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Resource Management SDK

for

ETAdirect

Version 4.5

TOA Technologies, 2013

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1 Introduction

1.1 Goal of the Document

This document is intended to ensure successful interaction between ETAdirect Resource Management

API and third party systems

1.2 Scope of the Document

This document provides a detailed description of Transaction format and Transaction logic of ETAdirect

Resource Management Interface.

1.3 Target audience

This document is intended for developers working on integration of third-party systems with ETAdirect.

1.4 Glossary

The following terms and explanations should be used for the goals of the document:

Term	Explanation
Activity	Entity of the ETAdirect system that represents any time-consuming activity of the resource
API	Application Programming Interface – a particular set of rules and specifications that software programs follow to communicate and interact with each other
Bucket	Entity appearing on the resource tree which can contain resources of a defined type and be assigned activities
Company	1) Legal entity, using ETAdirect 2) Entity that represents a Client in ETAdirect system; company is created by TOA Technologies during the process of implementation
Customer	End-customer, entity that benefits from the activity
Group	Resource of the resource tree which represents a group of resources and cannot execute activities
Inventory	Equipment that can be installed or deinstalled during an activity
ISO 8601 format	see http://en.wikipedia.org/wiki/ISO_8601
Property	Field and field value assigned to an entity in ETAdirect (to user, resource, activity or inventory). There are fields and custom properties
Resource	Element in the resource tree representing a defined company asset
Resource Tree	Hierarchy of company resources, showing "parent-child" relationships
SOAP	Lightweight protocol for exchange of information in a decentralized, distributed environment
SOAP 1.1	See http://www.w3.org/TR/2000/NOTE-SOAP-20000508/
Status	Resource or user definition as 'active' or 'inactive' which enables or disables actions with such resources or users, respectively.
Technician (Resource)	Person who performs work at the customer's premises (the one who provides the service)
Time Zones	Customer-specific list of regions with the same time in which the Company operates. Time zones are defined by their difference to UTC.

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User	1) Person using ETAdirect
	2) Entity used for authentication and authorization, allowing people or external software to access ETAdirect
Work Skill	1) Activity that a resource is qualified to perform (resource property)
	2) Qualification required to perform an activity (activity property)
Work Zone	Defined geographical area in which a resource can perform an activity

2 Resource Management API Overview

Resource Management API is designed as a means of managing resources and users via the SOAP interface. With the methods of the API it is possible to add and delete users and to create resources in the system, to define, update and retrieve their details. Below is the general description of the basic entities processed by the methods of Resource Management API.

2.1 Users

A user is an entity that corresponds to a person, group of people or software, accessing ETAdirect with a single login to the system and specified permissions. Each user in ETAdirect can manage only the resources assigned to such user.

2.1.1 Profiles

User can be assigned several user profiles that define a set of permissions determining what the user can see and manage in the system. Profiles and relevant permissions are defined at the Company level in the course of implementation, profile areas are summed up (e.g. the user is allowed access to any part of the system that is permitted for any of its profiles).

2.1.2 Self Assignment

The self-assignment feature influences activity and resource availability for a user who is assigned a bucket. The 'self_assignment' = 'no' flag is the default setting and is targeted at dispatchers – users, who are allocating activities among resources and usually do not perform activities.

If a user is assigned a bucket and 'self_assignment' = 'no':

- all child resources of a bucket are available to the user
- all activities in the bucket are available to the user (regardless of their work zones and work skills)
- the user can move all activities between all available resources (e.g. from the bucket to any of the assigned resources, between resources, from a resource back to a bucket)

The 'self_assignment' flag should be checked if a technician is granted permission to assign tasks (e.g the user is a crew chief, assigning activities to members of the crew or a single technician allowed to choose activity to perform).

If a user is assigned a bucket and 'self_assignment' = 'yes':

- only the resources explicitly assigned to the user are available to such user (e.g. the bucket, the user himself and members of the crew). No other child resources of the bucket will be available to the user.
- only those activities in the bucket that can be performed by at least one of available resources (subject to the work zone and work skill requirements) are available to the user
- the user can move only the available activities and only between the available resources

2.2 Resources

ETAdirect is populated with a hierarchical set of resources (Resource Tree). Resource is an entity that represents a person or equipment used by a company, so that it or its child resources can perform work for the benefit of a company. For each resource entity-specific parameters are defined.

2.2.1 Resource Type

Resource Type contains a predefined set of company-specific rules for a resource (e.g. the ability of the resource to have child resources, to be assigned and execute activities, to assist and be assisted by other resources, share data with other resources and interact with different modules of ETAdirect).

2.2.2 Calendars

Calendars are assigned to a resource and define the resources availability at specific time and date. Calendars may define:

Working time – from-to time period when the resource is available

Work Shifts – working time with activities within it

Non-working time – time when the resource is not available (e.g. days off)

Work Schedules – set of working times (shifts and non-working time)

Shift and Working Time Overrides – shift or working time overwriting the previous setting of a resource for a specified time period.

If the same resource at the same level is assigned a work schedule, a shift and a working time, then whenever they overlap, the working time prevails over the shift and the shift prevails over the work schedule. If a resource is assigned an override (both shift or working time) or a non-working time, the one assigned the latest prevails over any other settings defined before.

If a calendar is defined at the level of a parent resource, all subordinate resources will inherit it unless another calendar is explicitly defined for the subordinate resource.

2.2.3 Work Zones

For each resource it is possible to define the work zones where the resource can perform tasks on specific dates and the ratio of the zone preference for the resource. Along with that, a set of rules is defined that enables automatic calculation of the work zone of each activity. An activity should be assigned to a resource that can perform work in the work zone of the activity.

If a work zone is defined at the level of a parent resource, all subordinate resources will inherit it unless another work zone is explicitly defined for the subordinate resource.

3.2.7 Work Skills

For each resource it is possible to define a set of work skills as well as the qualification level for each skill. Along with that, a set of rules is defined that enables automatic calculation of the work skills of each activity, their required and preferable levels. An activity should be assigned to a resource having all of the work skills necessary to perform the activity with qualification level not less than the required level for the activity.

Work Skills are not inherited by subordinate resources.

2.3 Properties/Files/Fields

Property is a variable associated with an ETAdirect entity. It is much like a field of an object in most programming languages. The Resource Management Interface deals with properties of users (user properties) and properties of resources (resource properties). Every property has a string label by which it is uniquely identified – it can be thought of as a field name and a value. If there is a property of an entity in ETAdirect, all such entities have this property, and the API can read this property, write to it and make conditional decisions based on the property value.

If a file is assigned to an entity, it is called a 'file property' or 'file'. Some properties are initially defined in ETAdirect and others are customer-specific and created in the course of implementation.

Properties initially defined in ETAdirect are addressed as 'fields'. If a field and its value is used to indicate a specific user or resource, it is a key field.

2.3.1 Property Types

The following property types can be processed by Resource Management:

Type	Description
Integer checkbox element	to set the box to unchecked – the value should be equal to '0' to set the box to checked – the value should be equal to any other integer
Integer text element	the value should be integer if a regular expression is set for the property and the property value does not correspond to the pattern, the property update is skipped
string	if a regular expression is set for the property and the property value does not correspond to the pattern, the property update is skipped
enumeration	one of the possible indexes should be stated here; if such index does not exist, the property update is skipped
file	file name should be passed as <value>, also the <mime_type> and <file_data> should be present; <file_data> should contain the base64 coded file data; (supported since version 4.04)

2.3.2 Property Visibility

The way a property will be processed by the Resource Management API depends on its visibility. A property can be set to hidden and will not be seen in any way by the user. On the other hand, visible properties can be mandatory for the request to be processed correctly or optional.

Optional: the user can see the property and can optionally manage it; the 'Required' column contains '**No**' for such property.

Mandatory: the user can see the property and must define it; if the transaction contains an invalid mandatory property, the request is rejected with a corresponding error; if request has no mandatory property, the request is rejected with a corresponding error; the 'Required' column contains '**Yes**' for such properties.

2.3.3 'property' Structure

The 'property' structure is used to represent custom company-specific properties of a resource or user. It is a simple name-value pair. The 'property' structure consists of the following elements:

Name	Required	Type	Description
name	Yes	string	name of the property, unique for the corresponding property list
value	Yes	string	property value, can be an empty string

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- **'property' structure example**

```
<property>
        <label>DOOR_COLOR</label>
        <value>ORANGE</value>
</property>
```

Note: If a request contains multiple values for the same property name then the last value is used.

2.4 'user' Node and Authentication

All Resource Management API requests contain authentication elements used for user validation and logging in to ETAdirect. Commonly the elements are contained in the 'user' node. Mandatory authentication elements are as follows:

Name	Type	Description
now	string	current time in ISO 8601 format
company	string	case-insensitive identifier of the Client, for whom data is to be retrieved (the instance name) Provided by TOA technologies during integration.
login	string	case-sensitive identifier of a specific user within the Company. Provided by TOA technologies during integration.
auth_string	string	authentication hash auth_string = md5(now + md5(password)), where 'password' is case-sensitive set of characters used for user authentication provided by TOA technologies during integration

Authentication fails and relevant error is returned if:

1	now	is different from the current time on the server and this difference exceeds the predefined time-window (30 minutes by default)
2	login	cannot be found for this company
3	company	cannot be found in ETAdirect
4	user with this 'login' is not authorized to use the method	
5	auth_string	is not equal to md5(now+md5(password))

      For example:
'now' = "2005-07-07T09:25:02+00:00" and password = "Pa$$w0rD" then
md5 (password) = "06395148c998f3388e87f222bfd5c84b"
concatenated string =
= "2005-0707T09:25:02+00:0006395148c998f3388e87f222bfd5c84b"
auth_string should be:
auth_string = "62469089f554d7a38bacd9be3f29a989";

Otherwise authentication is successful and the request is processed further.

2.5 Transaction Result

All Resource Management API responses contain the transaction result in the form of the following

elements:

Field	Description
result_code	result of the performed operation 'result_code' is returned in every response. For a successful transaction 'result_code' = 0 is returned. If transaction fails, the 'result_code' > 0.
error_msg	more specific description of the error 'error_msg' is returned only if 'result_code' is other than 0.

2.5.1 Transaction Result Example

- **Successful Transaction Result Example**

```
 <SOAP-ENV:Envelope xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
 <SOAP-ENV:Body>
  <ns1:insert_user_response>
   <result_code>0</result_code>
  </ns1:insert_user_response>
 </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

- **Failed Transaction Result Example**

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
  <ns1:insert_user_response>
   <result_code>41</result_code>
   <error_msg>The name is not set</error_msg>
  </ns1:insert_user_response>
 </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3 Resource Management Methods

The API carries out the following SOAP functions necessary for resource management process:

- 'insert_user' used to add a new user to ETAdirect, define user properties, resources and profiles assigned to the user

- 'update_user' used to update an existing user. It overwrites the specified user properties, overwrites the list of resources and profiles with those specified in the request (if an existing property is not specified in the request it will remain unchanged, if an existing resource or profile is not specified in the request, it will be deleted).

- 'delete_user' used to delete an existing user

- 'get_user' used to retrieve data about the specified existing user

- 'get_users_list' used to retrieve data on the specified properties of all users assigned to the specified resource and its child resources

- 'insert_resource' used to add a new resource to ETAdirect, define the resource properties and users the resource is assigned to

- 'update_resource' used to update an existing resource. It changes only the data specified in the request.

- 'get_resource' used to retrieve the specified data in a specified existing resource

- 'get_resources_list' used to retrieve the specified data on all child resources of the specified resource

- 'set_resources_calendars' used to define the working time, shifts, schedules and non-working time of a specific resource for a specific date

- 'get_resource_calendars' used to retrieve details on the working time, shifts, schedules and non-working time for specific resources for a specific date

- 'set_resources_zones' used to define work zones of a specific resource for a specific date

- 'get_resources_zones' used to retrieve work zone details of a specific resource for a specific date

- 'set_resources_skills' used to define work skills of a specific resource

- 'get_resources_skills' used to retrieve work skills of a specific resource

- 'update_locations' used to create or update resources' locations

- 'delete_locations' used to delete existing locations

- 'get_locations' used to retrieve locations assigned to the specified resource

- 'set_resources_locations' used to assign 'start', 'end' and 'home zone center' locations to resources or to remove the existing location assignments from resources

- 'get_resources_locations' used to retrieve 'start', 'end' and 'home zone center' locations assigned to the specified resources

Please see the detailed description of the methods in the subsections below.

3.1 'insert_user' and 'update_user' Methods

The 'insert_user' method is used to add a new user. For each user being created, the user properties and resources assigned must be defined. Profiles assigned to the user can also be defined upon creation.

The 'update_user' method overwrites the properties specified in the request, deletes all resources and profiles assigned to the user defined and overwrites them with the resources and profiles defined in the request.

In addition to the predefined set of user properties existing in ETAdirect, the Resource Management Interface can add or update custom user properties. These actions are subject to the permissions set in the corresponding display profile.

3.1.1 'insert_user' and 'update_user' Requests

Requests of both 'insert_user' and 'update_user' methods must define the properties and resources to be assigned to the user. They can also define the profiles to be assigned to the user.

An 'insert_user' request defines the login of the user created, while an 'update_user' request specifies the login to be used as a search key to find the user for which data is to be updated. Requests of both methods contain the following elements:

Name	Required	Type	Description
user	Yes	struct	'user' structure
login	Yes	string	login of the user to be added/updated
properties	Yes	array	array of user 'property' nodes ('name' and 'value'). Please check the specific properties for visibility.
resources	Yes	array	array of 'id' elements that contain identifiers of resources to be assigned to the user
profiles	No	array	array of 'profile' elements each of which contains a name of profile to be assigned to the user

3.1.1.1 'properties' Array of 'insert_user' and 'update_user' Requests

The following user properties should/can be set with 'insert_user' and 'update_user' methods:

Name	Required	Type	Description
status	Yes	enum	user status **valid values**: 'active', 'inactive
name	Yes	string	user name
password	Yes	string	user password md5 hash
password_temporary	No	string	user password temporary flag **valid values**:'yes', 'no' **default value**: 'no'
display_profile	Yes for 'insert_user' No for 'update_user'	string	name of the display profile assigned to the user as defined in Manage Application → Company Settings → Display
api_profile	No	string	name of the API profile assigned to the user as defined in Manage Application → Company Settings → API profile

Name	Required	Type	Description
language	Yes	enum	user language: customer-specific language label
time_zone	Yes	enum	user time zone: customer-specific time zone name
login_attempts	No	integer	the number of failed log-ins to ETAdirect allowed **default value**: none
login_policy	No	enum	user login policy: customer-specific label of the login policy **default value**: company default policy
login_blocked_to	No	dateTime	date, until which user login shall be blocked in 'YYYY-MM-DD H:i:s' format; set to past date to unblock **default value**: none
self_assignment	No	enum	self-assignment feature set to 'yes'/'no' **default value**: 'no'
main_resource_id	No	string	external ID of the main resource. The main resource must be one of the resources in the 'resources' array in the same request. If the same 'main_resource_id' has been already set for another user, that user's 'main_resource_id' will be erased.
date_format	No	string	date format set for the user **valid values**:'dd.mm.yy', 'mm/dd/yy', 'dd/mm/yy'
time_format	No	string	time format set for the user **valid values**:'12-hour', '24-hour'
long_date_format	No	string	long date format set for the user **valid values**:'weekday, month day, year', 'weekday day month year'
week_start	No	string	day of the week on which the week starts according to the user's settings **valid values**: 'sunday', 'monday', 'tuesday', 'wednesday', 'thursday', 'friday', 'saturday', 'default'

3.1.1.2 Request Examples

- **'insert_user' Request Example**

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:insert_user>
         <user>
            <now>2010-11-19T13:50:10Z</now>
            <login>soap</login>
            <company>sunrise</company>
            <auth_string>7160f16f31540cc07128404a8d878e69</auth_string>
         </user>
         <login>test_user</login>
         <properties>
            <property>
               <name>status</name>
               <value>active</value>
            </property>
            <property>
               <name>password</name>
               <value>c4ca4238a0b923820dcc509a6f75849b</value>
            </property>
            <property>
               <name>name</name>
               <value>test_insert_user</value>
            </property>
            <property>
               <name>language</name>
               <value>en</value>
            </property>
            <property>
               <name>time_zone</name>
               <value>Pacific</value>
            </property>
            <property>
               <name>display_profile</name>
               <value>Administrator</value>
            </property>
         </properties>
         <resources>
            <id>22</id>
         </resources>
         <profiles>
            <profile>Dispatcher</profile>
            <profile>Manager</profile>
```

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```
            </profiles>
        </ns1:insert_user>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

- **'update_user' Request Example**

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:update_user>
         <user>
            <now>2010-11-19T13:50:15Z</now>
            <login>soap</login>
            <company>sunrise</company>
            <auth_string>a7b8386756cc24762dcca63fa2590ab2</auth_string>
         </user>
         <login>test_user</login>
         <properties>
         <property>
               <name>name</name>
               <value>test_update_user</value>
         </property>
         <property>
               <name>time_zone</name>
               <value>Atlantic</value>
         </property>
         </properties>
         <resources>
            <id>22</id>
            <id>23</id>
         </resources>
         <profiles>
            <profile>Dispatcher</profile>
            <profile>Manager</profile>
            <profile>Technician</profile>
         </profiles>
      </ns1:update_user>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

In the example, the user created with 'insert_user' is updated with 'update_user'. As a result of the update the user's name and time zone have been changed, one more resource and one more profile assigned to the user have been added.

3.1.2 'insert_user' and 'update_user' Response

Responses of both 'insert_user' and 'update_user' methods consist of the *transaction result.*

3.2 'delete_user' Method

The 'delete_user' method is used to delete an existing user. User login and all settings defined for the user are deleted.

3.2.1 'delete_user' Request

The 'delete_user' requests specify the login to be used as a search key to find the user whose data is to be deleted.

The 'delete_user' requests contain the following elements:

Name	Required	Type	Description
user	Yes	struct	'user' structure
login	Yes	string	login of the user to be deleted

3.2.1.1 'delete_user' Request Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:delete_user>
         <user>
            <now>2010-11-19T13:50:15Z</now>
            <login>soap</login>
            <company>sunrise</company>
            <auth_string>a7b8386756cc24762dcca63fa2590ab2</auth_string>
         </user>
         <login>test_user</login>
      </ns1:delete_user>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.2.2 'delete_user' Response

The 'delete_user' response consists of the transaction result.

3.3 'get_user' Method

The 'get_user' method is used to retrieve information of a specified existing user.

3.3.1 'get_user' Request

The 'get_user' requests specify the login to be used to find the user whose data is to be retrieved.

The 'get_user' requests contain the following elements:

Name	Required	Type	Description
user	Yes	struct	'user' node
login	Yes	string	login of the user whose data is to be retrieved

3.3.2 'get_user' Request Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:get_user>
         <user>
            <now>2010-11-19T13:50:15Z</now>
            <login>soap</login>
            <company>sunrise</company>
            <auth_string>a7b8386756cc24762dcca63fa2590ab2</auth_string>
         </user>
         <login>test_user</login>
      </ns1:get_user>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.3.3 'get_user' Response

Upon the transaction failure, the 'get_user' response consists of the transaction result. Upon a successful transaction, the response contains the following elements:

Name	Type	Description
result_code	int	as the transaction is successful, the 'result_code' is '0'
properties	array	array of user 'property' nodes ('name' and 'value')
resources	array	array of 'id' elements that contain identifiers of resources to be assigned to the user
profiles	array	array of 'profile' elements that contain the profile to be assigned to the user

3.3.3.1 'properties' Array of Successful 'get_user' Response

The 'get_user' 'properties' array consists of 'property' nodes. The following properties will be returned if specified for the user:

Name	Type	Description
status	enum	user status
login	string	login of the user the properties of which are retrieved
name	string	user name
password_temporary	string	user password temporary flag

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Name	Type	Description
language	enum	user language: customer specific language label
time_zone	enum	user time zone: customer specific time zone name
login_attempts	integer	the number of failed log-ins to ETAdirect allowed
login_policy	enum	user login policy label
login_blocked_to	DateTime	date until which the user login is to be blocked
created	DateTime	date/time when the user was created
last_login	DateTime	date/time when the user logged in successfully
last_password_change	DateTime	date/time when the user changed the login
self_assignment	enum	self-assignment feature set to 'yes'/'no'
main_resource_id	string	external ID of the user's main resource
date_format	string	date format set for the user
time_format	string	time format set for the user
long_date_ format	string	long date format set for the user
week_start	string	day of the week on which the week starts according to the user's settings

The following properties will be returned regardless of the request:

display_profile	enum	one of display profiles defined in the system
api_profile	string	name of the API profile assigned to the user as defined in Manage Application → Company Settings → API profile
timezone_diff	int	difference from UTC time in minutes

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3.3.3.2 Successful 'get_user' Response Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:get_user_response>
         <result_code>0</result_code>
         <properties>
            <property>
               <name>name</name>
               <value>test_get_user</value>
            </property>
            <property>
               <name>login</name>
               <value>test_get_user</value>
            </property>
            <property>
               <name>login_attempts</name>
               <value>0</value>
            </property>
            <property>
               <name>login_policy</name>
               <value>Default policy</value>
            </property>
            <property>
               <name>time_zone</name>
               <value>Pacific</value>
            </property>
            <property>
               <name>time_zone_diff</name>
               <value>-480</value>
            </property>
            <property>
               <name>status</name>
               <value>active</value>
            </property>
            <property>
               <name>display_profile</name>
               <value>Administrator</value>
            </property>
            <property>
               <name>language</name>
               <value>en</value>
            </property>
            <property>
               <name>login_blocked_to</name>
```

```
                <value/>
            </property>
            <property>
                <name>last_login</name>
                <value/>
            </property>
            <property>
                <name>last_password_change</name>
                <value>2010-11-19 13:50:26</value>
            </property>
        </properties>
        <resources>
            <id>22</id>
        </resources>
        <profiles>
            <profile>Dispatcher</profile>
            <profile>Manager</profile>
        </profiles>
    </ns1:get_user_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.4 'get_users_list' Method

The 'get_users_list' method is used to retrieve information (set of predefined properties) for the list of users assigned to the current resource.

3.4.1 'get_users_list' Request

The 'get_users_list' requests specify the login to be used to find the user whose data is to be retrieved and the properties to be returned for the users, and contain the following elements:

Name	Required	Type	Description
user	Yes	struct	'user' node
root_resource_id	Yes	string	external ID of the resource whose data is to be retrieved
required_properties	No	array	array of the 'label' elements that correspond to 'names' of properties to be returned. If not defined, login and status will be returned.
select_from	No	int	amount of users in the result to be skipped (skip first 'select_from' users in the result)
select_count	No	int	maximal amount of users to be returned (return no more than 'select_count' users)

3.4.1.1 'required_properties' Array of 'get_users_list' Request

The 'required_properties' array consists of 'label' elements, each of which corresponds to a property to be returned. The following properties should/can be requested with 'get_users_list' method:

Name	Type	Description
status	enum	user status
name	string	user name
login	string	login of the user
password_temporary	string	user password temporary flag
language	enum	user language
time_zone	enum	user time zone
login_attempts	integer	the number of failed log-ins to ETAdirect allowed
login_policy	enum	user login policy label
login_blocked_to	DateTime	date until which user login is to be blocked
self_assignment	enum	self-assignment feature set to 'yes'/'no'
main_resource_id	string	external ID of the user's main resource
date_format	string	date format set for the user
time_format	string	time format set for the user
long_date_ format	string	long date format set for the user
week_start	string	day of the week on which the week starts according to the user's settings

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3.4.1.2 'get_users_list' Request Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:get_users_list>
         <user>
            <now>2010-11-19T13:50:31Z</now>
            <login>soap</login>
            <company>sunrise</company>
            <auth_string>1280ad0767100624b0448fb6c8d82192</auth_string>
         </user>
         <root_resource_id>22</root_resource_id>
         <select_from>2</select_from>
         <select_count>2</select_count>
         <required_properties>
            <label>name</label>
            <label>login</label>
         </required_properties>
      </ns1:get_users_list>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.4.2 'get_users_list' Response

Upon the transaction failure, the response of the 'get_users_list' consists of the transaction result.

Upon successful transaction, the response contains the following elements:

Name	Type	Description
result_code	int	as the transaction is successful, the result_code is '0'
users	array	array of 'user' nodes each of which corresponds to a user assigned to the requested resource and its children
users_count	int	corresponds to the total number of the users assigned to the resource

3.4.2.1 'users' Array of 'get_users_list' Response

The 'users' array consists of 'user' nodes. Each 'user' node contains a 'properties' array, the 'property' nodes of which are based at the 'required_properties' array of the request. If the 'required_properties' array is empty, login and status properties are returned.

3.4.2.2 'get_users_list' Response Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:get_users_list_response>
         <result_code>0</result_code>
         <users>
            <user>
               <properties>
                  <property>
                     <name>name</name>
                     <value>Administrator</value>
                  </property>
                  <property>
                     <name>login</name>
                     <value>root</value>
                  </property>
               </properties>
            </user>
            <user>
               <properties>
                  <property>
                     <name>name</name>
                     <value>soap</value>
                  </property>
                  <property>
                     <name>login</name>
                     <value>soap</value>
                  </property>
               </properties>
            </user>
         </users>
         <users_count>19</users_count>
      </ns1:get_users_list_response>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.5 'insert_resource' and 'update_resource' Methods

The 'insert_resource' and 'update_resource' method is used to add a new resource to ETAdirect. For the resource to be added the properties are defined, and the resource is assigned to one or more users in the system.

3.5.1 'insert_resource' and 'update_resource' Requests

The 'insert_resource' requests specify the ID of the resource to be created, the properties assigned to the new resource and the users the new resource is assigned to.

The 'update_resource' requests specify the ID of the resource to be updated, as well as the properties assigned to the resource and the users the new resource is assigned to, if they should be updated. Fields not present in the 'update_resource' method are left with no changes.

Both requests contain the following elements:

Name	Required	Type	Description
user	Yes	struct	'user' node
id	Yes	string	external ID of the resource
properties	Yes	array	array of 'property' nodes filled with properties of the resource
users	No	array	array of 'login' elements each of which corresponds to a user login (to link a new resource with already existing users)
Workskills	No	array	array of 'workskill' elements each of which corresponds to one of work-skills assigned to a resource

3.5.1.1 'properties' Array of 'insert_resource' and 'update_resource' Request

Along with company-specific custom properties, the 'properties' array of 'insert_resource' can contain the following fields:

Name	Required	Type	Description
status	Yes for 'insert_resource' No for 'update_resource'	string	resource status **valid values**: 'active', 'inactive
parent_id	Yes for 'insert_resource' No for 'update_resource'	string	external ID of the parent resource
type	Yes for 'insert_resource' No for 'update_resource'	enum	resource type; company specific resource type name
name	Yes for 'insert_resource' No for 'update_resource'	string	name of the resource
language	Yes for 'insert_resource' No for 'update_resource'	enum	customer-specific language label
email	No	string	resource's email, should be skipped if not applicable

Name	Required	Type	Description
phone	No	string	resource's phone number, should be skipped if not applicable
time_zone	Yes	string	resource time zone: customer-specific time zone name
mime_type	No	enum	MIME type of the attached file (one of the types defined for the property). The field is optional but must be defined if a file property is added.
file_data	No	string	contents of the file (base64-encoded) The field is optional but must be defined if a file property is added.
date_format	No	string	date format set for the resource **valid values**:'dd.mm.yy', 'mm/dd/yy', 'dd/mm/yy'
time_format	No	string	time format set for the resource **valid values**:'12-hour', '24-hour'

3.5.1.2 'workskills' Array of 'insert_resource' and 'update_resource' Request

The 'workskills' element may contain the following elements:'workskill' and 'workskill_group':

Name	Required	Type	Description
workskill	No	array	any of the work skills defined in ETAdirect and acquired by the resource
workskill_group	No	array	any of the work skills groups defined in ETAdirect and acquired by the resource

- **'workskill' Element**

Each of the 'workskill' nodes are optional, but if it is defined, it is to contain the following elements:

Name	Required	Type	Description
label	Yes	string	label of a work skill defined in ETAdirect
ratio	Yes	string	level of qualification of the skill defined with the 'label' for the resource. **valid values**: 0 – 100

- **'workskill_group' Element**

Each of the 'workskill_group' nodes are optional, but if it is defined, it should contain the 'label' element:

Name	Required	Type	Description
label	Yes	string	label of a work skill group defined in ETAdirect

NOTE: If a work skill defined with a 'workskill' element is contained in a work skill group that is also assigned to a resource, the qualification level defined directly for the work skill will prevail over the one predefined with the work skill group.

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3.5.1.3 'insert_resource' and 'update_resource' Request Examples

- **'insert_resource' Request Example**

```xml
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:insert_resource>
         <user>
            <now>2010-12-15T08:09:23+00:00</now>
            <login>root</login>
            <company>sunrise</company>
            <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
         </user>
         <id>test_resource</id>
         <properties>
            <property>
               <name>parent_id</name>
               <value>22</value>
            </property>
            <property>
               <name>status</name>
               <value>active</value>
            </property>
            <property>
               <name>type</name>
               <value>provider</value>
            </property>
            <property>
               <name>name</name>
               <value>test_insert_resource</value>
            </property>
            <property>
               <name>language</name>
               <value>en</value>
            </property>
            <property>
               <name>time_zone</name>
               <value>Pacific</value>
            </property>
         </properties>
          <workskills>
            <workskill>
               <label>IN</label>
               <ratio>100</ratio>
```

```
          </workskill>
          <workskill>
             <label>UP</label>
             <ratio>50</ratio>
          </workskill>
          <workskill_group>TestGroup</workskill_group>
       </workskills>
     </ns1:insert_resource>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

- **'update_resource' Request Example**

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:update_resource>
         <user>
            <now>2010-12-15T08:09:23+00:00</now>
            <login>root</login>
            <company>sunrise</company>
            <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
         </user>
         <id>test_resource</id>
         <properties>
            <property>
               <name>parent_id</name>
               <value>23</value>
            </property>
            <property>
               <name>name</name>
               <value>test_resource1</value>
            </property>
         </properties>
      </ns1:update_resource>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

NOTE: If a certain value does not have to be updated, it should be excluded from the request.

To update the values, the node should be added to the request. New values will overwrite the previous ones.

An empty node will erase the existing values.

In the examples above a 'test_resource' has been created with 'insert_resource' and its parent resource and name have been changed with 'update resource'. The rest of its properties have been left as set with 'insert_resource'

To change the work skills, add them to the request as in the example below:

```
<workskills>
   <workskill>
       <label>IN</label>
       <ratio>100</ratio>
   </workskill>
   <workskill>
       <label>UP</label>
       <ratio>50</ratio>
   </workskill>
```

```
    <workskill_group>TestGroup</workskill_group>
</workskills>
```

To erase all work-skills, add an empty element to the request as in the example below:

```
<soapenv:Body>
    <urn:update_resource>
        <user>...</user>
        <id>j.smith</id>
        <properties>...</properties>
        <users>...</users>
        <workskills />
    </urn:update_resource>
</soapenv:Body>
```

3.5.2 'insert_resource' and 'update_resource' Response
The 'insert_resource' response consists of the [transaction result](#).

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3.6 'get_resource' Method

The 'get_resource' method is used to retrieve information of a specified existing resource.

3.6.1 'get_resource' Request

The 'get_resource' requests specify the resource whose data is to be retrieved.

The 'get_resource' requests contain the following elements:

Name	Required	Type	Description
user	Yes	struct	'user' structure
id	Yes	string	external ID of the resource whose data is to be retrieved
date	No	string	YYYY-MM-DD format date of the resource's calendar for which the working time may be returned in the response

3.6.1.1 'get_resource' Request Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:get_resource>
         <user>
            <now>2010-12-15T15:22:10+00:00</now>
            <login>root</login>
            <company>sunrise</company>
            <auth_string>7b4a4666c307eee86746f838567f8290</auth_string>
         </user>
         <id>test_resource</id>
      </ns1:get_resource>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.6.2 'get_resource' Response

Upon the transaction failure, the response of 'get_resource' consists of the transaction result. Upon successful transaction, the response contains the following elements:

Name	Required	Type	Description
result_code	Yes	int	as the transaction is successful the result_code is '0'
properties	Yes	array	array of user 'property' nodes ('name' and 'value')
users	Yes	array	array of 'user' elements that contain identifiers of the users assigned to the resource
workskills	No	array	array of 'workskill' elements each of which corresponds to one of work skills assigned to a resource. It is only present in the response if an optional 'date' parameter is set in the request (resource work skills depend on the selected date because of teamwork) and if the work skill list for resource is not empty.

3.6.2.1 'properties' Array of 'get_resource' Response

The 'get_resource' 'properties' array consists of 'property' nodes. The following properties can be returned:

Name	Type	Description
id	string	resource external ID
status	string	resource status; set to activate/deactivate resource
parent_id	string	parent resource external system ID for the top resource it is equal to 0
type	enum	resource type company specific value ('Company settings → Glossary')
name	string	resource name
language	enum	resource language company specific language label (EN, FR, etc.)
email	string	resource email if the value is not a valid email, the field is skipped
phone	string	resource phone if the value is not valid, the field is skipped
time_zone	enum	resource time zone company specific time zone name
time_from	time	HH:MM:SS format start of resource's working hours according to the calendar for the specified date (is returned only if the optional '*date*' field is present and valid and the resource has a working day)
time_to	time	HH:MM:SS format end of resource's working hours according to the calendar for the specified date (is returned only if the optional '*date*' field is present and valid and the resource has a working day)
non_working_reason	string	if the date is present in the request and the resource has a non-working day on the specified date, the reason will be returned in this field. The reason code is one of the configurable list of constants, e.g. "Vacation" (is returned only if the optional '*date*' field is present and valid and the resource has a non-working day)
mime_type	enum	MIME type of the attached file (one of the types defined for the property)
file_data	string	contents of the file (base64-encoded)
date_format	string	date format set for the resource
time_format	string	time format set for the resource

3.6.2.2 'workskills' Array of 'get_resource' Response

The 'workskills' element may contain the following elements:

Name	Required	Type	Description
workskill	No	array	any of the work-skills defined in ETAdirect and acquired by the resource
workskill_group	No	array	any of the work-skills groups defined in ETAdirect and acquired by the resource

- **'workskill' Element**

Each of the 'workskill' nodes are optional and if returned, will contain the following elements:

Name	Required	Type	Description
label	Yes	string	label of a work-skill defined in ETAdirect
ratio	Yes	string	level of qualification of the skill defined with the 'label' for the resource. **values range**: 0 – 100

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- **'workskill_group' Element**

Each of the 'workskill_group' nodes are optional and if returned, will contain the 'label' element:

Name	Type	Required	Description
label	string	Yes	label of a work skill group defined in ETAdirect

3.6.2.3 Successful 'get_resource' Response Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:get_resource_response>
         <result_code>0</result_code>
         <properties>
            <property>
               <name>id</name>
               <value>test_resource</value>
            </property>
            <property>
               <name>status</name>
               <value>active</value>
            </property>
            <property>
               <name>parent_id</name>
               <value>23</value>
            </property>
            <property>
               <name>type</name>
               <value>provider</value>
            </property>
            <property>
               <name>name</name>
               <value>test_resource1</value>
            </property>
            <property>
               <name>language</name>
               <value>en</value>
            </property>
            <property>
               <name>email</name>
               <value/>
            </property>
            <property>
               <name>phone</name>
               <value/>
            </property>
            <property>
               <name>time_zone</name>
               <value>Pacific</value>
            </property>
            <property>
               <name>time_zone_diff</name>
               <value>-480</value>
            </property>
            <property>
               <name>resource_picture</name>
               <value>picture</value>
               <mime_type>image/png</mime_type>
               <file_data>iVBORw0KGgoAAAANSUhEUgAAABAA...</file_data>
            </property>
            </properties>
            <users>
                <user>admin</user>
                <user>dispatcher</user>
                <user>tech</user>
            </users>
            <workskills>
```

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```
                <workskill>
                    <label>IN</label>
                    <ratio>100</ratio>
                </workskill>
                <workskill>
                    <label>UP</label>
                    <ratio>50</ratio>
                </workskill>
            </workskills>
        </ns1:get_resource_response>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

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3.7 'get_resources_list' Method

The 'get_resources_list' method is used to retrieve information (set of predefined properties) of all selected children of the defined resource.

3.7.1 'get_resources_list' Request

The 'get_resources_list' requests specify the resource whose children's which data is to be retrieved as well as the parameters of the data output format.

The 'get_resources_list' requests contain the following elements:

Name	Type	Required	Description
user	struct	Yes	'user' node
root_resource_id	string	No	external ID of the resource to return the subtree for if not defined, the data for the top resource of the resource tree will be returned
select_from	integer	No	amount of resources in the result to be skipped (skip first 'select_from' resources in the result) default value: 1
'select_count'	integer	No	maximal amount of resources to be returned (return no more than 'select_count' resources) default value: all
'include_children'	string	No	flag to define if only direct children of the resource are to be returned if set to 'immediate' – only direct children returned if set to 'all' – all children returned
'date'	string	No	YYYY-MM-DD format date of the resource's calendar for which the working time may be returned in the response
'required_properties'	array	No	array of the 'label' elements that contains 'names' of the properties to be returned if empty or absent, id, parent_id, name and status are returned

3.7.1.1 'required_properties' Array of 'get_resources_list' Request

The 'required_properties' array consists of 'label' elements, each of which corresponds to a property to be returned. The following properties can be requested with the 'get_resources_list' method:

Name	Type	Description
status	enum	resource status set to activate/deactivate resource
id	string	resource external ID
parent_id	string	parent resource external system ID for the top resource it is equal to 0
type	enum	resource type company specific value ('Company settings → Glossary')
name	string	resource name
language	enum	resource language

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Name	Type	Description
		company specific language label (EN, FR, etc.)
email	string	resource email if the value is not a valid email, the field is skipped
phone	string	resource phone if the value is not valid, the field is skipped
time_zone	enum	resource time zone company specific time zone name
workskills	enum	work skills assigned to a resource and their ratio
time_from time_to	time	HH:MM:SS format start and end of resource's working hours according to the calendar for the specified date (if specified, will be returned only if the optional 'date' field is present and valid and the resource has a working day)
non_working_reason	string	if the resource has a non-working day on specified date, the reason will be returned in this field. The reason code is one of the configurable list of constants, e.g. "Vacation" (if specified, will be returned only if the optional 'date' field is present and valid and the resource has a non-working day)
mime_type	enum	MIME type of the attached file (one of the types defined for the property)
file_data	string	contents of the file base64-encoded
date_format	string	date format set for the resource
time_format	string	time format set for the resource

3.7.1.2 'get_resources_list' Request Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
   <SOAP-ENV:Body>
      <ns1:get_resources_list>
         <user>
            <now>2010-12-16T08:05:10+00:00</now>
            <login>root</login>
            <company>sunrise</company>
            <auth_string>64cab386ebd869312aa6b62d52e7278f</auth_string>
         </user>
         <root_resource_id>11100</root_resource_id>
         <select_from>0</select_from>
         <select_count>2</select_count>
         <required_properties>
            <label>name</label>
            <label>type</label>
            <label>status</label>
            <label>workskills</label>
         </required_properties>
      </ns1:get_resources_list>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.7.2 'get_resources_list' Response

Upon the transaction failure, the response of the 'get_resources_list' consists of the transaction result.

Upon successful transaction, the response contains the following elements:

Name	Type	Description
result_code	integer	as the transaction is successful, the result_code is '0'

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resources	array	array of 'resource' nodes each of which corresponds to a child resource of the requested resource
resource_count	integer	total number of the resource's children

3.7.2.1 'resources' Array of Successful 'get_resources_list' Response

The 'get_resources_list' resources array contains the following elements:

Name	Type	Description
resource	array	nodes, each of which contains the 'properties' array of the resource 'property' nodes. The properties specified in the get_resources_list request/required_properties field are returned. If no required properties were specified, id, parent_id, name and status are returned.
workskills	array	array of 'workskill' elements each of which corresponds to one of work skills assigned to a resource. It is only present in response if the optional 'date' parameter is set in the request (resource work skills depend on the selected date because of teamwork) and if the work skill list for resource is not empty.

3.7.2.2 'resources' / 'workskills' Array of Successful 'get_resources_list' Response

The 'workskills' element may contain the following elements:

Name	Type	Required	Description
workskill	array	No	any of the work skills defined in ETAdirect and obtained by the resource
workskill_group	array	No	any of the work skills groups defined in ETAdirect and obtained by the resource

- **'workskill' Element**

Each of the 'workskill' nodes are optional and if returned, will contain the following elements:

- **'workskill_group' Element**

Each of the 'workskill_group' nodes are optional and if returned, will contain the 'label' element:

Name	Type	Required	Description
label	string	Yes	label of a work skill group defined in ETAdirect

3.7.2.3 Successful 'get_resources_list' Response Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
    <SOAP-ENV:Body>
        <ns1:get_resources_list_response>
            <result_code>0</result_code>
            <resources>
                <resource>
                    <properties>
                        <property>
                            <name>name</name>
                            <value>ALFORD, Johnny</value>
                        </property>
                        <property>
                            <name>type</name>
                            <value>provider</value>
                        </property>
                        <property>
                            <name>status</name>
                            <value>active</value>
                        </property>
                    </properties>
                    <workskills>
                        <workskill>
                          <label>IN</label>
                          <ratio>100</ratio>
                        </workskill>
                        <workskill>
                          <label>UP</label>
                          <ratio>50</ratio>
                        </workskill>
                    </workskills>
                </resource>
                <resource>
                    <properties>
                        <property>
                            <name>name</name>
                            <value>(afternoon) BARRAGAN, James</value>
                        </property>
                        <property>
                            <name>type</name>
                            <value>provider</value>
                        </property>
                        <property>
                            <name>status</name>
                            <value>active</value>
                        </property>
                    </properties>
                </resource>
            </resources>
            <resources_count>44</resources_count>
        </ns1:get_resources_list_response>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.8 'set_resources_calendars' Method

The 'set_resources_calendars' method is used to define the working time, shifts, schedules and non-working time of a specific resource for a specific date.

3.8.1 'set_resources_calendars' Requests

The **'**set_resources_calendar' requests specify the details of the calendar to be defined:

Name	Type	Required	Description
user	struct	Yes	'user' node
calendars	array	Yes	array of 'calendar 'elements, each of which contains a set of 'calendar' elements each of which contains a single mandatory element 'properties'
calendars'/'calendar	array	Yes	consists of the 'properties' element

3.8.1.1 'calendars/calendar/properties' Array of 'set_resources_calendars' Request

The 'set_resources_calendars' calendars/calendar/properties' element defines an array of the calendar 'property' nodes. The following properties can be defined:

Name	Type	Required	Description
userdata	string	No	reference to a calendar record to identify the record in the response
date	date	Yes	date for which the calendar is defined
resource_id	string	Yes	external ID of the resource for which the calendar is defined
duration	integer	No	defines how many days in a row the calendar is applied for (including the 'date') default value: 1
comment	string	No	free format comment for the calendar
schedule	string	No	external ID (label) of the schedule or shift to be assigned. **Note:** If for a company the same label is used for both a work schedule and a shift, the work schedule will be assigned.
calendar_type	enum (string)	-	**Mandatory if** the 'schedule' value is not defined. **Meaningful only if** the 'schedule' value is not defined or there are no work schedules/shifts that correspond to it. possible values: 'working' and 'non-working'
time_from	time	-	start of the working time for the specified date and resource. **Mandatory and meaningful only if** the resource is assigned a working calendar.
time_to	time	-	end of the working time for the specified date and resource. **Mandatory and meaningful only if** the resource is assigned a working calendar.
points	integer	No	number of points for the day. **Meaningful only if** point functionality is enabled for the company.

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Name	Type	Required	Description
non_working_reason	enum (string)	-	label of non-working reason – one of the reasons predefined for the company. **Mandatory and meaningful only if** the resource is assigned a non-working calendar.

3.8.1.2 'set_resources_calendars' Request Example

```
<SOAP-ENV:Envelope   xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:set_resources_calendars>
      <user>
        <now>2010-12-15T08:09:23+00:00</now>
        <login>root</login>
        <company>sunrise</company>
        <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
      </user>
      <calendars>
        <calendar>
          <properties>
            <property>
              <name>userdata</name>
              <value>0x0fd0</value>
            </property>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_bucket</value>
            </property>
            <property>
              <name>schedule</name>
              <value>ODD-1st/PAR-2nd</value>
            </property>
            <property>
              <name>comment</name>
              <value>default test_bucket resources work schedule</value>
            </property>
          </properties>
        </calendar>
        <calendar>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_resource2</value>
            </property>
            <property>
              <name>schedule</name>
              <value>On-call+2nd</value>
            </property>
          </properties>
        </calendar>
        <calendar>
          <properties>
            <property>
              <name>userdata</name>
              <value>D/O</value>
            </property>
```

```
              <property>
                <name>date</name>
                <value>2011-03-30</value>
              </property>
              <property>
                <name>resource_id</name>
                <value>test_resource1</value>
              </property>
              <property>
                <name>calendar_type</name>
                <value>non-working</value>
              </property>
              <property>
                <name>non_working_reason</name>
                <value>day-off</value>
              </property>
            </properties>
          </calendar>
          <calendar>
            <properties>
              <property>
                <name>date</name>
                <value>2011-03-30</value>
              </property>
              <property>
                <name>resource_id</name>
                <value>test_subbuscet</value>
              </property>
              <property>
                <name>schedule</name>
                <value>PAR-2nd/ODD-1st</value>
              </property>
            </properties>
          </calendar>
          <calendar>
            <properties>
              <property>
                <name>date</name>
                <value>2011-03-20</value>
              </property>
              <property>
                <name>resource_id</name>
                <value>test_tech</value>
              </property>
              <property>
                <name>schedule</name>
                <value>PAR2nd/ODD-1st</value>
              </property>
              <property>
                <name>duration</name>
                <value>10</value>
              </property>
            </properties>
          </calendar>
        </calendars>
      </ns1:set_resources_calendars>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.8.2 'set_resources_calendars' Response

The response of the 'set_resources_calendars' consists of transaction result details for the whole request and each of the calendar to be defined with the request. The response may contain the following elements:

Name	Type	Description
transaction result	integer	result of the whole transaction (can be successful regardless of whether some specific calendars failed)
calendars_results	array	array of 'calendar_result' nodes each of which corresponds to success/failure of a single calendar creation

3.8.2.1 'calendars_results/calendar_result' Array of 'set_resources_calendars' Response

The 'calendars_results' array is a set of 'calendar_result' nodes, each of which contains the details of success/failure for each of the calendars defined in the request and can contain the following elements:

Name	Type	Description
userdata	string	reference to a calendar record as defined in the request
calendar_result_code	integer	transaction result for the specific calendar defined within a request
calendar_error_msg	string	

3.8.2.2 'set_resources_calendars' Response Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:set_resources_calendars_response>
      <result_code>0</result_code>
      <calendars_results>
        <calendar_result>
          <userdata>0xdf0</userdata>
          <calendar_result_code>0</calendar_result_code>
        </calendar_result>
        <calendar_result>
          <calendar_result_code>0</calendar_result_code>
        </calendar_result>
        <calendar_result>
          <userdata>D/O</userdata>
          <calendar_result_code>0</calendar_result_code>
        </calendar_result>
        <calendar_result>
          <calendar_result_code>0</calendar_result_code>
        </calendar_result>
        <calendar_result>
          <calendar_result_code>68009</calendar_result_code>
          <calendar_error_msg>'schedule' is not registered in the
system</calendar_error_msg>
        </calendar_result>
      </calendars_results>
    </ns1:set_resources_calendars_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

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3.9 'get_resources_calendars' Method

The 'get_resources_calendars' method is used to retrieve the details of calendars assigned to different resources for specific dates.

3.9.1 'get_resources_calendars' Requests

The 'get_resources_calendar' requests specify the dates and resources for which the calendars are to be retrieved. The request can contain the following elements:

Name	Type	Required	Description
user	struct	Yes	'user' node
resources	array	Yes	array of 'resource' elements, each of which defines the details of calendars to be retrieved

3.9.1.1 'resources/resource' Node of 'get_resources_calendars' Request

In the 'get_resources_calendars' request 'resources' is an array of the 'resource' nodes each of which contains the following elements:

Name	Type	Required	Description
resource_id	string	Yes	external ID of the resource for which the calendar is retrieved
date	date	Yes	date for which the calendar is to be retrieved
include_children	enum (string)	No	defines if subordinate resources are to be considered **possible values:** no – only the specified resource's calendars will be returned immediate – return the calendars of the specified resource and the ones directly below it (first level of descendants) all – return the calendars of the specified resource and all of those below it in the tree hierarchy
include_inactive	bool	No	defines if zones of inactive resources are to be returned **possible values:** true – zones of inactive resources are returned false – zones of inactive resources are not returned default value: false
duration	integer	No	defines how many days in a row the calendar is to be defined for (including the 'date') default value: 1

3.9.1.2 'get_resources_calendars' Request Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:get_resources_calendars>
      <user>
        <now>2010-12-15T08:09:23+00:00</now>
        <login>root</login>
        <company>sunrise</company>
        <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
      </user>
      <resources>
        <resource>
          <resource_id>test_bucket</resource_id>
          <include_children>all</include_children>
          <date>2011-03-30</date>
        </resource>
        <resource>
          <resource_id>test_tech</resource_id>
          <date>2011-03-20</date>
          <duration>2</duration>
        </resource>
      </resources>
    </ns1:get_resources_calendars>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.9.2 'get_resources_calendars' Response

The response of the 'get_resources_calendars' consists of result details for the whole transaction and

retrieved details of the calendars requested. The response may contain the following elements:

Name	Type	Description
result_code	integer	result of the transaction (0 if OK)
calendars	array	array of 'calendar' nodes each of which contains the details of one of the requested calendars
calendars'/'calendar	array	consists of 'properties' element

3.9.2.1 'calendars/calendar/properties' Array of 'get_resources_calendars' Response

The 'get_resources_calendars' 'calendars/calendar/properties' element defines an array of the

calendar 'property' nodes. The following properties can be defined:

Name	Type	Description
date	date	date for which the calendar is defined
resource_id	string	external ID of the resource for which the calendar is defined
comment	string	free format comment for the calendar
schedule	string	external ID (label) of the schedule or shift, if any
calendar_type	enum (string)	calendar can be working or non-working and on-call or not on-call
time_from	time	start of the working time for the specified date and resource meaningful only if the resource is assigned a working calendar
time_to	time	end of the working time for the specified date and

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Name	Type	Description
		resource
		meaningful only if resource is assigned a working calendar
points	integer	number of point for the day
		meaningful only if point functionality is enabled for the company
non_working_reason	enum (string)	label of non-working reason – one of the reasons predefined for the company
		meaningful only if the resource is assigned a non-working calendar

3.9.2.2 'get_resources_calendars' Response Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:get_resources_calendars>
      <result_code>0</result_code>
      <calendars>
        <calendar>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_bucket</value>
            </property>
            <property>
              <name>schedule</name>
              <value>ODD-1st/PAR-2nd</value>
            </property>
            <property>
              <name>calendar_type</name>
              <value>working</value>
            </property>
            <property>
              <name>time_from</name>
              <value>14:00</value>
            </property>
            <property>
              <name>time_to</name>
              <value>20:00</value>
            </property>
            <property>
              <name>comment</name>
              <value>default test_bucket resources work schedule</value>
            </property>
          </properties>
        </calendar>
        <calendar>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_resource</value>
```

```
          </property>
          <property>
            <name>schedule</name>
            <value>ODD-1st/PAR-2nd</value>
          </property>
          <property>
            <name>calendar_type</name>
            <value>working</value>
          </property>
          <property>
            <name>time_from</name>
            <value>14:00</value>
          </property>
          <property>
            <name>time_to</name>
            <value>20:00</value>
          </property>
        </properties>
      </calendar>
      <calendar>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-30</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_resource2</value>
          </property>
          <property>
            <name>schedule</name>
            <value>On-call+2nd</value>
          </property>
          <property>
            <name>calendar_type</name>
            <value>working</value>
          </property>
          <property>
            <name>time_from</name>
            <value>14:00</value>
          </property>
          <property>
            <name>time_to</name>
            <value>20:00</value>
          </property>
        </properties>
      </calendar>
      <calendar>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-30</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_resource2</value>
          </property>
          <property>
            <name>schedule</name>
            <value>On-call+2nd</value>
          </property>
          <property>
            <name>calendar_type</name>
            <value>on-call</value>
          </property>
          <property>
            <name>time_from</name>
            <value>08:00</value>
          </property>
        </property>
```

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```xml
          <property>
            <name>time_to</name>
            <value>14:00</value>
          </property>
        </properties>
      </calendar>
      <calendar>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-30</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_resource1</value>
          </property>
          <property>
            <name>calendar_type</name>
            <value>non-working</value>
          </property>
          <property>
            <name>non_working_reason</name>
            <value>day-off</value>
          </property>
        </properties>
      </calendar>
      <calendar>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-30</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_subbuscet</value>
          </property>
          <property>
            <name>schedule</name>
            <value>PAR-2nd/ODD-1st</value>
          </property>
          <property>
            <name>calendar_type</name>
            <value>working</value>
          </property>
          <property>
            <name>time_from</name>
            <value>08:00</value>
          </property>
          <property>
            <name>time_to</name>
            <value>17:00</value>
          </property>
        </properties>
      </calendar>
      <calendar>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-30</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_recource4</value>
          </property>
          <property>
            <name>schedule</name>
            <value>PAR-2nd/ODD-1st</value>
          </property>
          <property>
            <name>calendar_type</name>
```

```xml
            <value>working</value>
          </property>
          <property>
            <name>time_from</name>
            <value>08:00</value>
          </property>
          <property>
            <name>time_to</name>
            <value>17:00</value>
          </property>
        </properties>
    </calendar>
  <calendar>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-20</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_tech</value>
          </property>
          <property>
            <name>schedule</name>
            <value>PAR-2nd/ODD-1st</value>
          </property>
          <property>
            <name>calendar_type</name>
            <value>working</value>
          </property>
          <property>
            <name>time_from</name>
            <value>08:00</value>
          </property>
          <property>
            <name>time_to</name>
            <value>17:00</value>
          </property>
        </properties>
    </calendar>
    <calendar>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-21</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_tech</value>
          </property>
          <property>
            <name>schedule</name>
            <value>PAR-2nd/ODD-1st</value>
          </property>
          <property>
            <name>calendar_type</name>
            <value>working</value>
          </property>
          <property>
            <name>time_from</name>
            <value>14:00</value>
          </property>
          <property>
            <name>time_to</name>
            <value>20:00</value>
          </property>
        </properties>
    </calendar>
  </calendars>
```

```
        </ns1:get_resources_calendars>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.10 'set_resources_zones' Method

The 'set_resources_zones' method is used to define the work zones for a specific resource.

3.10.1   'set_resources_zones' Requests

The 'set_resources_zones' requests specify the details of the work zone to be defined:

Name	Type	Required	Description
user	struct	Yes	'user' node
zones	array	Yes	array of 'zone' elements each of which contains a single mandatory element 'properties'
zones'/'zone	node	Yes	consists of 'properties' element

3.10.1.1   'zones/zone/properties' Array of 'set_resources_zones' Request

The 'zones/zone/properties' element of the 'set_resources_zones' request defines an array of the work zone 'property' nodes. The following properties can be defined:

Name	Type	Required	Description
userdata	string	No	reference to a zone record to identify the record in the response
date	date	Yes	date for which the zone is defined
duration	integer	No	defines how many days in a row the setting is to be applied to (including the 'date') default value: 1
resource_id	string	Yes	external ID of the resource for which the zone is defined
zone	enum (string)	No	label of the work zone, one of the zones predefined for the company **Note:** if absent in the request, the list of work zones is cleared (all work zones are removed)
ratio	enum (integer)	No	priority of assignment of activity in the work zone to the resource possible values: from 0 to 100: '0' – do not assign, '1' – lowest priority; '100' – highest priority **Note:** if the field is absent in the request, the work zone will be removed

Note: For a specific date and resource all operations that require removal of a work zone are performed before any operation that requires assignment of a work zone.

3.10.1.2   'set_resources_zones' Request Example

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
 <SOAP-ENV:Body>
   <ns1:set_resources_zones>
     <user>
       <now>2012-05-15T16:11:43Z</now>
       <login>soap</login>
       <company>sunrise</company>
       <auth_string>0274a81f9f15700ce11bee5489a09a24</auth_string>
     </user>
     <zones>
       <zone>
```

```xml
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific</value>
            </property>
            <property>
              <name>zone</name>
              <value>ALTAMONTE SPRINGS</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
            <property>
              <name>date</name>
              <value>2012-05-15</value>
            </property>
          </properties>
      </zone>
      <zone>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific</value>
            </property>
            <property>
              <name>zone</name>
              <value>CASSELBERRY</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
            <property>
              <name>date</name>
              <value>2012-05-15</value>
            </property>
          </properties>
      </zone>
      <zone>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific</value>
            </property>
            <property>
              <name>zone</name>
              <value>CHULUOTA</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
            <property>
              <name>date</name>
              <value>2012-05-15</value>
            </property>
          </properties>
      </zone>
      <zone>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific-add</value>
            </property>
            <property>
              <name>zone</name>
              <value>ALTAMONTE SPRINGS</value>
            </property>
            <property>
```

Example

```xml
        <name>ratio</name>
        <value>100</value>
      </property>
      <property>
        <name>date</name>
        <value>2012-05-15</value>
      </property>
    </properties>
  </zone>
  <zone>
    <properties>
      <property>
        <name>resource_id</name>
        <value>resource1-del-specific-add</value>
      </property>
      <property>
        <name>zone</name>
        <value>CASSELBERRY</value>
      </property>
      <property>
        <name>ratio</name>
        <value>100</value>
      </property>
      <property>
        <name>date</name>
        <value>2012-05-15</value>
      </property>
    </properties>
  </zone>
  <zone>
    <properties>
      <property>
        <name>resource_id</name>
        <value>resource1-del-specific-add</value>
      </property>
      <property>
        <name>zone</name>
        <value>CHULUOTA</value>
      </property>
      <property>
        <name>ratio</name>
        <value>100</value>
      </property>
      <property>
        <name>date</name>
        <value>2012-05-15</value>
      </property>
    </properties>
  </zone>
  <zone>
    <properties>
      <property>
        <name>resource_id</name>
        <value>resource1-del-all</value>
      </property>
      <property>
        <name>zone</name>
        <value>ALTAMONTE SPRINGS</value>
      </property>
      <property>
        <name>ratio</name>
        <value>100</value>
      </property>
      <property>
        <name>date</name>
        <value>2012-05-15</value>
      </property>
    </properties>
  </zone>
```

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```xml
<zone>
  <properties>
    <property>
      <name>resource_id</name>
      <value>resource1-del-all</value>
    </property>
    <property>
      <name>zone</name>
      <value>CASSELBERRY</value>
    </property>
    <property>
      <name>ratio</name>
      <value>100</value>
    </property>
    <property>
      <name>date</name>
      <value>2012-05-15</value>
    </property>
  </properties>
</zone>
<zone>
  <properties>
    <property>
      <name>resource_id</name>
      <value>resource1-del-all</value>
    </property>
    <property>
      <name>zone</name>
      <value>CHULUOTA</value>
    </property>
    <property>
      <name>ratio</name>
      <value>100</value>
    </property>
    <property>
      <name>date</name>
      <value>2012-05-15</value>
    </property>
  </properties>
</zone>
<zone>
  <properties>
    <property>
      <name>resource_id</name>
      <value>resource1-del-all-add</value>
    </property>
    <property>
      <name>zone</name>
      <value>ALTAMONTE SPRINGS</value>
    </property>
    <property>
      <name>ratio</name>
      <value>100</value>
    </property>
    <property>
      <name>date</name>
      <value>2012-05-15</value>
    </property>
  </properties>
</zone>
<zone>
  <properties>
    <property>
      <name>resource_id</name>
      <value>resource1-del-all-add</value>
    </property>
    <property>
      <name>zone</name>
      <value>CASSELBERRY</value>
    </property>
```

Example

```
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
        <property>
          <name>date</name>
          <value>2012-05-15</value>
        </property>
      </properties>
    </zone>
    <zone>
      <properties>
        <property>
          <name>resource_id</name>
          <value>resource1-del-all-add</value>
        </property>
        <property>
          <name>zone</name>
          <value>CHULUOTA</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
        <property>
          <name>date</name>
          <value>2012-05-15</value>
        </property>
      </properties>
    </zone>
    <zone>
      <properties>
        <property>
          <name>resource_id</name>
          <value>resource1-del-specific-twice</value>
        </property>
        <property>
          <name>zone</name>
          <value>ALTAMONTE SPRINGS</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
        <property>
          <name>date</name>
          <value>2012-05-15</value>
        </property>
      </properties>
    </zone>
    <zone>
      <properties>
        <property>
          <name>resource_id</name>
          <value>resource1-del-specific-twice</value>
        </property>
        <property>
          <name>zone</name>
          <value>CASSELBERRY</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
        <property>
          <name>date</name>
          <value>2012-05-15</value>
        </property>
      </properties>
```

```
      </zone>
      <zone>
        <properties>
          <property>
            <name>resource_id</name>
            <value>resource1-del-specific-twice</value>
          </property>
          <property>
            <name>zone</name>
            <value>CHULUOTA</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
          <property>
            <name>date</name>
            <value>2012-05-15</value>
          </property>
        </properties>
      </zone>
      <zone>
        <properties>
          <property>
            <name>resource_id</name>
            <value>resource1-del-all-twice</value>
          </property>
          <property>
            <name>zone</name>
            <value>ALTAMONTE SPRINGS</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
          <property>
            <name>date</name>
            <value>2012-05-15</value>
          </property>
        </properties>
      </zone>
      <zone>
        <properties>
          <property>
            <name>resource_id</name>
            <value>resource1-del-all-twice</value>
          </property>
          <property>
            <name>zone</name>
            <value>CASSELBERRY</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
          <property>
            <name>date</name>
            <value>2012-05-15</value>
          </property>
        </properties>
      </zone>
      <zone>
        <properties>
          <property>
            <name>resource_id</name>
            <value>resource1-del-all-twice</value>
          </property>
          <property>
            <name>zone</name>
            <value>CHULUOTA</value>
```

```
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
            <property>
              <name>date</name>
              <value>2012-05-15</value>
            </property>
          </properties>
        </zone>
        <zone>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-all-twice-add</value>
            </property>
            <property>
              <name>zone</name>
              <value>ALTAMONTE SPRINGS</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
            <property>
              <name>date</name>
              <value>2012-05-15</value>
            </property>
          </properties>
        </zone>
        <zone>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-all-twice-add</value>
            </property>
            <property>
              <name>zone</name>
              <value>CASSELBERRY</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
            <property>
              <name>date</name>
              <value>2012-05-15</value>
            </property>
          </properties>
        </zone>
        <zone>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-all-twice-add</value>
            </property>
            <property>
              <name>zone</name>
              <value>CHULUOTA</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
            <property>
              <name>date</name>
              <value>2012-05-15</value>
            </property>
```

```
              </properties>
            </zone>
            <zone>
              <properties>
                <property>
                  <name>resource_id</name>
                  <value>resource1-del-specific-add-same</value>
                </property>
                <property>
                  <name>zone</name>
                  <value>ALTAMONTE SPRINGS</value>
                </property>
                <property>
                  <name>ratio</name>
                  <value>100</value>
                </property>
                <property>
                  <name>date</name>
                  <value>2012-05-15</value>
                </property>
              </properties>
            </zone>
            <zone>
              <properties>
                <property>
                  <name>resource_id</name>
                  <value>resource1-del-specific-add-same</value>
                </property>
                <property>
                  <name>zone</name>
                  <value>CASSELBERRY</value>
                </property>
                <property>
                  <name>ratio</name>
                  <value>100</value>
                </property>
                <property>
                  <name>date</name>
                  <value>2012-05-15</value>
                </property>
              </properties>
            </zone>
            <zone>
              <properties>
                <property>
                  <name>resource_id</name>
                  <value>resource1-del-specific-add-same</value>
                </property>
                <property>
                  <name>zone</name>
                  <value>CHULUOTA</value>
                </property>
                <property>
                  <name>ratio</name>
                  <value>100</value>
                </property>
                <property>
                  <name>date</name>
                  <value>2012-05-15</value>
                </property>
              </properties>
            </zone>
          </zones>
      </ns1:set_resources_zones>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.10.2   'set_resources_zones' Response

The response of the 'set_resources_zones' consists of transaction result details for the whole request
and each of the zones to be defined with the request. The response may contain the following
elements:

Name	Type	Description
transaction result	integer	result of the whole transaction (can be successful regardless of whether some specific zones failed)
zones_results	array	array of 'zone_result' nodes each of which corresponds to success/failure of a single work zone assignment

3.10.2.1   'zones_results/zone_result' of 'set_resources_zones' Response

The 'zones_results' array is a set of 'zone_result' nodes, each of which contains the details of
success/failure for each of the zones defined in the request and can contain the following elements:

Name	Type	Description
userdata	string	reference to a zone record as defined in the request
zone_result_code	integer	transaction result for the specific zone defined within a request
zone_error_msg	string	

3.10.2.2   'set_resources_zones' Response Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:set_resources_zones_response>
      <result_code>0</result_code>
      <zones_results>
        <zone_result>
          <userdata>0xdf0</userdata>
          <zone_result_code>0</zone_result_code>
        </zone_result>
        <zone_result>
          <zone_result_code>0</zone_result_code>
        </zone_result>
        <zone_result>
          <userdata>D/O</userdata>
          <zone_result_code>0</zone_result_code>
        </zone_result>
        <zone_result>
          <zone_result_code>0</zone_result_code>
        </zone_result>
        <zone_result>
          <zone_result_code>68009</zone_result_code>
          <zone_error_msg>'zone' is not registered in the
system</zone_error_msg>
        </zone_result>
      </zones_results>
    </ns1:set_resources_zones_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.11 'get_resources_zones' Method

The 'get_resources_zones' method is used to retrieve the details of work zones assigned to different resources for specific dates.

3.11.1   'get_resources_zones' Requests

The 'get_resources_zones' requests specify the dates and resources for which the work zone details are to be retrieved. The request can contain the following elements:

Name	Type	Required	Description
user	struct	Yes	'<u>user</u>' node
resources	array	Yes	array of 'resource' elements, each of which defines the details of zones to be retrieved

3.11.1.1   'resources/resource' Node of 'get_resources_zones' Request

The 'resources' array of the 'get_resources_zones' request is a set of 'resource' nodes, each of which can contain the following details:

Name	Type	Required	Description
resource_id	string	Yes	external id of the resource for which the work zones are retrieved
date	date	Yes	date for which the zones are retrieved
include_children	enum (string)	No	defines if subordinate resources are to be considered **possible values:** no – only the specified resource's work zones will be returned immediate – return work zones of the specified resource and the ones directly below it (first level of descendants) all – return work zones of the specified resource and all of those below it in the tree hierarchy
duration	integer	No	defines how many days in a row the work zones is to be retrieved for (including the 'date') default value: 1
include_inactive	bool	No	defines if zones of inactive resources are to be returned **possible values:** true – zones of inactive resources are returned false – zones of inactive resources are not returned default value: false

3.11.1.2 'get_resources_zones' Request Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:get_resources_zones>
      <user>
        <now>2010-12-15T08:09:23+00:00</now>
        <company>sunrise</company>
        <login>root</login>
        <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
      </user>
      <resources>
        <resource>
          <resource_id>test_bucket</resource_id>
          <include_children>all</include_children>
          <date>2011-03-30</date>
        </resource>
        <resource>
          <resource_id>test_tech</resource_id>
          <date>2011-03-20</date>
          <duration>2</duration>
        </resource>
      </resources>
    </ns1:get_resources_zones>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.11.2 'get_resources_zones' Response

The response of the 'get_resources_zones' consists of result details for the whole transaction and

retrieved details of the work zones requested. The response may contain the following elements:

Name	Type	Description
result_code	integer	result of the transaction (0 if OK)
zones	array	array of 'zone' nodes each of which contains details of one of the work zones requested
zones'/'zone	array	consists of 'properties' element

3.11.2.1 'zones/zone/properties' of 'get_resources_zones' Response

The 'zones/zone/properties' element of 'get_resources_zones' defines an array of the calendar

'property' nodes. The following properties can be defined:

Name	Type	Description
date	date	date for which the work zone is defined
resource_id	string	external ID of the resource for which the zone is defined
zone	string	label of the work zone
ratio	string	ratio of the work zone (priority of assignment from 0 to 100)

3.11.2.2 'get_resources_zones' Response Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:get_resources_zones>
      <result_code>0</result_code>
      <zones>
        <zone>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_bucket</value>
            </property>
            <property>
              <name>zone</name>
              <value>ORLANDO</value>
            </property>
            <property>
              <name>ratio</name>
              <value>50</value>
            </property>
          </properties>
        </zone>
        <zone>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_resource</value>
            </property>
            <property>
              <name>zone</name>
              <value>DAYTONA</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </zone>
        <zone>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_resource2</value>
            </property>
            <property>
              <name>zone</name>
              <value>MELBOURN</value>
            </property>
            <property>
              <name>ratio</name>
              <value>75</value>
            </property>
```

```
            </properties>
        </zone>
        <zone>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_resource2</value>
            </property>
            <property>
              <name>zone</name>
              <value>ORLANDO</value>
            </property>
            <property>
              <name>ratio</name>
              <value>10</value>
            </property>
          </properties>
        </zone>
        <zone>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_resource1</value>
            </property>
            <property>
              <name>zone</name>
              <value>ORLANDO</value>
            </property>
            <property>
              <name>ratio</name>
              <value>75</value>
            </property>
          </properties>
        </zone>
        <zone>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
              <name>resource_id</name>
              <value>test_subbuscet</value>
            </property>
            <property>
              <name>zone</name>
              <value>MLBOURN</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </zone>
        <zone>
          <properties>
            <property>
              <name>date</name>
              <value>2011-03-30</value>
            </property>
            <property>
```

```xml
            <name>resource_id</name>
            <value>test_recource4</value>
          </property>
          <property>
            <name>zone</name>
            <value>ORLANDO</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
        </properties>
      </zone>
      <zone>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-30</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_subbuscet</value>
          </property>
          <property>
            <name>zone</name>
            <value>MLBOURN</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
        </properties>
      </zone>
      <zone>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-20</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_tech</value>
          </property>
          <property>
            <name>zone</name>
            <value>MLBOURN</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
        </properties>
      </zone>
      <zone>
        <properties>
          <property>
            <name>date</name>
            <value>2011-03-21</value>
          </property>
          <property>
            <name>resource_id</name>
            <value>test_tech</value>
          </property>
          <property>
            <name>zone</name>
            <value>MLBOURN</value>
          </property>
          <property>
            <name>ratio</name>
            <value>50</value>
```

Example

```
                    </property>
                  </properties>
               </zone>
               <zone>
                  <properties>
                    <property>
                       <name>date</name>
                       <value>2011-03-21</value>
                    </property>
                    <property>
                       <name>resource_id</name>
                       <value>test_tech</value>
                    </property>
                    <property>
                       <name>zone</name>
                       <value>ORLANDO</value>
                    </property>
                    <property>
                       <name>ratio</name>
                       <value>100</value>
                    </property>
                  </properties>
               </zone>
            </zones>
        </ns1:get_resources_zones>
      </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

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3.12 'set_resources_skills' Method

The 'set_resources_skills' method is used to define the working skills for a specific resource.

3.12.1   'set_resources_skills' Requests

The 'set_resources_skills' requests specify the details of the work skill to be defined:

Name	Type	Required	Description
user	struct	Yes	'user' node
skills	array	Yes	array of 'skill' elements each of which contains a single mandatory element 'properties'
skills'/'skill	node	Yes	consists of 'properties' element

3.12.1.1   'skills/skill/properties' Array of 'set_resources_skills' Request

The 'skills/skill/properties' element of the 'set_resources_skills' request defines an array of the work skill 'property' nodes. The following properties can be defined:

Name	Type	Required	Description
userdata	string	No	reference to a work skill record to identify the record in the response
resource_id	string	Yes	external ID of the resource for which the skill is defined
skill	enum (string)	No	label of a work skill or work skill group **Note:** if absent in the request, the list of work skills is cleared (all work skills are removed)
ratio	enum (integer)	No	qualification level for the work skills possible values: from 0 to 100 where '0' means that the resource does not have the skill, even if it is defined in a work skill group the resource has '1' – lowest priority; '100' – highest priority **Note:** if the field is absent in the request, the work skill will be removed For work skill groups 'ratio' value is ignored

Note: In the course of activity assignment the resource with no work skills defined is treated as if it has all work skills with 100 ratio.

Note: For a specific resource all operations that require removal of a work skill are performed before any operations that require assignment of a work skill.

3.12.1.2 'set_resources_skills' Request Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toatech:ResourceManagement:1.0">
 <SOAP-ENV:Body>
   <ns1:set_resources_skills>
     <user>
        <now>2012-05-15T16:11:22Z</now>
        <login>soap</login>
        <company>sunrise</company>
        <auth_string>6e0767f78ec76ea6cfc3f9dab6d42922</auth_string>
     </user>
     <skills>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific</value>
            </property>
            <property>
              <name>skill</name>
              <value>IN</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific</value>
            </property>
            <property>
              <name>skill</name>
              <value>GR</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific</value>
            </property>
            <property>
              <name>skill</name>
              <value>UP</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
```

```xml
          <name>resource_id</name>
          <value>resource1-del-specific-add</value>
        </property>
        <property>
          <name>skill</name>
          <value>IN</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
      </properties>
    </skill>
    <skill>
      <properties>
        <property>
          <name>resource_id</name>
          <value>resource1-del-specific-add</value>
        </property>
        <property>
          <name>skill</name>
          <value>GR</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
      </properties>
    </skill>
    <skill>
      <properties>
        <property>
          <name>resource_id</name>
          <value>resource1-del-specific-add</value>
        </property>
        <property>
          <name>skill</name>
          <value>UP</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
      </properties>
    </skill>
    <skill>
      <properties>
        <property>
          <name>resource_id</name>
          <value>resource1-del-all</value>
        </property>
        <property>
          <name>skill</name>
          <value>IN</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
      </properties>
    </skill>
    <skill>
      <properties>
        <property>
          <name>resource_id</name>
          <value>resource1-del-all</value>
        </property>
        <property>
          <name>skill</name>
          <value>GR</value>
```

```
      </property>
      <property>
        <name>ratio</name>
        <value>100</value>
      </property>
    </properties>
  </skill>
  <skill>
    <properties>
      <property>
        <name>resource_id</name>
        <value>resource1-del-all</value>
      </property>
      <property>
        <name>skill</name>
        <value>UP</value>
      </property>
      <property>
        <name>ratio</name>
        <value>100</value>
      </property>
    </properties>
  </skill>
  <skill>
    <properties>
      <property>
        <name>resource_id</name>
        <value>resource1-del-all-add</value>
      </property>
      <property>
        <name>skill</name>
        <value>IN</value>
      </property>
      <property>
        <name>ratio</name>
        <value>100</value>
      </property>
    </properties>
  </skill>
  <skill>
    <properties>
      <property>
        <name>resource_id</name>
        <value>resource1-del-all-add</value>
      </property>
      <property>
        <name>skill</name>
        <value>GR</value>
      </property>
      <property>
        <name>ratio</name>
        <value>100</value>
      </property>
    </properties>
  </skill>
  <skill>
    <properties>
      <property>
        <name>resource_id</name>
        <value>resource1-del-all-add</value>
      </property>
      <property>
        <name>skill</name>
        <value>UP</value>
      </property>
      <property>
        <name>ratio</name>
        <value>100</value>
      </property>
```

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```xml
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific-twice</value>
            </property>
            <property>
              <name>skill</name>
              <value>IN</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific-twice</value>
            </property>
            <property>
              <name>skill</name>
              <value>GR</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific-twice</value>
            </property>
            <property>
              <name>skill</name>
              <value>UP</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-all-twice</value>
            </property>
            <property>
              <name>skill</name>
              <value>IN</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
```

```
            <value>resource1-del-all-twice</value>
          </property>
          <property>
            <name>skill</name>
            <value>GR</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
        </properties>
      </skill>
      <skill>
        <properties>
          <property>
            <name>resource_id</name>
            <value>resource1-del-all-twice</value>
          </property>
          <property>
            <name>skill</name>
            <value>UP</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
        </properties>
      </skill>
      <skill>
        <properties>
          <property>
            <name>resource_id</name>
            <value>resource1-del-all-twice-add</value>
          </property>
          <property>
            <name>skill</name>
            <value>IN</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
        </properties>
      </skill>
      <skill>
        <properties>
          <property>
            <name>resource_id</name>
            <value>resource1-del-all-twice-add</value>
          </property>
          <property>
            <name>skill</name>
            <value>GR</value>
          </property>
          <property>
            <name>ratio</name>
            <value>100</value>
          </property>
        </properties>
      </skill>
      <skill>
        <properties>
          <property>
            <name>resource_id</name>
            <value>resource1-del-all-twice-add</value>
          </property>
          <property>
            <name>skill</name>
            <value>UP</value>
```

```
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific-add-same</value>
            </property>
            <property>
              <name>skill</name>
              <value>IN</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific-add-same</value>
            </property>
            <property>
              <name>skill</name>
              <value>GR</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>resource1-del-specific-add-same</value>
            </property>
            <property>
              <name>skill</name>
              <value>UP</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
      </skills>
    </ns1:set_resources_skills>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.12.2   'set_resources_skills' Response

The response of the 'set_resources_skills' consists of transaction result details for the whole request
and each of the skills to be defined with the request. The response may contain the following
elements:

Name	Type	Description

transaction result	integer	result of the whole transaction (can be successful regardless of whether some specific skills failed)
skill_results	array	array of 'skill_result' nodes each of which corresponds to success/failure of a single work skill assignment

3.12.2.1 'skill_results/skill_result' of 'set_resources_skills' Response

The 'skill_results' array is a set of 'skill_result' nodes, each of which contains details of success/failure for each of the skills defined in the request and can contain the following elements:

Name	Type	Description
userdata	string	reference to a work skill record as defined in the request
skill_result_code	integer	transaction result for the specific work skill defined within a request
skill_error_msg	string	

3.12.2.2 'set_resources_skills' Response Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:set_resources_skills_response>
      <result_code>0</result_code>
      <skill_results>
        <skill_result>
          <userdata>0xdf0</userdata>
          <skill_result_code>0</skill_result_code>
        </skill_result>
        <skill_result>
          <skill_result_code>0</skill_result_code>
        </skill_result>
        <skill_result>
          <userdata>D/O</userdata>
          <skill_result_code>0</skill_result_code>
        </skill_result>
        <skill_result>
          <skill_result_code>0</skill_result_code>
        </skill_result>
        <skill_result>
          <skill_result_code>68009</skill_result_code>
          <skill_error_msg>'skill' is not registered in the
system</skill_error_msg>
        </skill_result>
      </skill_results>
    </ns1:set_resources_skills_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

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3.13 'get_resources_skills' Method

The 'get_resources_skills' method is used to retrieve the details of work skills assigned to different resources.

3.13.1   'get_resources_skills' Requests

The 'get_resources_skills' requests specify the resources for which the work skill details are to be retrieved. The request can contain the following elements:

Name	Type	Required	Description
user	struct	Yes	'<u>user</u>' node
expand_complex_skills	string	No	defines if skill groups are to be expanded possible values: 'no' – return skill groups as a single entity 'yes' – return final result of merging complex and elementary skills default is 'no'
resources	array	No	array of 'resource' elements, each of which defines the details of skills to be retrieved

3.13.1.1   'resources/resource' Node of 'get_resources_skills' Request

The 'resources' array of the 'get_resources_skills' request is a set of 'resource' nodes, each of which can contain the following details:

Name	Type	Required	Description
resource_id	string	Yes	external ID of the resource for which the work skills are retrieved
date	date	No	if the date is specified, the skills shared in the teams will also be returned
include_children	enum (string)	No	defines if subordinate resources are to be considered **possible values:** no – only the specified resource's work skills will be returned immediate – return work skills of specified resource and the ones directly below it (first level of descendants) all – return work skills of specified resource and all of those below it in the tree hierarchy
include_inactive	Bool	No	defines if zones of inactive resources are to be returned **possible values:** true – zones of inactive resources are returned false – zones of inactive resources are not returned default value: false
duration	integer	No	defines how many days in a row the calendar is applied for (including the 'date')

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Name	Type	Required	Description
			default value: 1

3.13.1.2   'get_resources_skills' Request Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:get_resources_skills>
      <user>
        <now>2010-12-15T08:09:23+00:00</now>
        <login>root</login>
        <company>sunrise</company>
        <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
      </user>
      <resources>
        <resource>
          <resource_id>test_bucket</resource_id>
          <include_children>all</include_children>
        </resource>
        <resource>
          <resource_id>test_tech</resource_id>
        </resource>
      </resources>
    </ns1:get_resources_skills>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

3.13.2   'get_resources_skill' Response

The response of the 'get_resources_skills' consists of result details for the whole transaction and

retrieved details of the work skills requested. The response may contain the following elements:

Name	Type	Description
result_code	integer	result of the transaction (0 if OK)
skills	array	array of 'skill' nodes each of which contains details of one of the work skills requested
skills'/'skill	array	consists of 'properties' element

3.13.2.1   'skills/skill/properties' of 'get_resources_skills' Response

The 'skills/skill/properties' element of the 'get_resources_skill' response defines an array of the

calendar 'property' nodes. The following properties can be defined:

Name	Type	Description
resource_id	string	external ID of the resource for which the skill is defined
date	date	indicates that the skills set includes the skills shared between team members for the specified day if omitted, the skill set includes only resource's own skills
skill	string	label of the work skill
ratio	string	qualification level from 0 to 100

3.13.2.2   'get_resources_skills' Response Example

```
<SOAP-ENV:Envelope  xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns1="urn:toatech:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:get_resources_skills>
      <result_code>0</result_code>
      <skills>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>test_bucket</value>
            </property>
            <property>
              <name>skill</name>
              <value>Install</value>
            </property>
            <property>
              <name>ratio</name>
              <value>50</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>test_resource</value>
            </property>
            <property>
              <name>skill</name>
              <value>Spanish</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>test_resource2</value>
            </property>
            <property>
              <name>skill</name>
              <value>Phone</value>
            </property>
            <property>
              <name>ratio</name>
              <value>75</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>test_resource2</value>
            </property>
            <property>
              <name>skill</name>
              <value>Trouble Call</value>
```

```xml
        </property>
        <property>
          <name>ratio</name>
          <value>10</value>
        </property>
      </properties>
    </skill>
    <skill>
      <properties>
        <property>
          <name>resource_id</name>
          <value>test_resource1</value>
        </property>
        <property>
          <name>skill</name>
          <value>Upgrade</value>
        </property>
        <property>
          <name>ratio</name>
          <value>75</value>
        </property>
      </properties>
    </skill>
    <skill>
      <properties>
        <property>
          <name>resource_id</name>
          <value>test_subbuscet</value>
        </property>
        <property>
          <name>skill</name>
          <value>Trouble Call</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
      </properties>
    </skill>
    <skill>
      <properties>
        <property>
          <name>resource_id</name>
          <value>test_recource4</value>
        </property>
        <property>
          <name>skill</name>
          <value>Upgrade</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
      </properties>
    </skill>
    <skill>
      <properties>
        <property>
          <name>resource_id</name>
          <value>test_subbucket</value>
        </property>
        <property>
          <name>skill</name>
          <value>Upgrade</value>
        </property>
        <property>
          <name>ratio</name>
          <value>100</value>
        </property>
      </properties>
```

```
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>test_tech</value>
            </property>
            <property>
              <name>skill</name>
              <value>Trouble Call</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>test_tech</value>
            </property>
            <property>
              <name>skill</name>
              <value>Spanish</value>
            </property>
            <property>
              <name>ratio</name>
              <value>50</value>
            </property>
          </properties>
        </skill>
        <skill>
          <properties>
            <property>
              <name>resource_id</name>
              <value>test_tech</value>
            </property>
            <property>
              <name>skill</name>
              <value>Install</value>
            </property>
            <property>
              <name>ratio</name>
              <value>100</value>
            </property>
          </properties>
        </skill>
      </skills>
    </ns1:get_resources_skills>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

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3.14 'update_locations' Method

The '**update_locations'** method is used to create or update resources' locations. If no location with the specified 'resource_id' and 'label' exists, such location is created. If a location with the specified 'resource_id' and 'label' exists, such location is updated.

3.14.1   'update_locations' Request

Requests of 'update_locations' method must contain the list of locations to be created or updated and their properties.

Name	Type	Required	Description
user	struct	Yes	'user' node
locations	array	Yes	array of 'location 'elements
location	array	Yes	array of 'properties' elements

3.14.1.1   'properties' Array of 'update_locations' Requests

The following location properties should/can be set with the 'update_locations' methods:

Name	Type	Required	Description
label	string	Yes	location identifier
resource_id	string	Yes	identifier of the resource to which the location belongs
city	string	No	location address
state	string	No	**Note:** these fields are used by geocoding and, therefore, must contain a valid address. Other values will not be resolved correctly by the geocoding server.
zip	string	No	
street	string	No	
latitude	string	No	geographic coordinates of the location
longitude	string	No	

3.14.1.2   'update_locations' Request Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
  <soapenv:Header/>
  <soapenv:Body>
      <urn:update_locations>
            <user>...</user>
            <locations>
                <location>
                    <properties>
                        <property>
                            <name>resource_id</name>
                            <value>Resource1</value>
                        </property>
                        <property>
                            <name>label</name>
                            <value>Warehouse</value>
                        </property>
                        <property>
                            <name>city</name>
                            <value>Orlando</value>
                        </property>
                        <property>
                            <name>street</name>
                            <value>111350-11398 University Blvd.</value>
                        </property>
                    </properties>
                </location>
                <location>
                    <properties>
                        <property>
                            <name>resource_id</name>
                            <value>Resource2</value>
                        </property>
                        <property>
                            <name>label</name>
                            <value>Garage</value>
                        </property>
                        <property>
                            <name>latitude</name>
                            <value>28.59752</value>
                        </property>
                        <property>
                            <name>longitude</name>
                            <value>-81.22226</value>
                        </property>
                    </properties>
                </location>
            </locations>
      </urn:update_locations>
   </soapenv:Body>
</soapenv:Envelope>
```

3.14.2   'update_locations' Response

The response of 'update_locations' consists of transaction result details for the whole request and each
of the locations defined in the request. The response may contain the following elements:

Name	Type	Description
result_code	integer	result of the whole transaction (can be successful regardless of whether some specific locations failed)

location_results	array	array of 'location_result' nodes each of which corresponds to success/failure of a single location record

3.14.2.1 'location_results'/'location_result' Array of 'update_locations' Response

The 'location_results' array is a set of 'location_result' nodes, each of which contains details of success/failure for each of the locations defined in the request and can contain the following elements:

Name	Type	Description
result_code	integer	transaction result for the specific location defined within a request
result_message	string	

3.14.2.2 'update_locations' Response Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
<soapenv:Header/>
   <soapenv:Body>
      <urn:update_locations_response>
            <result_code>0</result_code>
            <location_results>
                <location_result>
                    <result_code>0</result_code>
                    <result_message>created</result_message>
                </location_result>
                <location_result>
                    <result_code>32423</result_code>
                    <result_message>Resource does not exist:
"Resource2"</result_message>
                </location_result>
            </location_results>
      </urn:update_locations_response>
   </soapenv:Body>
</soapenv:Envelope>
```

3.15 'delete_locations' Method

The **'delete_locations'** method is used to delete existing locations.

3.15.1   'delete_locations' Request

Requests of 'delete_locations' method must contain the list of locations to be deleted.

Name	Type	Required	Description
user	struct	Yes	'<u>user</u>' node
locations	array	Yes	array of 'location' elements
location	array	Yes	consists of 'properties' elements

3.15.1.1   'properties' Array of 'delete_locations' Request

The following location <u>properties</u> must be specified in the '*delete_locations*' request:

Name	Type	Required	Description
label	string	Yes	identifier of the location to be deleted
resource_id	string	Yes	identifier of the resource from which the location is to be deleted

3.15.1.2   'delete_locations' Request Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
  <soapenv:Header/>
  <soapenv:Body>
<urn:delete_locations>
        <user>...</user>
        <locations>
            <location>
                <properties>
                    <property>
                        <name>resource_id</name>
                        <value>Resource1</value>
                    </property>
                    <property>
                        <name>label</name>
                        <value>Warehouse</value>
                    </property>
                </properties>
            </location>
            <location>
                <properties>
                    <property>
                        <name>resource_id</name>
                        <value>Resource2</value>
                    </property>
                    <property>
                        <name>label</name>
                        <value>Garage</value>
                    </property>
                </properties>
            </location>
        </locations>
    </urn:delete_locations>
  </soapenv:Body>
</soapenv:Envelope>
```

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3.15.2   'delete_locations' Response

The response of 'delete_locations' consists of transaction result details for the whole request and each

of the locations to be defined with the request. The response may contain the following elements:

Name	Type	Description
result_code	integer	result of the whole transaction (can be successful regardless of whether some specific locations failed)
location_results	array	array of 'location_result' nodes each of which corresponds to success/failure of a single location record

3.15.2.1   'location_results'/'location_result' Array of 'delete_locations' Response

The 'location_results' array is a set of 'location_result' nodes, each of which contains details of

success/failure for each of the locations defined in the request and can contain the following elements:

Name	Type	Description
result_code	integer	transaction result for the specific location defined within a request
result_message	string	

3.15.2.2   'delete_locations' Response Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
  <soapenv:Header/>
  <soapenv:Body>
 <urn:delete_locations_response>
          <result_code>0</result_code>
          <location_results>
              <location_result>
                  <result_code>0</result_code>
                  <result_message>deleted</result_message>
              </location_result>
              <location_result>
                  <result_code>32425</result_code>
                  <result_message>Location does not exist:
resource_id="Resource2" location="Garage"</result_message>
              </location_result>
          </location_results>
      </urn:delete_locations_response>
    </soapenv:Body>
</soapenv:Envelope>
```

3.16 'get_locations' Method

The **'get_locations'** method is used to retrieve the locations assigned to the specified resource and, optionally, its child resources.

3.16.1 'get_locations' Request

Requests of 'get_locations' method must specify the resources whose locations are to be retrieved.

Name	Type	Required	Description
user	struct	Yes	'user' node
resources	array	Yes	array of 'resource 'elements
resource	array	Yes	array of elements containing relations between a resource and a location

3.16.1.1 'resource' Array of 'get_locations' Request

The 'resource' array of the 'get_locations' request is to contain the following properties:

Name	Type	Required	Description
resource_id	string	Yes	external identifier of the resource for which locations are to be retrieved
include_children	enum	No	defines if locations of subordinate resources are to be returned **possible values:** none – only the specified resource's locations will be returned immediate – locations of the specified resource and the ones directly below it (first level of descendants) are returned all – locations of the specified resource and all of those below it in the Resource Tree hierarchy are returned **default value:** none

3.16.1.2 'get_locations' Request Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
 <soapenv:Header/>
  <soapenv:Body>
     <urn:get_locations>
         <user>...</user>
         <resources>
             <resource>
               <resource_id>TestBucket</resource_id>
               <include_children>immediate</include_children>
             </resource>
             <resource>
               <resource_id>Resource1</resource_id>
             </resource>
         </resources>
     </urn:get_locations>
   </soapenv:Body>
</soapenv:Envelope>
```

3.16.2   'get_locations' Response

The response of 'get_locations' consists of the arrays of locations returned for each resource specified in the request and their properties. It contains the following elements:

Name	Type	Description
result_code	integer	result of the whole transaction (can be successful regardless of whether some specific locations failed)
locations	array	array of 'location' nodes each of which contains details of one of the locations specified in the request
location	array	consists of the 'properties' element

3.16.2.1 'properties' Array of 'get_locations' Response

The 'properties' element of the 'get_locations' response contains an array of the location 'property' nodes. The following properties can be returned:

Name	Type	Description
label	string	location identifier
resource_id	string	identifier of the resource to which the location belongs
city	string	location address
state	string	
zip	string	
street	string	
latitude	string	geographic coordinates of the location
longitude	string	
coord_status	string	method of determining the geographic coordinates of the location **possible values:** manual – coordinates set manually via GUI or API geocoded – coordinates set by geocoding address fields unable_to_geocode – geocoding failed, no location coordinates available not_yet_geocoded – geocoding has not been performed, no coordinates available

3.16.2.2 'get_locations' Response Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
<soapenv:Header/>
  <soapenv:Body>
      <urn:get_locations_response>
           <locations>
               <location>
                   <properties>
                       <property>
                           <name>resource_id</name>
                           <value>Resource1</value>
                       </property>
                       <property>
                           <name>label</name>
                           <value>Warehouse</value>
                       </property>
                       <property>
                           <name>city</name>
                           <value>Orlando</value>
                       </property>
                       <property>
                           <name>street</name>
                           <value>111350-11398 University Blvd.</value>
                       </property>
                       <property>
                           <name>latitude</name>
                           <value>28.59752</value>
                       </property>
                       <property>
                           <name>longitude</name>
                           <value>-81.22226</value>
                       </property>
                   </properties>
               </location>
           </locations>
      </urn:get_locations_response>
  </soapenv:Body>
</soapenv:Envelope>
```

3.17 'set_resources_locations' Method

The 'set_resources_locations' method is used to assign 'start', 'end' and 'home zone center' locations to resources or to remove the existing location assignments from resources.

When the 'location_label' is specified, such location is assigned to the resource as the location of the defined 'type'. When the 'location_label' is empty, such location is removed from the resource for the weekdays specified in the request.

3.17.1   'set_resources_locations' Request

Requests of 'set_resources_locations' method must specify the locations to be assigned to or removed from the resource.

Name	Type	Required	Description
user	struct	Yes	'user' node
resource_locations	array	Yes	array of 'resource_location' elements, each of which specifies relation between the resource and the location

3.17.1.1   'resource_location' Array of 'set_resources_locations' Request

The 'resource_location' array of the 'set_resources_locations' request is to contain the following properties:

Name	Type	Required	Description
resource_id	string	Yes	external identifier of the resource locations are to be assigned to or removed from
location_label	string	Yes	location label Must contain the label of an existing location added by the 'update_locations' method or through the Manage Application. When the 'location_label' is empty, such location is removed from the resource for the weekdays specified in the request.
type	enum	Yes	type of location assigned to the resource **possible values:** start, end, home_zone_center
weekdays	array	Yes	Array of 'wd' elements. Each 'wd' element contains a weekday string. Contains weekdays on which the specified location is assigned to the resource as the location of the specified type. **possible values of wd elements:** Mon, Tue, Wed, Thu, Fri, Sat, Sun, all (all weekdays)

3.17.1.2 'set_resources_locations' Request Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
 <soapenv:Header/>
  <soapenv:Body>
      <urn:set_resources_locations>
            <user>...</user>
            <resource_locations>
                <resource_location>
                    <resource_id>Resource1</resource_id>
                    <location_label>Resource1_Location</location_label>
                    <type>start</type>
                    <weekdays>
                        <wd>Mon</wd>
                        <wd>Tue</wd>
                        <wd>Wed</wd>
                    </weekdays>
                </resource_location>
                <resource_location>
                    <resource_id>Resource2</resource_id>
                    <location_label>Resource1_Location</location_label>
                    <type>end</type>
                    <weekdays>
                        <wd>all</wd>
                    </weekdays>
                </resource_location>
            </resource_locations>
      </urn:set_resources_locations>
   </soapenv:Body>
</soapenv:Envelope>
```

3.17.2 'set_resources_locations' Response

The response of 'set_resources_locations' consists of transaction result details for the whole request
and each of the locations to be defined with the request. The response may contain the following
elements:

Name	Type	Description
result_code	integer	result of the whole transaction (can be successful regardless of whether some specific locations failed)
resource_location_results	array	array of 'resource_location_result' nodes each of which corresponds to success/failure of a single location assignment record

3.17.2.1 'resource_location_results'/'resource_location_result' Array of 'set_resources_locations' Response

The 'resource_location_results' array is a set of 'resource_location_result' nodes, each of which
contains details of success/failure for each of the location assignments defined in the request and can
contain the following elements:

Name	Type	Description
result_code	integer	transaction result for the specific location assignment defined within a request
result_message	string	

3.17.2.2 'set_resources_locations' Response Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
<soapenv:Header/>
  <soapenv:Body>
  <urn:set_resources_locations_response>
          <result_code>0</result_code>
          <resource_location_results>
              <resource_location_result>
                  <result_code>0</result_code>
                  <result_message>Set 'Resource1' 'start' to
'Resource1_Location' for weekdays 'All'</result_message>
              </resource_location_result>
              <resource_location_result>
                  <result_code>23423</result_code>
                  <result_message>Location is not visible to resource.
Resource_id='Resource2'. Location='Resource1_Location'</result_message>
              </resource_location_result>
          </resource_location_results>
      </urn:set_resources_locations_response>
    </soapenv:Body>
</soapenv:Envelope>
```

3.18 'get_resources_locations' Method

The 'get_resources_locations' method is used to retrieve 'start', 'end' and 'home zone center' locations assigned to the specified resources.

3.18.1 'get_resources_locations' Request

Requests of 'get_resources_locations' method must specify the resources for which 'start', 'end' and 'home zone center' locations are to be retrieved.

Name	Type	Required	Description
user	struct	Yes	'user' node
resources	array	Yes	array of 'resource' elements containing relations between a resource and a location

3.18.1.1 'resource' Array of 'get_resources_locations' Request

The 'resource' array of the 'get__resources_locations' request is to contain the following properties:

Name	Type	Required	Description
resource_id	string	Yes	external identifier of the resource for which locations are to be retrieved
include_children	enum	No	defines if locations of subordinate resources are to be returned **possible values:** none – only the specified resource's locations will be returned immediate – locations of the specified resource and the ones directly below it (first level of descendants) are returned all – locations of the specified resource and all of those below it in the Resource Tree hierarchy are returned **default value:** none

3.18.1.2 'get_resources_locations' Request Example

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
 <soapenv:Header/>
  <soapenv:Body>
      <urn:get_resources_locations>
          <user>...</user>
          <resources>
              <resource>
                <resource_id>TestBucket</resource_id>
                <include_children>immediate</include_children>
              </resource>
              <resource>
                <resource_id>Resource1</resource_id>
              </resource>
          </resources>
      </urn:get_resources_locations>
    </soapenv:Body>
</soapenv:Envelope>
```

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3.18.2 'get_resources_locations' Response

The response of the 'get_resources_locations' consists of an arrays of locations returned for each resource specified in the request and their properties. It contains the following elements:

Name	Type	Description
result_code	integer	result of the whole transaction (can be successful regardless of whether some specific locations failed)
resource_locations	array	array of 'resource_location' nodes containing the properties defined in the 'set_resources_locations' request

3.18.2.1 'resource_location' Array of 'get_resources_locations' Response

The 'resource_location' element of the 'get_resources_locations' response contains properties of location assignment to the specified resource. The following properties can be returned:

Name	Type	Description
resource_id	string	external identifier of the resource locations are to be assigned to or removed from
location_label	string	location label Contains the label of an existing location added by the 'update_locations' method or through the Manage Application.
type	enum	type of location assigned to the resource **possible values:** start, end, home_zone_center
weekdays	array	Array of 'wd' elements. Each 'wd' element contains a weekday string. Contains weekdays on which the specified location is assigned to the resource as the location of the specified type. **possible values of wd elements:** Mon, Tue, Wed, Thu, Fri, Sat, Sun, all (all weekdays)

3.18.3   'get_resources_locations' Response Example

```xml
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:urn="urn:toatech:ResourceManagement:1.0">
<soapenv:Header/>
  <soapenv:Body>
      <urn:get_resources_locations_response>
            <result_code>0</result_code>
            <resource_locations>
                <resource_location>
                    <resource_id>Resource1</resource_id>
                    <location_label>Resource1_Location</location_label>
                    <type>start</type>
                    <weekdays>
                        <wd>Mon</wd>
                        <wd>Tue</wd>
                        <wd>Wed</wd>
                    </weekdays>
                </resource_location>
                <resource_location>
                    <resource_id>Resource2</resource_id>
                    <location_label>Resource1_Location</location_label>
                    <type>end</type>
                    <weekdays>
                        <wd>All</wd>
                    </weekdays>
                </resource_location>
                ...
            </resource_locations>
      </urn:get_resources_locations_response>
  </soapenv:Body>
</soapenv:Envelope>
```

4   Previous Versions

4.1   ETAdirect 4.5.0 Compared to ETAdirect 4.4.0

4.1.1 Compatibility

Backward compatibility of the Resource Management API is not affected.

Changes compared to version 4.4:

- the 'login_policy' field uses the label of the login policy instead of its name. Operations affected: 'insert_user', 'update_user', 'get_user', 'get_users_list'.

- new methods of resources' locations management have been added:

    - 'update_locations'

    - 'delete_locations'

    - 'get_locations'

    - 'set_resources_locations'

    - 'get_resources_locations'

• Appendix A. Error and Warning Messages

Non zero error codes for ResourceManagement Interface are described below. In case of encountering error codes other than those in the table below, please contact support.

result _code	error_msg	Description
1	'Service is not available'	the application server is not available
2	'The user information is invalid'	authentication has failed; cannot login into the system
3	'The login is not set'	the login of the user is missing
4	'Cannot get the profiles list'	the security_profile list is unavailable
5	'Cannot get the policy list'	the policy list is unavailable
6	'Incorrect policy name'	the user policy name cannot be found in the policy list
7	'The status is not set'	user status is missing
8	'The name is not set'	user name is missing
9	'The language is not set'	user language is missing
10	'Cannot get the language list'	the language list is unavailable
11	'The language cannot be found'	the user language cannot be found in the language list
12	'The time_zone is not set'	user time zone is missing
13	'The timezone cannot be found'	the user time zone cannot be found in the time zone list
14	'The password is not set'	user password is not set
15	'Cannot insert the user'	the user cannot be added
16	'No such user'	the user with login {login} is absent
17	'Cannot update the user '	the user cannot be updated {login}
18	'Cannot delete the user'	the user cannot be deleted
19	'Cannot get user info'	the user info is unavailable
20	'Cannot get resource list'	the resource list is unavailable
21	'Cannot get resource users'	the user info is unavailable
22	'Cannot get resource children'	the resource children are unavailable
23	'The resource external_id is not set'	external ID of the resource is empty
24	'The resource cannot be found'	the resource is unavailable
25	'The resource information cannot be got'	resource '{external_id}' information is unavailable
26	'The technician cannot be the parent resource'	technician is being appointed a parent resource, which is unacceptable
27	'The type is not set'	meaningful only for 'insert_resource' resource type is empty
28	'Cannot insert resource'	meaningful only for 'insert_resource' resource cannot be added
29	'Cannot update resource'	meaningful only for 'update_resource' resource cannot be updated

result_code	error_msg	Description
30	'The parent external_id is not set'	meaningful only for insert_resource external ID of the parent resource is empty
32	'The type cannot be found. Possible types: provider, group, bucket'	requested resource type cannot be found
33	'No authentication information'	some authentication information is missing
34	'The resource {external_id}' already exists'	meaningful only for 'insert_resource' resource with {external_id} already exists in ETAdirect system
35	'The depended user resources found'	parent and child are being assigned to the same user
36	'The status is incorrect. possible values: active, inactive'	the status value is not either 'active' or 'inactive'
37	'Cannot get provider properties'	resource properties are unavailable
38	'Cannot get the file content'	file content is unavailable
40	'It is impossible to insert self_assignment user to the only aggregator'	user with self-assignment is being created using the only aggregator for assignment, which is impossible
41	'There are no resources for the user'	resources node is empty
42	'User with login '{login}' already exists'	user with login to be set for the user being created already exists
43	'The date is invalid'	date is set but its meaning is invalid
44	'The display profile is not set'	display profile is not defined for the user
45	'Cannot get the display profile list'	the list of available display profiles cannot be accessed
46	'The display profile cannot be found'	defined display profile cannot be found
47	'can't get provider type list'	the resource type list is invisible
48	'Unknown work-skill label'	the work skill/ group specified in the request is not known
49	'Work-skill cannot be assigned'	the work skill/ group specified in the request cannot be assigned to resource
60	'ERROR_BAD_REQUEST_FORMAT'	returned if request is invalid (details in the error message)
61	'SKILL_ERROR_CANNOT_GET_SKILLS'	cannot get work skills for resource
62	'SKILL_ERROR_CANNOT_SET_SKILLS'	cannot set work skills for resource
63	'SKILL_ERROR_UNKNOWN_WORK_SKILL'	unknown work skill
64	'SKILL_ERROR_WORK_SKILL_CANNOT_BE_ASSIGNED'	work skill cannot be assigned (4.2 +)
65	'ERROR_EMPTY_RESPONSE'	filter criteria of 'get_*' functions could not be matched
70	'ERROR_INCLUDE_CHILDREN'	include_children is invalid
71	'ERROR_NON_WORKING_REASON_LIST'	cannot get non-working reasons
72	'ERROR_WORK_SCHEDULE_LIST'	cannot get work schedules
73	'ERROR_SHIFT_LIST'	cannot get shifts
74	'ERROR_DELETE_CALENDAR'	cannot delete resource calendar

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result_code	error_msg	Description
75	ERROR_CREATE_CALENDAR'	cannot insert resource calendar
76	'ERROR_NO_NON_WORKING_REASON'	empty non-working reason
77	'ERROR_WRONG_NON_WORKING_REASON'	non-working reason is not registered in the system
78	'ERROR_WRONG_SCHEDULE'	schedule is not registered in the system
79	'ERROR_ZONE_LIST'	cannot get work zones
80	'ERROR_WORK_ZONE_LIST'	cannot get work zones list
81	'ERROR_WORK_ZONE_LIST_ITEM'	cannot get zone list item
82	'ERROR_WRONG_ZONE'	zone is not registered in the system
83	'ERROR_INVALID_RATIO'	invalid ratio value

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