	5.) deviceparam	Device number (serial) of the target (encrypted with servers public key with the private target and base encoded).
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				encrypted with the server's public key, signed with the target's private key and base64 encoded.
			4.) userparam	The user's id, RSA encrypted with the server's public key, signed with the target's private key and base64 encoded.
			Required output parameters:	
			Parameter Key	Description
			2.) success	HTTP response
			3.) XML list containing all sku	The IDs (sku) of available updates
			asales.getUpdateItem	
			Required input parameters:	
			Parameter Key	Description
			4.) deviceparam	Device number of the target RS encrypted with the server's public key, signed with the target's private key and base64 encoded.
			5.) userparam	The user's id, RSA encrypted with the server's public key, signed with the target's private key and base64 encoded.
			6.) sku	
			Required output parameters:	
			Parameter Key	Description
			2.) success	HTTP response
			3.) link to new menu entry package	url
			asales.getUpdateAllItems	
			Required input parameters:	
			Parameter Key	Description
			3.) deviceparam	Device number of the target RS encrypted with the server's public key, signed with the target's private key and base64 encoded.
			4.) userparam	The user's id, RSA encrypted with the server's public key, signed with the target's private key and base64 encoded.

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				private key of the target and base64 encoded.
			Required output parameters:	
			Parameter Key	Description
			2.) success	HTTP response
			3.) XML List of links to new menu entry packages.	List of urls.
			HTTP response status codes	
2.) title	<i>title of the review</i>	yes	varchar(255)	
3.) name	<i>The name in which the customer published his review.</i>	yes	varchar(255)	
4.) comment	<i>the review text</i>	yes	text (Stringlength + 2 Bytes)	
5.) score	Integer from 1 to 5 where 5 is the best.	yes	smallint(1)	
6.) date	creation date of this review with time.	yes	datetime Example: 2005-12-31 23:59:00	
7.) number_of_items	Total number of reviews present in the product.	yes	smallint(1)	

asales.setTargetId

This API is used to store the target platform info of each registered user along with the device id.

Required input parameters:

Parameter Key	Description	Required	Values
1.) deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
2.) userparam	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
3.) target_id	<i>A random string identifier used to identify the target platform. Ex: "vms-danube-arm"</i>	yes	varchar(255)
4.) app_state	<i>Identifier denoting the status of the app. Ex: release, devel, both</i>	yes	varchar(255)

Required output parameters:

Parameter Key	Description	Required	Values
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1.) success	HTTP response codes	yes	<p>Expected value: 201</p> <p>APPENDIX</p> <p><i>DTDs of the Entities Used</i></p> <p><i>Planned API Functions</i></p> <p>asales.selectLanguage</p> <p>Sets up the language for the current user that is preferred when shopping online. This language is stored for each target and user in the database of the webshop. Magento then should have different store views that were configured by an administrator for one special language each and depending on this setting one shop view is chosen. Each language is configured in one CSV File: Example: app/locale/de_DE/Mage_Customer.csv. With the help of this file all content from the files of Magento and the content in the database tables are translated from the master language to the preferred translation. Changing the content in the master language can spoil this translation and the effect will be that the content will not be translated completely.</p> <p>Input parameters:</p> <table border="1" data-bbox="949 1299 1495 1765"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>7.) deviceparam</td> <td>Device number of the target RS encrypted with public key, signed with private key of the target and base64 encoded.</td> </tr> <tr> <td>8.) userparam</td> <td>The user's id, encrypted with public key, signed with private key of the target and base64 encoded.</td> </tr> <tr> <td>9.) language</td> <td>The user's preferred language.</td> </tr> </tbody> </table> <p>Output parameters:</p> <table border="1" data-bbox="949 1825 1495 1977"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>3.) success</td> <td>HTTP response</td> </tr> </tbody> </table>	Parameter Key	Description	7.) deviceparam	Device number of the target RS encrypted with public key, signed with private key of the target and base64 encoded.	8.) userparam	The user's id, encrypted with public key, signed with private key of the target and base64 encoded.	9.) language	The user's preferred language.	Parameter Key	Description	3.) success	HTTP response
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			6.) userparam	The user's id, RSA encrypted with the server's public key, signed with the target's private key and base64 encoded.
			Required output parameters:	
			Parameter Key	Description
			3.) success	HTTP response
			4.) XML list containing all sku	The IDs (sku) of available updates
			asales.getUpdateItem	
			Required input parameters:	
			Parameter Key	Description
			7.) deviceparam	Device number of the target RSA encrypted with the server's public key, signed with the target's private key and base64 encoded.
			8.) userparam	The user's id, RSA encrypted with the server's public key, signed with the target's private key and base64 encoded.
			9.) sku	
			Required output parameters:	
			Parameter Key	Description
			3.) success	HTTP response
			4.) link to new menu entry package	url
			asales.getUpdateAllItems	
			Required input parameters:	
			Parameter Key	Description
			5.) deviceparam	Device number of the target RSA encrypted with the server's public key, signed with the target's private key and base64 encoded.
			6.) userparam	The user's id, RSA encrypted with the server's public key, signed with the target's private key and base64 encoded.

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asales.setTargetAppState

This API is used to set the application display option.

Required input parameters:

Parameter Key	Description	Required	Values
1.) deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
2.) userparam	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
3.) app_state	<i>Identifier denoting the status of the app. Ex:release,devel,both</i>	yes	varchar(255)

Required output parameters:

Parameter Key	Description	Required	Values
1.) success	HTTP response codes	yes	<p>Expected value: 201</p> <p>APPENDIX</p> <p><i>DTDs of the Entities Used</i></p> <p><i>Planned API Functions</i></p> <p>asales.selectLanguage</p> <p>Sets up the language for the current user that is preferred when shopping online. This language is stored for each target and user in the database of the webshop. Magento then should have different store views that</p>

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		<p>were configured by an administrator for one special language each and depending on this setting one shop view is chosen. Each language is configured in one CSV File: Example: app/locale/de_DE/Mage_Customer.csv. With the help of this file all content from the files of Magento and the content in the database tables are translated from the master language to the preferred translation. Changing the content in the master language can spoil this translation and the effect will be that the content will not be translated completely.</p> <p>Input parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>10.)deviceparam</td> <td>Device number of the target RS encrypted with public key, sign private key of the target and base64 encoded.</td> </tr> <tr> <td>11.)userparam</td> <td>The user's id, first name encrypted with public key, sign private key of the target and base64 encoded.</td> </tr> <tr> <td>12.)language</td> <td>The user's preferred language.</td> </tr> </tbody> </table> <p>Output parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>4.) success</td> <td>HTTP response</td> </tr> </tbody> </table> <p>asales.getNewItemAtIndex Shows all items that are available in the search result beginning at startindex stopping after number2display elements using the XML File Cache on the server.</p> <p>Required input parameters:</p> <table border="1"> <thead> <tr> <th>Parameter Key</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>16.)deviceparam</td> <td>Device number (serial) of the target encrypted with servers public key with the private key of the target and base64 encoded.</td> </tr> <tr> <td>17.)userparam</td> <td>The user's id, first name</td> </tr> </tbody> </table>	Parameter Key	Description	10.)deviceparam	Device number of the target RS encrypted with public key, sign private key of the target and base64 encoded.	11.)userparam	The user's id, first name encrypted with public key, sign private key of the target and base64 encoded.	12.)language	The user's preferred language.	Parameter Key	Description	4.) success	HTTP response	Parameter Key	Description	16.)deviceparam	Device number (serial) of the target encrypted with servers public key with the private key of the target and base64 encoded.	17.)userparam	The user's id, first name
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				<p>encrypted with the servers public key, signed with the private key of the target and base64 encoded. Required to show the user the items that are new since the last time visited the shop.</p>														
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4.) success	HTTP response code																												
5.) link to new menu entry package	url																												
Parameter Key	Description																												
7.) deviceparam	Device number of the target RS encrypted with public key, signed with private key of the target RS and base64 encoded.																												
8.) userparam	The user's id, encrypted with public key, signed with private key of the target RS and base64 encoded.																												
Parameter Key	Description																												
4.) success	HTTP response code																												
5.) XML List of links to new menu entry packages.	List of urls.																												

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APPENDIX

DTDs of the Entities Used

Planned API Functions

asales.selectLanguage

Sets up the language for the current user that is preferred when shopping online. This language is stored for each target and user in the database of the webshop. Magento then should have different store views that were configured by an administrator for one special language each and depending on this setting one shop view is chosen. **Each language is configured in one CSV File:** Example: app/locale/de_DE/Mage_Customer.csv. With the help of this file **all content from the files** of Magento **and** the content in **the database tables** are **translated** from the master language to the preferred translation. Changing the content in the master language can spoil this translation and the effect will be that the content will not be translated completely.

Input parameters:

Parameter Key	Description	Required	Values
13.)deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
14.)userparam	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	Yes	text (Stringlength + 2 Bytes)
15.)language	The user's preferred language.	Yes	varchar(255) Capitalized url ending of the country. Example: DE for Germany

Output parameters:

Parameter Key	Description	Required	Values
5.) success	HTTP response codes	yes	Expected value: 201 Other possibilities / errors: Error! Not a valid bookmark self-reference.

asales.getNewItemAtIndex

Shows all items that are available in the search result beginning at startindex stopping after number2display elements using the XML File Cache on the server.

Required input parameters:

Parameter Key	Description	Required	Values
21.)deviceparam	Device number (like serial) of the target RSA encrypted with the	yes	text (Stringlength + 2 Bytes)

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	servers public key, signed with the private key of the target and base64 encoded.		
22.)userparam	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded. Required to show the user the items that are new since the last time he visited the shop.	yes	text (Stringlength + 2 Bytes)
23.)date	<i>This feature requires the administrator to enter the product information "Set Product as New from Date" and "Set Product as New to Date"</i>	yes	datetime Example: 2005-12-31 23:59:00
24.)startindex		yes	unsigned int(10)
25.)number2display		yes	smallint(2)

Required output parameters: *the same as asales.showItemsOfCategoryAtIndex*

asales.getMostBoughtItemsAtIndex

Shows all items that are available in the search result beginning at startindex stopping after number2display elements using the XML File Cache on the server.

Required input parameters:

Parameter Key	Description	Required	Values
17.)deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
18.)userparam			
19.)startindex		yes	unsigned int(10)
20.)number2display		yes	smallint(2)

Required output parameters: *the same as asales.showItemsOfCategoryAtIndex*

asales.getFreelItemsAtIndex

Shows all items that are available in the search result beginning at startindex stopping after number2display elements using the XML File Cache on the server.

Required input parameters:

Parameter Key	Description	Required	Values
17.)deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key	yes	text (Stringlength + 2 Bytes)

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	of the target and base64 encoded.		
18.)userparam	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
19.)startindex		yes	unsigned int(10)
20.)number2display		yes	smallint(2)

Required output parameters: *the same as asales.showItemsOfCategoryAtIndex*

asales.getTopRatedItemsAtIndex

Shows number2display items having the best rating beginning at startindex stopping after number2display elements using the XML File Cache on the server.

Required input parameters:

Parameter Key	Description	Required	Values
13.)deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
14.)startindex		yes	unsigned int(10)
15.)number2display		yes	smallint(2)

Required output parameters: *the same as asales.showItemsOfCategoryAtIndex*

asales.getItemsAtIndex

Shows all items sorted by name that are available in the shop beginning at startindex stopping after number2display elements using the XML File Cache on the server.

Required input parameters:

Parameter Key	Description	Required	Values
17.)deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
18.)userparam			
19.)startindex		yes	unsigned int(10)
20.)number2display		yes	smallint(2)

Required output parameters: *the same as asales.showItemsOfCategoryAtIndex*

asales.getNumberOfAvailableUpdates

Required input parameters:

Parameter Key	Description	Required	Values
9.) deviceparam	Device number (like serial) of the target RSA encrypted with the servers	yes	text (Stringlength + 2 Bytes)

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	public key, signed with the private key of the target and base64 encoded.		
10.)userparam	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)

Required output parameters:

Parameter Key	Description	Required	Values
9.) success	HTTP response codes	yes	Expected value: 201 Other possibilities / errors: Error! Not a valid bookmark self-reference.
10.)number	The number of available updates.	yes	unsigned int(10)

asales.getIdsOfUpdateableItems

Required input parameters:

Parameter Key	Description	Required	Values
9.) deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
10.)userparam	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)

Required output parameters:

Parameter Key	Description	Required	Values
5.) success	HTTP response codes	yes	Expected value: 201 Other possibilities / errors: Error! Not a valid bookmark self-reference.
6.) XML list containing all sku	The IDs (sku) of all available updates.	yes	List of varchar(64)

asales.getUpdateItem

Required input parameters:

Parameter Key	Description	Required	Values
13.)deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
14.)userparam	The user's id, RSA encrypted with the servers public key, signed with the	yes	text (Stringlength + 2 Bytes)

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	private key of the target and base64 encoded.		
15.)sku		yes	varchar(64)

Required output parameters:

Parameter Key	Description	Required	Values
5.) success	HTTP response codes	yes	Expected value: 201 Other possibilities / errors: Error! Not a valid bookmark self-reference.
6.) link to new menu entry package	url	yes	varchar(255)

asales.getUpdateAllItems

Required input parameters:

Parameter Key	Description	Required	Values
9.) deviceparam	Device number (like serial) of the target RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)
10.)userparam	The user's id, RSA encrypted with the servers public key, signed with the private key of the target and base64 encoded.	yes	text (Stringlength + 2 Bytes)

Required output parameters:

Parameter Key	Description	Required	Values
5.) success	HTTP response codes	yes	Expected value: 201 Other possibilities / errors: Error! Not a valid bookmark self-reference.
6.) XML List of links to new menu entry packages.	List of urls.	yes	List of varchar(255)

HTTP response status codes

See wikipedia:

"The following is a list of HyperText Transfer Protocol (HTTP) response status codes. This includes codes from IETF internet standards as well as unstandardised RFCs, other specifications and some additional commonly used codes. The first digit of the status code specifies one of five classes of response; the bare minimum for an HTTP client is that it recognises these five classes. Microsoft IIS may use additional decimal sub-codes to provide more specific information, but these are not listed here. The phrases used are the standard examples, but any human-readable alternative can be provided. Unless otherwise stated, the status code is part of the HTTP/1.1 standard."

http://en.wikipedia.org/wiki/List_of_HTTP_status_codes

Signing Process Activity Diagrams

The following activity chart is showing on the left side how a new product is added to the webshop by an administrator.

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The middle chart is showing how this product is encrypted and signed. This process is done each time a customer is buying a downloadable product. So each customer is getting an individual download link and it is not possible to decrypt anything else with one key.

The right chart is showing how download, signature check¹, decryption and installation are working.

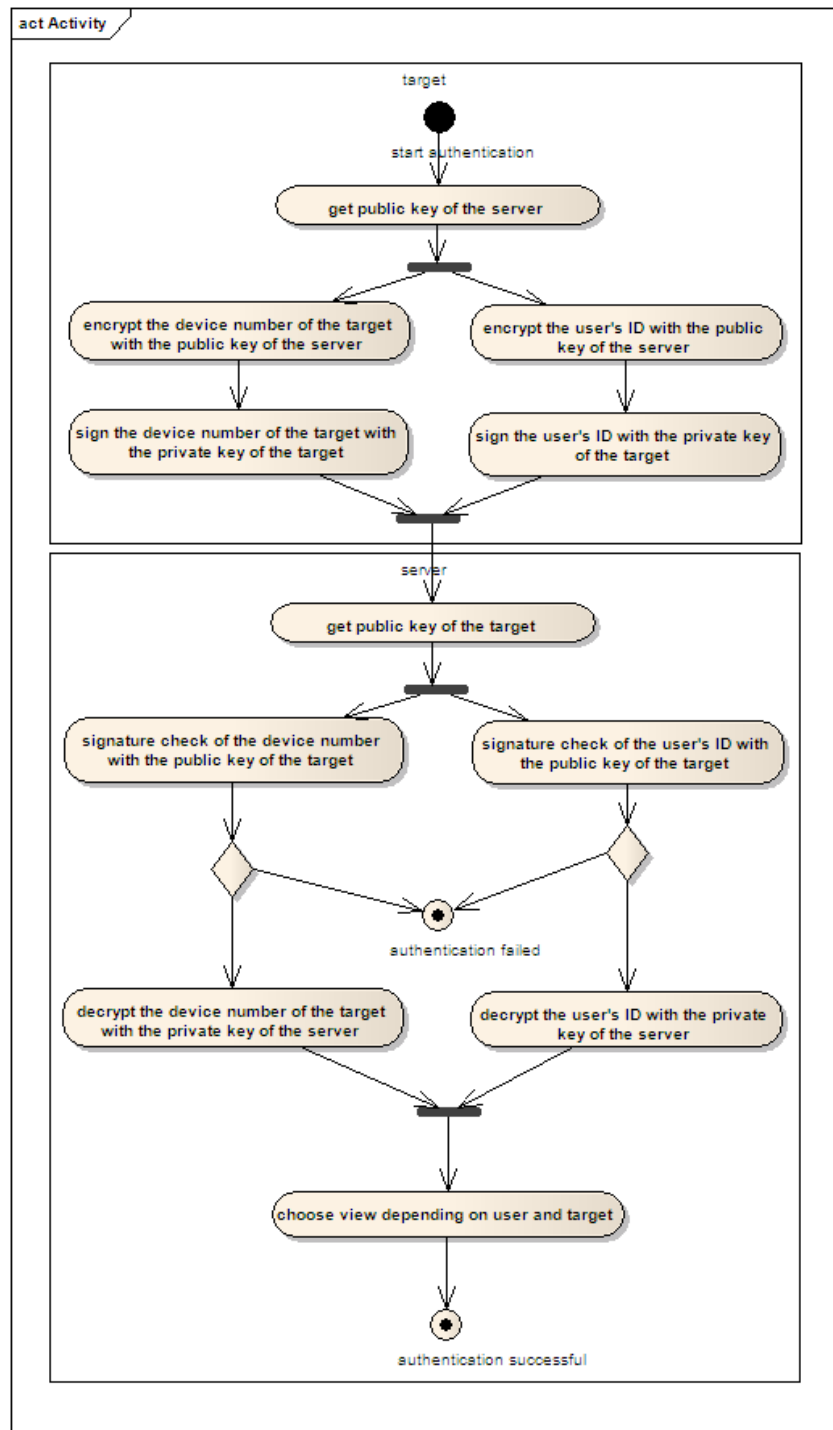


Figure 2: Encryption and decryption of data on target and server

¹ If signature check fails the installation must be cancelled.

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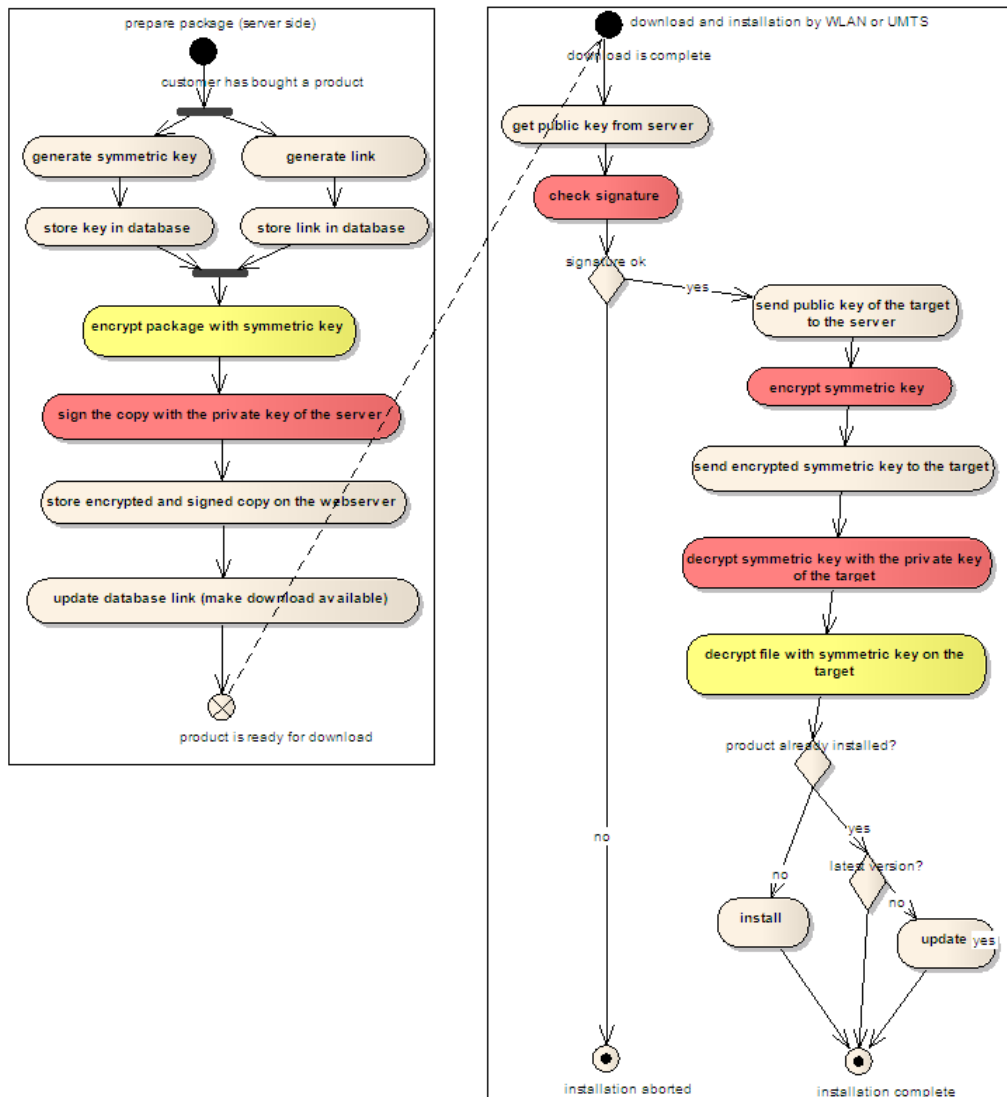


Figure 3 signing a download routed via air

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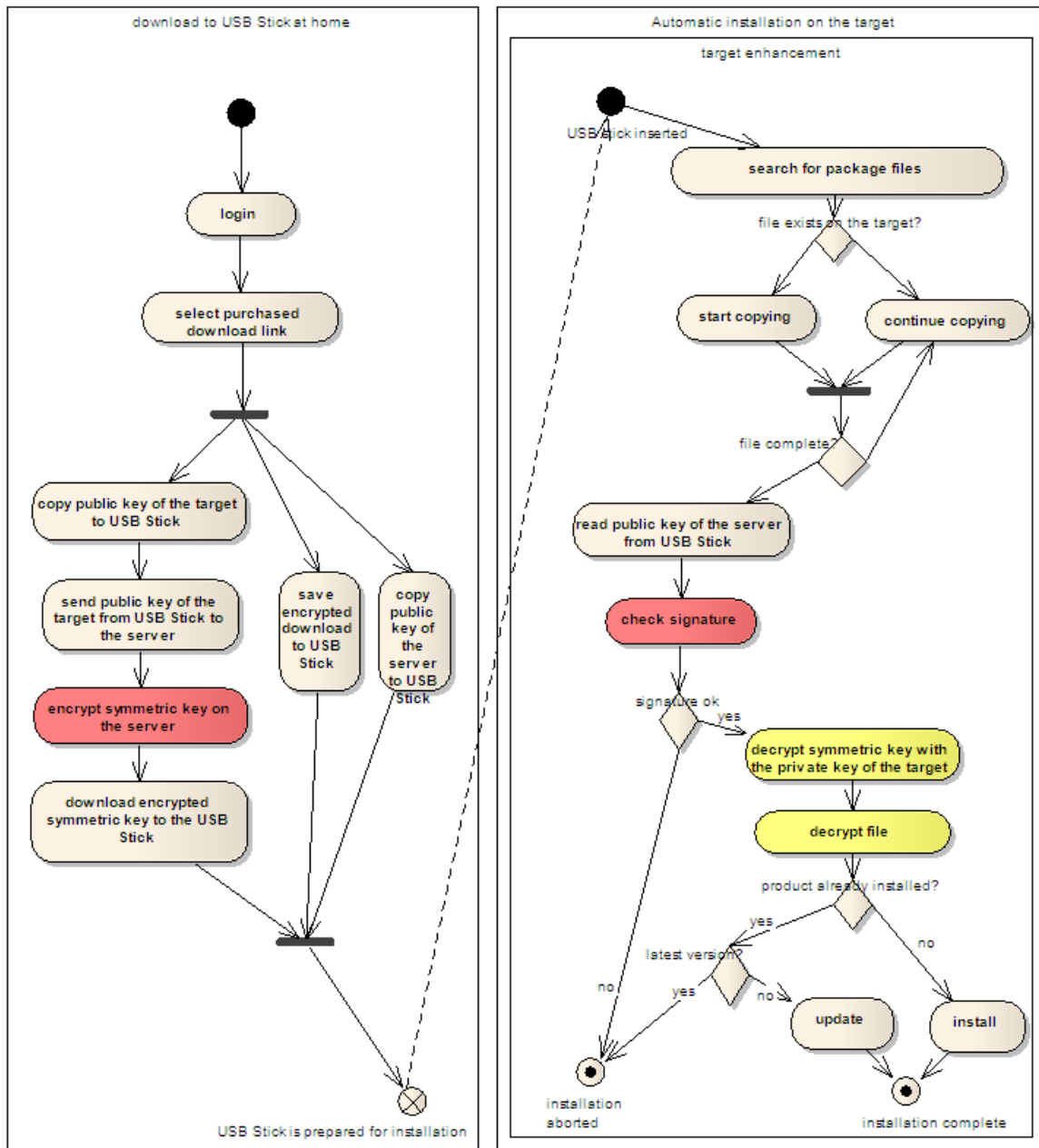


Figure 4 signing a download routed via medium