



Resource Management SDK
for



Version 4.5
Part Number E62374-01

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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 API.

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.

User	<ol style="list-style-type: none">1) Person using ETAdirect2) Entity used for authentication and authorization, allowing people or external software to access ETAdirect
Work Skill	<ol style="list-style-type: none">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. For the sake of convenience the list of all methods that can be implemented with the Mobile Client API and their brief description are provided in the table below. For the details of a specific method please refer to the corresponding section.

Entity	Method	Can be used to...	Details
user	insert_user	...add a new user to ETAdirect	Creates a new user and defines the user properties, resources and profiles assigned to the user
	update_user	...update an existing user	Overwrites the specified user properties, the list of resources and profiles with those specified in the request or defines new user properties
	delete_user	...delete an existing user	Removes the user with the specified login from ETAdirect
	get_user	...retrieve data of an existing user	Returns properties of the user with the specified login
	get_users_list	...retrieve users assigned to the specified resource	Returns all users assigned to the specified resource and its child resources as well as the users' properties
resource	insert_resource	...add a new resource to ETAdirect	Creates a new resource to ETAdirect and defines such resource's properties and the users the resource is assigned to
	update_resource	...update an existing resource.	Overwrites the specified resource properties with those specified in the request or defines new resource properties
	get_resource	...retrieve data of an existing resource	Returns properties of the resource with the specified external ID
	get_resources_list	...retrieve data of all child resources of the specified resource	Returns all child resources of the specified resource with their properties
	set_resources_calendars	...define working calendar of the specified resource	Sets working time, shifts, schedules and non-working time of the specified resource for the specified date
	get_resources_calendars	...retrieve working calendar of the specified resource	Returns working time, shifts, schedules and non-working time of the specified resource on the specified date
	set_resources_zones	...define work zones of the resource	Sets work zones of the specified resource for the specified date
	get_resources_zones	...retrieve work zones of the specified resource	Returns details of work zones of the specified resource on the specified date
	set_resources_skills	...define work skills of the specified resource	Sets work skills of the specified resource for the specified date
	get_resources_skills	...retrieve work skills of the specified resource	Returns work skills of the specified resource on the specified date
	update_locations	...create or update	Creates a location with the specified

		resources' locations	label for the specified resource. If a location with the specified 'resource_id' and 'label' exists, such location is updated
	delete_locations	...delete resources' locations	Deletes the locations with the specified labels for the specified resources
	get_locations	...retrieve resources' locations	Retrieves the locations assigned to the specified resource and, optionally, its child resources
	set_resources_locations	...assign locations to resources	Assigns 'start', 'end' and 'home zone center' locations to resources or removes the existing location assignments from resources
	get_resources_locations	...retrieve locations assigned to resources	Retrieves 'start', 'end' and 'home zone center' locations assigned to the specified resources

2.1 ETAdirect API Versioning

ETAdirect supports two versions of the Resource Management API. Version 1 includes the functionality implemented up to and including ETAdirect version 4.5.14. Version 2 includes the entire functionality of Version 1 as well as new features developed in ETAdirect versions 4.5.15 and later.

Versioning is implemented by appending 'v1' or 'v2' for 'Version 1' and 'Version 2', respectively, to the API URL. When no version number is used in the URL, such URL always leads to Version 1.

Resource Management API URLs:

Version 1

/soap/resource-management/v1/

or

/soap/resource-management/

Version 2

/soap/resource-management/v2/

Note: this document describes the functionality implemented both in Version 1 and Version 2. Any features available only in Version 2 are marked with **(available only in API Version 2)**.

2.2 ETAdirect Entities Related to Resource Management API

To understand how activities are processed in ETAdirect it is necessary to review some ETAdirect entities. The basic entities are:

User is the entity that corresponds to a person, group of people or software, accessing ETAdirect with a single login to the system and specified permissions.

Resource is the entity that represents a company asset such that it or its child resources can perform work for the benefit of a company.

2.3 User Entity

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.

2.3.1 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. For each user security profiles and display profiles are defined.

A **Security Profile** defines if access to a certain part of the system, specific interface or function within the interface is permitted. One user may be assigned several profiles and if at least with one of them access is granted, it is available to the user.

Managed Profiles assigned to a user define the security profiles which the user can manage (in terms of assigning profiles to other users).

A **Display Profile** defines if each specific element of a security profile-permitted transaction (property of an entity processed) can be accessed by the user and the level of access granted. One user may be assigned one display profile.

2.3.2 Self Assignment

The self-assignment feature influences activity and resource availability for a user who is assigned a bucket. By default 'self_assignment' is disabled which is the setting mostly intended for dispatchers – users allocating activities among resources and usually performing no activities themselves.

If a user is assigned a bucket and 'self_assignment' is disabled:

- all child resources of the 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' is enabled:

- 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

2.4 Resource Entity

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.

2.4.1 Resource Type

Resource type represents a predefined company-specific set of rules applied when processing 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, etc.).

2.4.2 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.

2.4.3 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.

3 Common Resource Management API Method Structures

3.1 Properties and 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 API processes 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 Resource Management API can read this property, write to it and make conditional decisions based on the property value.

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.

3.1.1 File Property

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.

3.1.2 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 property.

3.1.3 'property' Structure

The 'properties' structure represents a user or resource property in the form of a simple name-value pair consisting of the following elements:

Name	Required	Type	Description
name	Yes	string	property name, unique for the corresponding property list
value	Yes	string	property value, can be an empty string. When an empty string is sent, the value of the existing property is deleted

- **'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.

3.1.4 User Properties

The user-related methods deal with properties of a user. In addition to the fields listed in the table below, other user fields existing in the system and custom user properties defined in the specific company can also be processed.

Name	Label	Type	Value
name	uname	string	user name
login	ulogin	string	user login
language	ulanguage	enum	user language
last_login	last_login	DateTime	user last login time (YYYY-MM-DD HH:MM:SS)
time_zone	su_zid	enum	user time zone
status	sustatus	enum	user status valid values: 'active', 'inactive'
password	password	string	user password md5 hash
password_temporary	password_temporary	string	user password temporary flag valid values: 'yes', 'no' default value: 'no'
display_profile	display_profile_id	string	name of the display profile assigned to the user as defined in Manage Application → Company Settings → Display
login_attempts	login_attempts	int	allowed number of failed logins to ETAdirect default value: none
login_policy	login_policy_id	enum	user login policy: customer-specific name of the login policy default value: company default policy
login_blocked_to	login_blocked_to	dateTime	date, until which user login is to be blocked in 'YYYY-MM-DD HH:MM:SS' format; set to past date to unblock default value: none
self_assignment		enum	self-assignment feature set to 'yes'/'no' default value: 'no'
main_resource_id	main_resource_id	string	external ID of the main resource
date_format	sudate_fid	string	date format set for the user valid values: 'dd.mm.yy', 'mm/dd/yy', 'dd/mm/yy'
time_format	sutime_fid	string	time format set for the user valid values: '12-hour', '24-hour'
long_date_format	sulong_date_fid	string	long date format set for the user valid values: 'weekday, month day, year', 'weekday day month year'
week_start	suweek_start	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'

time_zone_diff	time_zone_diff	int	difference from UTC time in minutes
----------------	----------------	-----	-------------------------------------

3.1.5 Resource Properties

The resource-related methods deal with properties of a resource. In addition to the fields listed in the table below, other resource fields existing in the system and custom resource properties defined in the specific company can also be processed.

Name	Label	Type	Description
id	external_id	string	resource external ID
status	pactive	enum	resource status (active or inactive)
parent_id	-	string	parent resource external ID for the top resource it is equal to 0
type	pptype	enum	resource type company specific value
name	pname	string	resource name
language	planguage	enum	resource language company specific language label (EN, FR, etc.)
email	email	string	resource email
phone	pphone	string	resource phone
time_zone	time_zone	enum	resource time zone company specific time zone name
time_from	-	time	HH:MM format start of resource's working hours according to the calendar for the specified date (is returned only if the optional valid 'date' field is present in the request and the resource has a working day)
time_to	-	time	HH:MM format end of resource's working hours according to the calendar for the specified date (is returned only if the optional valid 'date' field is present in the request and the resource has a working day)
non_working_reason	-	string	if the 'date' field 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"
date_format	pdate_fid	enum	date format set for the resource
time_format	ptime_fid	enum	time format set for the resource
workskill	resource_workskills	string	work skill defined in ETAdirect and acquired by the resource
workskill_group	-	string	work skill group defined in ETAdirect and acquired by the resource

3.2 'user' Authentication Structure

All Resource Management API methods use the 'user' structure as request authentication in order to determine the permissions of the ETAdirect client company user. The ETAdirect SOAP authentication structure has the following **mandatory** fields:

Name	Type	Description
now	string	current time in ISO 8601 format
company	string	case-insensitive identifier of the Client for which data is to be retrieved provided by TOA Technologies during integration
login	string	case-insensitive 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 a case-sensitive set of characters used for user authentication provided by TOA Technologies during integration

For example:

```
<user>
  <now>2014-01-10T13:56:50Z</now>
  <login>soap</login>
  <company>in132</company>
  <auth_string>ba8e6417c60e0e1748265252b4f4d601</auth_string>
</user>
```

3.2.1 Authentication

The structure is used for the request authentication. If any of the situations below occur, authentication fails and relevant error is returned.

Authentication fails 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 company cannot be found in the ETAdirect
- 3 login cannot be found for this company
- 4 user with this 'login' is not authorized to use the specified 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.

4 Detailed Methods Description

4.1 User-Related Methods

4.1.1 'insert_user' Method (Enhanced in API Version 2)

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 must also be defined upon creation.

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

4.1.1.1 'insert_user' Request

The 'insert_user' method must define the login of the user and the properties and resources to be assigned to the user. It must also define the profiles to be assigned to the user created as the result of the request.

The 'insert_user' request contains the following elements:

Name	Required	Type	Description
user	Yes	struct	' user ' structure
login	Yes	string	login of the user to be added
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	Yes	array	array of 'profile' elements each of which contains a name of security profile to be assigned to the user Note: the requesting user (the user defined by the ' user ' structure) must have all profiles specified in the 'profiles' element in their own managed profiles, otherwise the request returns an error.
managed_profiles	No	array	array of 'profile' elements each of which contains a name of profile to be managed by the user Note: the requesting user (the user defined by the ' user ' structure) must have all profiles specified in the 'managed_profiles' element in their own managed profiles, otherwise the request returns an error. (available only in API Version 2)

- '[properties](#)' Array of 'insert_user' Request

The following user properties are mandatory in the 'insert_user' request:

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
display_profile	Yes	string	name of the display profile assigned to the user as defined in

Name	Required	Type	Description
			Manage Application → Company Settings → Display
language	Yes	enum	user language: customer-specific language label
time_zone	Yes	enum	user time zone: customer-specific time zone name

Other [user properties](#) are optional.

- **'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>2014-05-19T13:50:10Z</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>
    </insert_user>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```



```

        <id>22</id>
    </resources>
    <profiles>
        <profile>Dispatcher</profile>
        <profile>Manager</profile>
    </profiles>
    <managed_profiles>
        <profile>Corporate</profile>
    </managed_profiles>
</ns1:insert_user>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

4.1.1.2 'insert_user' Response

The 'insert_user' response contains data on the method success/failure.

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')

- **'insert_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:insert_user_response>
      <result_code>0</result_code>
    </ns1:insert_user_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

4.1.2 'update_user' Method (Enhanced in API Version 2)

The 'update_user' method overwrites the user properties specified in the request with the user property values defined in the request and deletes all resources and profiles assigned to the user 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 API can add or update custom user properties. These actions are subject to the visibilities set in the corresponding display profile.

4.1.2.1 'update_user' Request

The 'update_user' method defines the properties and resources to be added or updated for the user. They can also define the profiles to be assigned to or updated for the user. Any properties not sent in the 'update_user' request remain unchanged.

The 'update_user' request must contain the user login to be used as a search key to find the user for which data is to be updated.

The 'update_user' request contains the following elements:

Name	Required	Type	Description
user	Yes	struct	' user ' structure
login	Yes	string	login of the user to be updated
properties	No	array	array of user ' property ' nodes ('name' and 'value'). Please check the specific properties for visibility.
resources	No	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 security profile to be assigned to the user Note: the requesting user (the user defined by the ' user ' structure) must have all profiles specified in the 'profiles' element in their own managed profiles, otherwise the request returns an error.
managed_profiles	No	array	array of 'profile' elements each of which contains a name of profile to be managed by the user Note: the requesting user (the user defined by the ' user ' structure) must have all profiles specified in the 'managed_profiles' element in their own managed profiles, otherwise the request returns an error. (available only in API Version 2)

The 'update_user' request may optionally contain user fields and custom properties, profiles and resources to be updated as the result of the request. Please refer to the list of [user properties](#) which may be updated by the 'update_user' method.

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.

- **'update_user' Request Example**

In the example, the user's name and time zone have been changed, one more resource and one more profile assigned to the user have been added.

```
<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>2014-05-19T13:50:15Z</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>
      <managed_profiles>
        <profile>Corporate</profile>
      </managed_profiles>
    </ns1:update_user>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

4.1.2.2 'update_user' Response

The 'update_user' response contains data on the method success/failure.

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error description (if 'result_code' is other than '0')

- **'update_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:update_user_response>
      <result_code>0</result_code>
    </ns1:update_user_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

4.1.3 '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.

4.1.3.1 '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

- **'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>2014-05-19T13:50:15Z</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>
```

4.1.3.2 'delete_user' Response

The 'delete_user' response contains data on the method success/failure.

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')

- **'delete_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:delete_user_response>
      <result_code>0</result_code>
    </ns1:delete_user_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

4.1.4 'get_user' Method (Enhanced in API Version 2)

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

4.1.4.1 '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 ' structure
login	Yes	string	login of the user whose data is to be retrieved

- '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>2014-05-19T13:50:15Z</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>
```

4.1.4.2 'get_user' Response

The 'get_user' response contains data on the method success/failure and the properties of the user specified in the request.

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error description (if 'result_code' is other than '0')
properties	struct	array of ' property ' elements each containing one of the properties of the requested user All available user properties are returned. Note: regardless of the request, the 'display_profile', 'api_profile' and 'time_zone_diff' properties are always returned.
resources	array	array of 'id' elements each containing an identifier of a resource assigned to the user
profiles	array	array of 'profile' elements each containing a security profile assigned to the user
managed_profiles	array	array of 'managed_profile' elements each containing a profile managed by the user (available only in API Version 2)

- **'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>
      </properties>
    </ns1:get_user_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```
</property>
<property>
  <name>last_login</name>
  <value/>
</property>
<property>
  <name>last_password_change</name>
  <value>2014-05-19 13:50:26</value>
</property>
</properties>
<resources>
  <id>22</id>
</resources>
<profiles>
  <profile>Dispatcher</profile>
  <profile>Manager</profile>
</profiles>
<managed_profiles>
  <profile>Corporate</profile>
</managed_profiles>
</ns1:get_user_response>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```


4.1.5 '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.

4.1.5.1 'get_users_list' Request

The 'get_users_list' requests specify the external ID of the resource for which the assigned users' data is to be retrieved and the properties to be returned for such users, and contain the following elements:

Name	Required	Type	Description
user	Yes	struct	' user ' structure
root_resource_id	Yes	string	external ID of the resource for which the assigned users' data is to be retrieved
required_properties	No	array	array of the 'label' elements that correspond to 'names' of user properties to be returned. If empty or omitted, the users' logins and statuses will be returned.
select_from	No	int	the area of the list of found users to return data from; users in the list starting with 'select_from' are returned
select_count	No	int	total number of users to be returned

- '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>2014-05-19T13:50:31Z</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>
```

4.1.5.2 'get_users_list' Response

The response to 'get_users_list' contains data on the method success/failure, the count of users found by the request and their properties.

The response of 'get_users_list' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error description (if 'result_code' is other than '0')
users	array	array of 'user' elements each consisting of a 'properties' array containing the properties of a single user assigned to the specified resource
user_count	int	total number of the users assigned to the resource

- **'user' Element of 'get_users_list' Response**

The 'user' element consists of 'properties' array containing the properties of a single user assigned to the specified resource. The 'properties' array contains the following elements:

Name	Type	Description
properties	array	array of ' property ' elements each containing one of the user properties The properties specified in the 'required_properties' array of the request are returned. If the 'required_properties' array is empty or omitted, only the user's login and status are returned.

- **'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>
          </properties>
        </user>
      </users>
    </ns1:get_users_list_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```
        <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>
```

4.2 Resource_related Methods

4.2.1 'insert_resource' Method

The 'insert_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.

In addition to the predefined set of resource properties existing in ETAdirect, the Resource Management API can add custom resource properties. These actions are subject to the visibilities set in the corresponding display profile.

4.2.1.1 'insert_resource' Request

The 'insert_resource' request specifies the external ID of the resource to be created, the properties of the new resource, the users the new resource is assigned to and the work skills assigned to the new resource.

The 'insert_resource' request contains the following elements:

Name	Required	Type	Description
user	Yes	struct	' user ' structure
id	Yes	string	external ID of the resource to be created
properties	Yes	array	array of ' property ' elements each containing a property to be assigned to the resource
users	No	array	array of 'login' elements each containing a user login identifying the user to be assigned to the resource
workskills	No	array	array of 'workskill' and 'workskill_group' elements each corresponding to one of work skills or work skill groups to be assigned to the resource

- **'properties' Array of 'insert_resource' Request**

The following resource properties are mandatory in the 'insert_resource' requests:

Name	Required	Type	Description
status	Yes	string	resource status valid values: 'active', 'inactive'
parent_id	Yes	string	external ID of the parent resource
type	Yes	enum	resource type; company specific resource type name
name	Yes	string	name of the resource
language	Yes	enum	customer-specific language label
time_zone	Yes	string	resource time zone: customer-specific time zone name

- **'workskills' Array of 'insert_resource' Request**

The 'workskills' array may contain the following elements:

Name	Required	Type	Description
workskill	No	array	any of the work skills defined in ETAdirect which the resource has
workskill_group	No	string	any of the work skill groups defined in ETAdirect which the resource has

- **'workskill' Element of 'insert_resource' Request**

The 'workskill' element consists of the following:

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

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

- **'insert_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:insert_resource>
      <user>
        <now>2014-05-15T08:09:23+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>
      </properties>
    </ns1:insert_resource>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```

        <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>

```

4.2.1.2 'insert_resource' Response

The 'insert_resource' response contains data on the method success/failure:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')

- **'insert_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:insert_resource_response>
      <result_code>0</result_code>
    </ns1:insert_resource_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

4.2.2 'update_resource' Method

The 'update_resource' method is used to modify the properties of the specified resource.

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

4.2.2.1 'update_resource' Request

The 'update_resource' request specifies the external ID of the resource to be updated, and, optionally, may specify the properties, users and work skills to be modified for the resource. Any properties not sent in the 'update_resource' request remain unchanged.

The 'update_resource' request contains the following elements:

Name	Required	Type	Description
user	Yes	struct	' user ' structure
id	Yes	string	external ID of the resource to be updated
properties	No	array	array of ' property ' elements each containing a property to be assigned or modified for the resource
users	No	array	array of 'login' elements each containing a user login identifying the user assigned or to be assigned to the resource
workskills	No	array	array of 'workskill' and 'workskill_group' elements each corresponding to one of work skills or work skill groups assigned or to be assigned to the resource.

The 'update_resource' request may optionally contain resource fields and custom properties, users and work skills to be updated as the result of the request. Please refer to the list of [resource properties](#) which may be updated by the 'update_resource' method.

- **'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>2014-05-15T08:09:23+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>
        </property>
      </properties>
    </ns1:update_resource>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```
<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.

To change the work skills, they have to be added 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, an empty element should be added 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>
```


4.2.2.2 'update_resource' Response

The 'update_resource' response contains data on the method success/failure:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')

- **'update_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:update_resource_response>
      <result_code>0</result_code>
    </ns1:update_resource_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

4.2.3 'get_resource' Method

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

4.2.3.1 '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	date of the resource's calendar for which the working time may be returned in the response in the YYYY-MM-DD format If the 'date' element is sent in the request, the response will contain the 'time_from', 'time_to' and 'non_working_reason' fields. Otherwise, these fields are not returned

- '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>2014-05-15T15:22:10+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>
```

4.2.3.2 'get_resource' Response

The response to the 'get_resource' request contains data on the method success/failure and all properties of the processed resource.

The response of the 'get_resource' method contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')
properties	array	array of resource ' property ' elements each containing one of the resource properties
users	array	array of 'login' elements that contain identifiers of the users assigned to the resource
workskills	array	array of 'workskill' and 'workskill_group' elements each corresponding to one of work skills or work skill groups assigned to the 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/work skill group list for resource is not empty.
--	--	---

- **'users' Array of 'get_resource' Response**

The 'users' array consists of 'login' elements containing logins of the users assigned to the resource.

Name	Type	Description
login	string	login of the user assigned to the resource

- **'workskills' Array of 'get_resource' Response**

The 'workskills' array may contain the following elements:

Name	Type	Description
workskill	array	any of the work skills defined in ETAdirect which the resource has
workskill_group	string	any of the work skill groups defined in ETAdirect which the resource has

- **'workskill' Element of 'get_resource' Response**

The 'workskill' element contains the following elements:

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

- **'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>
  <login>admin</login>
  <login>dispatcher</login>
  <login>tech</login>
</users>
<workskills>
  <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>
```

4.2.4 'get_resources_list' Method

The 'get_resources_list' method is used to retrieve the properties of all selected child resources of the defined resource.

4.2.4.1 'get_resources_list' Request

The 'get_resources_list' requests specify the resource whose child resources' data is to be retrieved as well as the properties of such child resources.

The 'get_resources_list' requests contain the following elements:

Name	Required	Type	Description
user	Yes	struct	' user ' structure
root_resource_id	No	string	external ID of the resource to return the subtree for if empty or omitted, the data for the top resource of the resource tree will be returned
select_from	No	int	specifies the area of the list of resources found to return data from; resources in the list starting with 'select_from' are returned
select_count	No	int	total number of resources to be returned
include_children	No	string	parameter defining if only direct children of the resource are to be returned valid values: <ul style="list-style-type: none"> immediate – only direct children are returned all – all children are returned
date	No	string	date of the resource's calendar for which the working time may be returned in the response in the YYYY-MM-DD format
required_properties	No	array	array of 'label' elements that contain 'names' of the resource properties to be returned if empty or omitted, 'id', 'parent_id', 'name' and 'status' are returned

- **'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>2014-05-16T08:05:10+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>
      </required_properties>
    </ns1:get_resources_list>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```

        <label>status</label>
        <label>workskills</label>
    </required_properties>
</ns1:get_resources_list>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

4.2.4.2 'get_resources_list' Response

The response to 'get_resources_list' contains data on the method success/failure, the count of resources found by the request and their properties.

The response of 'get_resources_list' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')
resources	array	array of 'resource' elements each consisting of a 'properties' array containing the properties of a single resource
resource_count	int	total number of child resources returned in the response

- **'resources' Array of 'get_resources_list' Response**

The 'get_resources_list' resources array contains the following elements:

Name	Type	Description
resource	array	nodes, each containing the 'properties' array of the resource property elements The properties specified in the 'required_properties' array of the 'get_resources_list' request are returned. If the 'required_properties' array is empty or omitted, 'id', 'parent_id', 'name' and 'status' properties are returned.
workskills	array	array of 'workskill' and 'workskill_group' elements each corresponding to one of work skills or work skill groups assigned to the 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/work skill group list for resource is not empty.

- **'workskills' Array of 'get_resources_list' Response**

The 'workskills' array may contain the following elements:

Name	Type	Description
workskill	array	any of the work skills defined in ETAdirect which the resource has
workskill_group	string	any of the work skill groups defined in ETAdirect which the resource has

- **'workskill' Element of 'get_resource' Response**

The 'workskill' element contains the following elements:

Name	Type	Description
label	string	label of a work-skill defined in ETAdirect

Name	Type	Description
ratio	string	level of qualification of the skill defined with the 'label' for the resource. values range: 0 - 100

- **'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>
          </properties>
        </resource>
      </resources>
    </ns1:get_resources_list_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```



```
        </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>
```

4.2.5 '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.

4.2.5.1 'set_resources_calendars' Request

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

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

Name	Required	Type	Description
user	Yes	struct	' user ' structure
calendars	Yes	array	array of 'calendar' elements, each being an array of 'properties' elements containing properties of a single calendar

- '**calendar**' Array of '**set_resources_calendars**' Request

The 'calendar' array of the 'set_resources_calendars' request is an array of 'properties' elements each consisting of calendar '[property](#)' elements defining the properties of the calendar to be set for the specified resource. The following properties can be defined by the 'set_resources_calendars' request:

Name	Required	Type	Description
userdata	No	string	reference to a calendar record to identify the record in the response
date	Yes	date	date for which the calendar is defined
resource_id	Yes	string	external ID of the resource for which the calendar is defined
duration	No	int	the number of consecutive days for which the calendar is to be applied (including the 'date') default value: 1
comment	No	string	free format comment to the calendar
schedule	No	string	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	Yes/No	enum	type of the calendar to be set Mandatory if the 'schedule' value is not defined valid values: 'working', 'non-working'
time_from	Yes/No	time	start of the working time for the specified date and resource. Mandatory if the resource is assigned a working calendar.
time_to	Yes/No	time	end of the working time for the specified date and resource. Mandatory if the resource is assigned a working calendar.
points	No	int	number of points for the day This field is to be used when the 'points' functionality is enabled for the company
non_working_reason	Yes/No	enum	label of non-working reason – one of the reasons predefined for the company. Mandatory if the resource is assigned a non-working calendar.

- **'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>2014-05-15T08:09:23+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>
          </properties>
        </calendar>
      </calendars>
    </ns1:set_resources_calendars>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```
</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>

```

4.2.5.2 'set_resources_calendars' Response

The 'set_resources_calendars' response contains data on the method success/failure as well as on the success/failure of each calendar to be defined according to the request.

The response of 'set_resources_calendars' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')
calendars_results	array	array of 'calendar_result' elements containing the data on the success/failure of each calendar setting

- **'calendar_result' Element of 'set_resources_calendars' Response**

Each 'calendar_result' element 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	int	transaction result code for the specific calendar defined in the request
calendar_error_msg	string	transaction error description (if 'calendar_result_code' is other than '0')

- **'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>
```

4.2.6 'get_resources_calendars' Method

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

4.2.6.1 'get_resources_calendars' Request

The 'get_resources_calendars' 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 ' structure
resources	array	Yes	array of 'resource' elements, each defining the details of calendars to be retrieved

- **'resource' Element of 'get_resources_calendars' Request**

In the 'get_resources_calendars' request 'resources' is an array of the 'resource' elements each containing the following parameters of data to be returned:

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	No	parameter defining if subordinate resources are to be considered valid values: <ul style="list-style-type: none"> • 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
duration	int	No	parameter defining for how many consecutive days the calendar is to be returned (including the 'date') default value: 1
include_inactive	bool	No	parameter defining if calendars of inactive resources are to be returned valid values: <ul style="list-style-type: none"> • true – calendars of inactive resources are to be returned • false – calendars of inactive resources are not to be returned default value: false

- **'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>2014-05-15T08:09:23+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>

```

4.2.6.2 'get_resources_calendars' Response

The 'get_resources_calendars' response contains data on the method success/failure and the details of the requested calendars. The response of 'get_resources_calendars' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')
calendars	array	array of 'calendar' elements, each being an array of 'properties' elements containing properties of a single calendar

- **'calendar' Element of 'get_resources_calendars' Response**

The 'calendar' element of the 'get_resources_calendars' response is an array of 'properties' elements each consisting of calendar '[property](#)' elements defining the properties of the specified resource's calendar. The following properties can be returned by the 'get_resources_calendars' request:

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

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

- **'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>
      </calendars>
    </ns1:get_resources_calendars>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```
</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>
  </properties>
</calendar>
```

```
<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>
      <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>
  </properties>
</calendar>
```

```
</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_recourse4</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>2011-03-20</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>
```

4.2.7 'set_resources_zones' Method

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

4.2.7.1 'set_resources_zones' Request

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

Name	Type	Required	Description
user	struct	Yes	'user' structure
zones	array	Yes	array of 'zone' elements, each being an array of 'properties' elements containing properties of a single work zone

- **'zone' Element of 'set_resources_zones' Request**

The 'zone' array of the 'set_resources_zones' request is an array of 'properties' elements each consisting of 'property' elements defining the properties of the work zone to be set for the specified resource. The following properties can be defined by the 'set_resources_zones' request:

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	int	No	the number of consecutive days for which the work zone is to be applied (including the 'date') default value: 1
resource_id	string	Yes	external ID of the resource for which the zone is defined
zone	enum	No	label of the work zone, one of the zones predefined for the company If empty or omitted, the entire list of work zones of the resource identified by 'resource_id' is removed.
ratio	enum	No	priority of activities assignment to the resource in the work zone valid values: from 0 to 100: '0' - do not assign, '1' - lowest priority; '100' - highest priority If empty or omitted, the work zone is 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.

- **'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>
  <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>
      <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>
  </properties>
```

```
<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>
<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>
    <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>
  </properties>
</zone>
```

```
        <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>
  </properties>
</zone>
```

```
</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>

```

4.2.7.2 'set_resources_zones' Response

The 'set_resources_zones' response contains data on the method success/failure as well as on the success/failure of each work zone to be defined according to the request.

The response of 'set_resources_zones' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')
zones_results	array	array of 'zone_result' elements containing the data on the success/failure of each work zone assignment

- **'zone_result' Element of 'set_resources_zones' Response**

Each 'zone_result' element contains the details of success/failure for each of the work 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	int	transaction result code for the specific work zone defined in the request
zone_error_msg	string	transaction error description (if 'zone_result_code' is other than '0')

- **'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>
    </ns1:set_resources_zones_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

```
<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>
```

4.2.8 '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.

4.2.8.1 'get_resources_zones' Request

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	' user ' structure
resources	array	Yes	array of 'resource' elements, each defining the details of zones to be retrieved

- '**resource**' Element of 'get_resources_zones' Request

In the 'get_resources_zones' request 'resources' is an array of the 'resource' elements each containing the following parameters of data to be returned:

Name	Type	Required	Description
resource_id	string	Yes	external ID of the resource for which the work zones are to be retrieved
date	date	Yes	date for which the zones are retrieved
include_children	enum	No	defines if subordinate resources are to be considered valid values: <ul style="list-style-type: none"> • 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	int	No	parameter defining for how many consecutive days the work zone is to be retrieved for (including the 'date') default value: 1
include_inactive	bool	No	parameter defining if work zones of inactive resources are to be returned valid values: <ul style="list-style-type: none"> • true – work zones of inactive resources are to be returned • false – work zones of inactive resources are not to be returned default value: false

- '**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>2014-05-15T08:09:23+00:00</now>
    <company>sunrise</company>
    <login>root</login>
    <auth_string>6f9celabe552563338fd98536024a40b</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>

```

4.2.8.2 'get_resources_zones' Response

The 'get_resources_zones' response contains data on the method success/failure and the list of found work zones with their properties. The response of 'get_resources_zones' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error description (if 'result_code' is other than '0')
zones	array	array of 'zone' elements, each being an array of 'properties' elements containing properties of a single work zone

- **'zone' Element of 'get_resources_zones' Response**

The 'zone' element of the 'get_resources_zones' response is an array of 'properties' elements each consisting of work zone '[property](#)' elements defining the properties of the specified resource's work zone. The following properties can be returned by the 'get_resources_zones' request:

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

- **'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>
    </zones>
  </get_resources_zones>
</SOAP-ENV:Body>
</ns1:get_resources_zones>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```
<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>
      <name>resource_id</name>
      <value>test_recource4</value>
    </property>
    <property>
      <name>zone</name>
      <value>ORLANDO</value>
    </property>
  </properties>
```



```
        <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>
</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>
```

4.2.9 'set_resources_skills' Method

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

4.2.9.1 'set_resources_skills' Request

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

Name	Type	Required	Description
user	struct	Yes	'user' structure
skills	array	Yes	array of 'skill' elements, each being an array of 'properties' elements containing properties of a single work skill

- **'skill' Element of 'set_resources_skills' Request**

The 'skill' element of the 'set_resources_skills' request is an array of 'properties' elements each consisting of work skill '[property](#)' elements defining the properties of the work skill to be set for the specified resource. The following properties can be defined by the 'set_resources_skills' request:

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	No	label of a work skill or work skill group If empty or omitted, the entire list of work skills of the resource identified by 'resource_id' is removed.
ratio	enum	No	qualification level for the work skill valid 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 If empty or omitted, the work skill is removed. Note: for work skill groups the '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.

- **'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>

```

```
    </property>
  </properties>
</skill>
<skill>
  <properties>
    <property>
      <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>
  </properties>
</skill>
```

```
        <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>
</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>
  </properties>
</skill>
```



```
</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>
      <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>

```

4.2.9.2 'set_resources_skills' Response

The 'set_resources_skills' response contains data on the method success/failure as well as on the success/failure of each work skill to be assigned according to the request.

The response of 'set_resources_skills' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')
skill_results	array	array of 'skill_result' elements containing the data on the success/failure of each work skill assignment

- **'skill_result' Element of 'set_resources_skills' Response**

Each 'skill_result' element contains the details of success/failure for each of the work 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	int	transaction result code for the specific work skill defined in the request
skill_error_msg	string	transaction error description (if 'skill_result_code' is other than '0')

- **'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>
```

4.2.10 'get_resources_skills' Method

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

4.2.10.1 'get_resources_skills' Request

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	'user' structure
expand_complex_skills	string	No	parameter defining if work skill groups are to be expanded valid values: <ul style="list-style-type: none"> no – return work skill groups as a single entity yes – return the final result of merging complex and elementary skills default value: no
resources	array	Yes	array of 'resource' elements, each defining the details of work skills to be retrieved

- 'resource' Element of 'get_resources_skills' Request

In the 'get_resources_skills' request 'resources' is an array of the 'resource' elements each containing the following parameters of data to be returned:

Name	Type	Required	Description
resource_id	string	Yes	external ID of the resource for which the work skills are to be retrieved
date	date	No	date for which the resource's work skills are to be retrieved If the date is specified, the skills shared in the teams will also be returned.
include_children	enum	No	parameter defining if subordinate resources are to be considered valid values: <ul style="list-style-type: none"> no – only the specified resource's work skills will be returned immediate – the work skills of the specified resource and the ones directly below it (first level of descendants) will be returned all – the work skills of the specified resource and all of those below it in the tree hierarchy will be returned
duration	int	No	parameter defining for how many days in a row the work skills are to be retrieved (including the 'date') default value: 1

- '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>2014-05-15T08:09:23+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>

```

4.2.10.2 'get_resources_skills' Response

The 'get_resources_skills' response contains data on the method success/failure and the details of the requested work skills. The response of 'get_resources_skills' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')
skills	array	array of 'skill' elements, each being an array of 'properties' elements containing properties of a single work skill

- **'skill' Element of 'get_resources_skills' Response**

The 'skill' element of the 'get_resources_skills' response is an array of 'properties' elements each consisting of work skill [property](#) elements defining the properties of the specified resource's work skill. The following properties can be returned by the 'get_resources_skills' request:

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

- **'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>
    </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_recourse4</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>

4.2.11 '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.

4.2.11.1 '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 ' structure
locations	array	Yes	array of 'location' elements each containing the data on the resource and the location to be assigned to such resource

- **'location' Array of 'update_locations' Requests**

The 'location' array of the 'update_locations' method consists of 'properties' elements being arrays of 'property' elements defining the properties of the location to be assigned to the resource. The following properties can be defined with the 'update_locations' method:

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 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.
state	string	No	
zip	string	No	
street	string	No	
latitude	string	No	geographic coordinates of the location
longitude	string	No	

- **'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>
        <now>2014-05-15T08:09:23+00:00</now>
        <login>root</login>
        <company>sunrise</company>
        <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
      </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>
```

4.2.11.2 'update_locations' Response

The response of 'update_locations' contains data on the method success/failure as well as on the success/failure of each location to be assigned according to the request.

The response of 'update_locations' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error description (if 'result_code' is other than '0')
location_results	array	array of 'location_result' elements each containing data on the success/failure of a single location record

- **'location_result' Element of 'update_locations' Response**

Each 'location_result' element contains data on the success/failure of each location to be assigned according to the request.

The 'location_result' element contains the following elements:

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

- **'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>
```


4.2.12 'delete_locations' Method

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

4.2.12.1 'delete_locations' Request

The 'delete_locations' request specifies the locations to be deleted. The request must contain the following elements:

Name	Type	Required	Description
user	struct	Yes	'user' structure
locations	array	Yes	array of 'location' elements each containing the data on the location to be deleted

- **'location' Array of 'delete_locations' Requests**

The 'location' array of the 'delete_locations' method consists of 'properties' elements being arrays of 'property' elements containing data of the locations to be deleted. The following properties 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	external ID of the resource from which the location is to be deleted

- **'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>
    <now>2014-05-15T08:09:23+00:00</now>
    <login>root</login>
    <company>sunrise</company>
    <auth_string>6f9celabe552563338fd98536024a40b</auth_string>
  </user>
  <locations>
    <location>
      <properties>
        <property>
          <name>resource_id</name>
          <value>Resource1</value>
        </property>
        <property>
          <name>label</name>
          <value>Warehouse</value>
        </property>
      </properties>
    </location>
  </locations>
</urn:delete_locations>
</soapenv:Body>
</soapenv:Envelope>
```

```

    <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>

```

4.2.12.2 'delete_locations' Response

The response of 'delete_locations' contains data on the method success/failure as well as on the success/failure of each location deletion

The response of 'delete_locations' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error description (if 'result_code' is other than '0')
location_results	array	array of 'location_result' elements each containing data on the success/failure of a single location record

- **'location_result' Element of 'delete_locations' Response**

Each 'location_result' element contains data on the success/failure of each location deletion.

The 'location_result' element contains the following elements:

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

- **'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>
```

4.2.13 'get_locations' Method

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

4.2.13.1 'get_locations' Request

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

They contain the following elements:

Name	Type	Required	Description
user	struct	Yes	'user' structure
resources	array	Yes	array of 'resource' elements defining the resources for which locations are to be returned

- 'resource' Element of 'get_locations' Request

The 'resource' element of the 'get_locations' request contains the following parameters:

Name	Type	Required	Description
resource_id	string	Yes	external ID of the resource for which locations are to be retrieved
include_children	enum	No	parameter defining if locations of subordinate resources are to be returned valid values: <ul style="list-style-type: none"> • 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

- '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>
        <now>2014-05-15T08:09:23+00:00</now>
        <login>root</login>
        <company>sunrise</company>
        <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
      </user>
      <resources>
        <resource>
          <resource_id>TestBucket</resource_id>
          <include_children>immediate</include_children>
        </resource>
      </resources>
    </urn:get_locations>
  </soapenv:Body>
</soapenv:Envelope>
```

```

        </resource>
        <resource>
            <resource_id>Resource1</resource_id>
        </resource>
    </resources>
</urn:get_locations>
</soapenv:Body>
</soapenv:Envelope>
    
```

4.2.13.2 'get_locations' Response

The response of 'get_locations' contains data on the method success/failure as well as the locations for each resource specified in the request and their properties.

The response of 'get_locations' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')
locations	array	array of 'location' elements each containing data on a location assigned to the resource specified in the request

- **'location' Array of 'get_locations' Response**

The 'location' array of the 'get_locations' response consists of 'properties' elements being arrays of 'property' elements containing data of the locations assigned to the resources specified in the request.

The following properties must be specified in the 'delete_locations' request:

The following properties can be returned:

Name	Type	Description
label	string	location identifier
resource_id	string	external ID of the resource to which the location is assigned
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: <ul style="list-style-type: none"> • 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

- **'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>
    <result_code>0</result_code>
    <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>
```

4.2.14 '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.

4.2.14.1 'set_resources_locations' Request

The 'set_resources_locations' request specifies the locations to be set. The request must contain the following elements:

Name	Type	Required	Description
user	struct	Yes	' user ' structure
resource_locations	array	Yes	array of 'resource_location' elements each defining relation between the resource and the location

- **'resource_location' Element of 'set_resources_locations' Request**

The 'resource_location' element of the 'set_resources_locations' request contains the following parameters:

Name	Type	Required	Description
resource_id	string	Yes	external ID 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 valid 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. valid values of wd elements: Mon, Tue, Wed, Thu, Fri, Sat, Sun, all (all weekdays)

- **'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>
        <now>2014-05-15T08:09:23+00:00</now>
        <login>root</login>
        <company>sunrise</company>
        <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
      </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>
```

4.2.14.2 'set_resources_locations' Response

The response of 'set_resources_locations' contains data on the method success/failure as well as on the success/failure of each location to be set according to the request.

The response of 'set_resources_locations' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')

resource_location_results	array	array of 'resource_location_result' elements each containing data on the success/failure of a single location assignment
---------------------------	-------	--

- **'resource_location_result' Element of 'set_resources_locations' Response**

The 'resource_location_result' element contains data on the success/failure of a single location assignment and consists of the following elements:

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

- **'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>
```

4.2.15 '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.

4.2.15.1 '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. They contain the following elements:

Name	Type	Required	Description
user	struct	Yes	'user' structure
resources	array	Yes	array of 'resource' elements defining the resources for which locations are to be returned

- **'resource' Element of 'get_locations' Request**

The 'resource' element of the 'get_locations' request contains the following parameters:

Name	Type	Required	Description
resource_id	string	Yes	external ID of the resource for which locations are to be retrieved
include_children	enum	No	parameter defining if locations of subordinate resources are to be returned valid values: <ul style="list-style-type: none"> • 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

- **'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>
        <now>2014-05-15T08:09:23+00:00</now>
        <login>root</login>
        <company>sunrise</company>
        <auth_string>6f9ce1abe552563338fd98536024a40b</auth_string>
      </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>

```

4.2.15.2 'get_resources_locations' Response

The response of 'get_locations' contains data on the method success/failure as well as the locations for each resource specified in the request and their properties.

The response of 'get_resources_locations' contains the following elements:

Name	Type	Description
result_code	int	transaction result_code
error_msg	string	transaction error_description (if 'result_code' is other than '0')
resource_locations	array	array of 'resource_location' elements each containing data on a location assigned to the resource specified in the request

- **'resource_location' Element of 'get_resources_locations' Response**

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

Name	Type	Description
resource_id	string	external ID of the resource to which the locations are assigned
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)

- **'get_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: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>
```

5 Transaction Errors

For each request a response is returned. If an error occurs in the course of transaction processing, the corresponding error response is returned. This can be a SOAP fault (wrong or unknown request is sent) or an error response (a valid request contains invalid element(s)).

5.1 SOAP Faults

In case of errors standard SOAP Faults are returned. Soap Fault contains the following fields:

Soap Fault field	Possible values of this field	Description
faultcode	<ul style="list-style-type: none"> Client Server 	<p>This field is always returned.</p> <ul style="list-style-type: none"> Client – means that the problem is with the request – either request has incorrect format, or invalid authentication info is supplied etc. Server – means that the problem is on ETAdirect side.
faultstring	<ul style="list-style-type: none"> Authentication Failed Unknown location Bad request format etc 	<p>This field is always returned.</p> <p>It contains human-readable description of error</p>
faultactor	<ul style="list-style-type: none"> DISPATCHER API-PORTAL <absent> 	<p>This field is optional.</p> <p>This field is for diagnostic purposes and may be ignored by the Client Application.</p> <p>It signifies which part of ETAdirect system generated the Soap Fault.</p>
detail	free-format element	<p>This field is optional.</p> <p>This field contains ETAdirect specific subfields depending on the module emitting the SOAP Fault.</p> <p>This field is for diagnostic purposes and may be ignored by the Client Application.</p>

- **SOAP Fault Example**

```
<SOAP-ENV:Envelope xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Body>
    <SOAP-ENV:Fault>
      <faultcode>SOAP-ENV:Client</faultcode>
      <faultstring>Bad Request</faultstring>
    </SOAP-ENV:Fault>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.2 Error Responses

All responses contain a result code and description, when applicable (when the 'result_code' is other than '0').

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.

- **Error Response Example**

Example of an error response to a Resource Management API request:

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns1="urn:toa:ResourceManagement:1.0">
  <SOAP-ENV:Body>
    <ns1:insert_user_response>
      <result_code>15</result_code>
      <error_msg>Cannot insert the user</error_msg>
    </ns1:insert_user_response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.3 Error Codes

Error codes related to the Resource Management API methods:

Code	error_msg Example	Description
0		no error. Request has been successfully processed
3	Key field is not visible to caller: login	the login of the user is missing
4	Cannot get the profiles list	the security_profile list is unavailable
6	Unknown login_policy: 'nonexistent'	the user policy name cannot be found in the policy list
7	Mandatory property missing: 'status'	user status is missing
9	Mandatory property missing: 'language'	user language is missing
11	Unknown language: 'language'	the user language cannot be found in the language list
12	Mandatory property missing: 'time_zone'	user time zone is missing
13	The timezone 'nonexistent' cannot be found	the user time zone cannot be found in the time zone list
14	Mandatory property missing: 'password'	user password is not set
15	Cannot insert the user	the user cannot be added
16	User 'test_x_update_login-changed' does not exist	the user with login {login} is absent
17	Cannot update the user	the user cannot be updated {login}

Code	error_msg Example	Description
23	Key field is not visible to caller: external_id	external ID of the resource is missing
24	Resource does not exist: 'test.2.nonexistent'	the resource cannot be found
26	Cant change resource type	operation cannot be performed for the resource type
28	Cannot insert resource	resource cannot be added (only for 'insert_resource')
33	Authentication failed	authentication unsuccessful
36	Invalid property value: 'status' Valid values: 'active', 'inactive'	the status value is not either 'active' or 'inactive'
42	User with login '{login}' already exists	user with login to be set for the user being created already exists
44	Mandatory property missing: 'display_profile'	display profile is not defined for the user
46	The display profile '{profile}' cannot be found	defined display profile cannot be found
50	Unknown profile: '{profile}'	defined profile cannot be found
51	Unknown resource: '{resource}'	defined resource cannot be found
60	Element not found: calendars/calendar[0]/properties/property	returned if request is invalid (details in the error message)
90	Invalid property value 'time_format': 'x'. Valid values are: '12-hour', '24-hour'	returned if a property value is invalid (details in the error message)
100	No permission	the user has no permission for the action
101	No permission to add user with specified 'resources' and 'profiles'. Calling user's (login) Managed Profiles must contain profiles of the user being added.	the user making the 'insert_user' or 'update_user' request does not have the profiles specified in the 'profiles' and/or 'managed_profiles' element in their own managed profiles

6 Previous Versions

6.1 ETAdirect 4.5.0 Compared to ETAdirect 4.4.0

6.1.1 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'](#)
- the 'managed_profiles' field has been added to the 'insert_user' and 'update_user' requests to set the profiles managed by the user. Accordingly, the same field has been added to the 'get_user' response to return the profiles managed by the user