



Release Notes
for



Version 4.5

(part 4)

Part Number E62397-01

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1 Introduction

1.1 Document Purpose and Scope

This document contains the description of new features, changes and significantly altered functionalities introduced in ETAdirect version 4.5.14-4.5.16 as compared to the previous versions. It also provides brief overview of minor changes and issues.

For the description of the changes and improvements introduced in versions 4.5.0-4.5.12 please refer to the corresponding separate documents.

1.2 Glossary

The glossary below contains the basic ETAdirect terms used in this document.

Term	Explanation
Activity	Any time-consuming work performed by a resource
API	Application Programming Interface – a particular set of rules and specifications that software programs follow to communicate and interact with each other
Bucket	An entity appearing on the resource tree which can contain resources of a defined type and be assigned activities
Capacity	The workforce possessing the necessary work skills available at a certain moment of time
Capacity bucket	Bucket used for Quota management
Capacity category	Predefined set of work skills, work skill groups and time slots within which they are considered by the Capacity Management API
Context	An ETAdirect or API screen showing all available properties and action links
Daily Extract	Functionality used to extract data from ETAdirect for further analysis and reporting (previously referred to as DWH)
Data Warehouse	An ETAdirect tool intended for data extracting from the system
Delivery window	A statistically calculated time period in which a resource is expected to start an activity
Dynamic Routing	A Routing option allowing to assign only a predefined number of activities to resources and/or assign activities only for a predefined period of time
ETA	The predicted time at which a resource will arrive at an appointment and start an activity, calculated dynamically for current and historical data
Field	Property present in the system by default
Forecasting	New feature of ETAdirect allowing to forecast the company workload on the basis of historical data
Geocoding	The process of finding geographic coordinates from street addresses or postal codes.
Group	A feature on the resource tree identifying a particular type of resource
GUI	Graphical User Interface, allowing people to use software by manipulating images rather than by issuing text commands
Historical data	Data of the past periods available in the database or from other sources
Inventory	Equipment that can be installed or deinstalled during an activity
Linked activities	Two separate activities related so that the completion or start of one is dependent

	on the completion or start of the other
Manage Application	Product that allows to manage workforce and activities in realtime. Usually serves as an interface for dispatcher
Mass Activity	An activity involving 2 or more resources
Message (Notification)	Communications within software (which may or may not be readable by humans), as well as person-to-person communications delivered via computer software
Mobility Application	Product that allows field personnel to interact with the system
Non-scheduled	An activity not assigned to a specific date
Not ordered	An activity with an unspecified order of execution in a route, so that it can be executed at any time during the working day. Not-ordered activities do not have defined ETAs or delivery windows
Ordered	An activity with a defined place in a route, which must be performed at a specified time of day. The order of activities can be changed; ordered activities can be changed to not-ordered activities, vice-versa
Penalty	A relative scale representing the expected increase of total cost which a particular factor brings into routing result
Planning	Company's estimation of the workforce or workload required at a certain moment
Preassigned Activity	An activity which was assigned to a specific resource before the routing run
Property	Field and field value, assigned to an entity in ETAdirect (to user, resource, activity or inventory). There are fields and custom properties
Quota	Amount of work that can be accepted for the bucket
Repeating activity	An activity recurring with a predefined frequency in a predefined period
Resource	An element in the resource tree representing a defined company asset
Resource Tree	A hierarchy of company resources, showing "parent-child" relationships
Route	A list of activities assigned to a resource for a specific date, or a list of non-scheduled activities assigned to a resource
Routing	A process of assigning activities to resources (usually automated)
Service Window	The time frame expected by the customer for an activity as scheduled by the company
SLA window	An interval of time (that may involve a range of dates) within which certain work has to be performed according to the Service Level Agreement
Teamwork	A feature allowing resources to assist each other in an activity or on an on-going basis
Time Slot	1) A fixed service window, defined with a name and label, specifying when certain types of activities can be performed 2) Service Window (if the activity type does not support time slots)
User	1) A person using ETAdirect 2) An entity used for authentication and authorization, allowing people or external software to access ETAdirect
Work Skill	1) An activity that a resource is qualified to perform (resource property) 2) The qualification required to perform an activity (activity property)
Work Zone	The defined geographical area in which a resource can perform an activity

2 ETAdirect Version 4.5.14

2.1 Changes Overview

[DWH functionality renamed to 'ETAdirect Daily Extract'](#)

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[Inventory search by inventory type name possible](#)

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[Map implemented on 'Resource Work Zones' screen](#)

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[Work schedules reflect changes in related shifts](#)

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[Search by name works correctly with capital letters for Work Skill Conditions screen](#)

[Exported XSLX files open properly](#)

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[Action links behavior for inventory improved](#)

[It is possible to add condition to inventory with dependency on resource's fields](#)

[Required inventory details shown correctly](#)

[Distance measurement units apply to Manage Application](#)

['Sigma2' column replaced by 'Dev' in statistics reports](#)

[Technician's name shown on route print preview](#)

[Travel statistics calculated correctly when resource ID equals '0'](#)

['Pending Activity Order' message blocking condition implemented](#)

[Outbound API – activity properties cannot be updated in the past with 'set_message_status' method](#)

[Application Server disconnects immediately after receiving a response](#)

[Inbound API – 'update_activity' command keeps activity coordinates unchanged](#)

2.2 Daily Extract

2.2.1 Features

2.2.1.1 DWH Functionality Renamed to 'ETAdirect Daily Extract'

As of ETAdirect version 4.5.14 the DWH functionality has been renamed to 'ETAdirect Daily Extract'.

The new name carries a clearer message and better describes the purpose of the data extraction functionality. Any further references to Daily Extract will mean the same functionality which was previously referred to as DWH.

For backward compatibility the underlying data structures remain unchanged.

2.2.2 Improvements

2.2.2.1 'Queue Reactivation Time' No Longer Influences Daily Extraction

If the 'Queue Reactivation Time' field was added to the 'Queue Fields' file, the files were extracted, but the Daily Extract database was not filled with new data.

As of version 4.5.14 the 'Queue Reactivation Time' field no longer affects the Daily Extract – files are extracted and database tables are filled properly.

2.2.2.2 CSV File Names Spelled Correctly

The CSV file names were spelled incorrectly in the previous versions:

{companyname}_pr~~o~~vider_properties.csv

{companyname}_user_pr~~o~~vider.csv

These spelling mistakes were corrected, and now the file names read as follows:

{companyname}_provider_properties.csv

{companyname}_user_provider.csv

2.2.2.3 Extracting Period End Defined Correctly with Time Zone Difference Over 12 Hours

In companies using positive time zone difference exceeding 12 hours (for example, those where the daylight saving time was UTC + 13 hours) the extracting period end for GMT files was calculated incorrectly. The end of the extraction period was calculated as UTC + time zone difference, while it should have been UTC – time zone difference.

The calculation of the extraction period end has been improved. Now the extraction period end for companies operating in time zones with positive differences over 12 hours is calculated correctly.

2.2.2.4 Non-Default 'Queue' Properties Processed Correctly

When any properties not included in the default configuration were added to the 'queue' entity, the Daily Extract script failed with an error.

As of version 4.5.14 the Daily Extract script processes non-default 'queue' properties correctly.

2.2.2.5 'provider_work_skill' File Data Now Consistent

The 'provider_work_skill' CSV file contained work skill IDs which could not be found in the 'type_list' file. Such work skill IDs, in fact, were capacity category IDs included in the 'provider_work_skill' file by error. This issue has been resolved. Now the 'provider_work_skill' file contains no capacity category IDs.

2.2.2.6 'GPSman' and 'GPS tracks' Files Created Properly

If Daily Extract was set to export files in the XML format and the export folder was other than default, 'GPSman' and 'GPS tracks' files were not created. The Daily Extract database was not filled and an error

was logged.

Now the issue has been fixed. 'GPSman' and 'GPS tracks' files are created properly without any errors and the database is filled.

2.2.2.7 'GPSman' Data Extracted Properly with Company ID Different from Instance ID

In the previous versions 'GPSman' data could not be extracted by the Daily Extract script, if the company ID was different from the instance ID. The reason was that devices providing GPS data used instance IDs while the Daily Extract script uses company IDs.

As of version 4.5.14 this issue no longer occurs, and 'GPSman' data is extracted properly with company ID different from instance ID.

2.2.2.8 'GPSman' Data Extracted by Daily Extract Script When Not Stored by Default

Previously, when 'GPSman' data was not stored by default, it could not be extracted by the Daily Extract script. The file '<companyname>_gpsman' was empty after the Daily Extract script run.

This issue has been addressed, and now the 'GPSman' data is extracted properly.

2.2.2.9 Daily Extract Script Runs for Two Instances Properly

When the Daily Extract script is run simultaneously for two different instances, errors are written to the log, and the export for one of the instances is added to the /tmp folder.

The necessary changes have been made. Now the export for different instances is properly separated. No errors occur any longer.

2.2.2.10 Daily Extract Script Run No Longer Accompanied by Errors

Previously, after a Daily Extract script run, the log showed the following error: 'Empty string supplied as input'.

The Daily Extract script has been improved, so that the log contains no errors or unexpected messages after the script run.

2.3 Manage Application

2.3.1 Features

2.3.1.1 Custom Themes Applied to All Company Users

Custom themes were introduced as a means of applying company logo, color theme and text identifiers to the ETAdirect GUI. As of version 4.5.14 this feature has been further enhanced by adding the possibility of applying the custom theme to all users of the company. This way, for example, in the event of rebranding the GUI can be updated for all users simultaneously which can save a lot of time and effort. As an option, custom themes can be applied only to users to be created after the custom theme is applied. In this case the users existing at the time of the custom theme application will continue using their selected themes.

2.3.1.2 Future Mass and Repeating Activity Deleted Properly

Handling of future mass and repeating activities has been improved. Now, when a resource has no activities except mass of repeating activities, they can be deleted completely. Such activities are no longer visible on the Time, List or Map View.

2.3.2 Improvements

2.3.2.1 'On-Call' Calendar Shown on Time View Correctly

If the start time of the 'on-call' calendar was equal to the end time of the 'regular' calendar of a resource, the 'on-call' calendar was not shown on the Time View.

This issue has been resolved. Now both calendars are shown on the Time View (Figure 1).

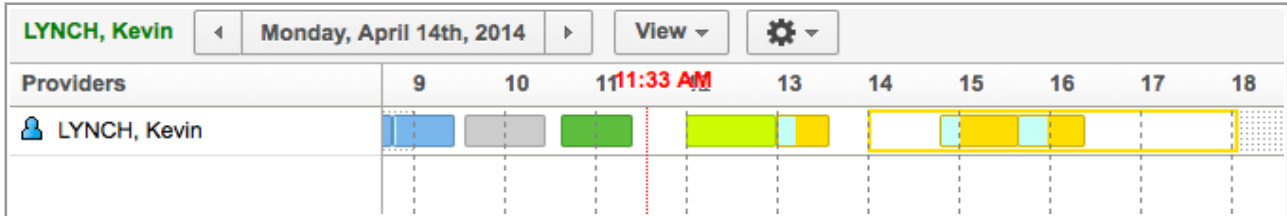


Figure 1: 'On-call' calendar shown on Time View

2.3.2.2 Safari – Menu Items Displayed Correctly

If a main menu drop-down list with many options was too long to fit the screen (for example, 'Company Settings'), such menu was moved to the top left corner of the screen in the Safari browser.

The screen height calculation method has been changed, and now the main menu lists are displayed correctly, near the corresponding main menu items.

2.3.2.3 Popup Windows Behavior Improved

When the 'Edit capacity categories' or 'Edit time slots' popup windows on the 'Resource info' screen were resized, the windows seemed to 'jump' and their layout became broken. This was the result of the popup window centering which caused it to jump and corrupted its layout.

The windows are no longer centered upon resize, which results in their layout remaining correct and their position unchanged.

2.3.2.4 Activity Can Be Rescheduled to Non-Scheduled Pool by Drag-and-Drop

In the previous version, there were cases when it was impossible to reschedule a certain activity to a non-scheduled pool using drag-and-drop option. At an attempt to do so, 'Reorder inside the route is not permitted' alert would appear (Figure 2).

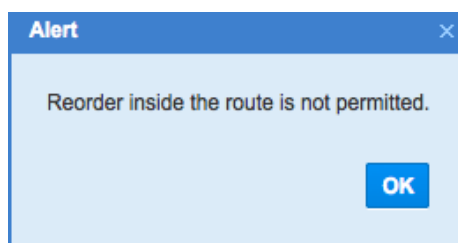


Figure 2: 'Reorder inside the route is not permitted' alert

This has been fixed in version 4.5.14 and now it is possible to reschedule an activity to a non-scheduled pool using drag-and-drop (Figure 3).

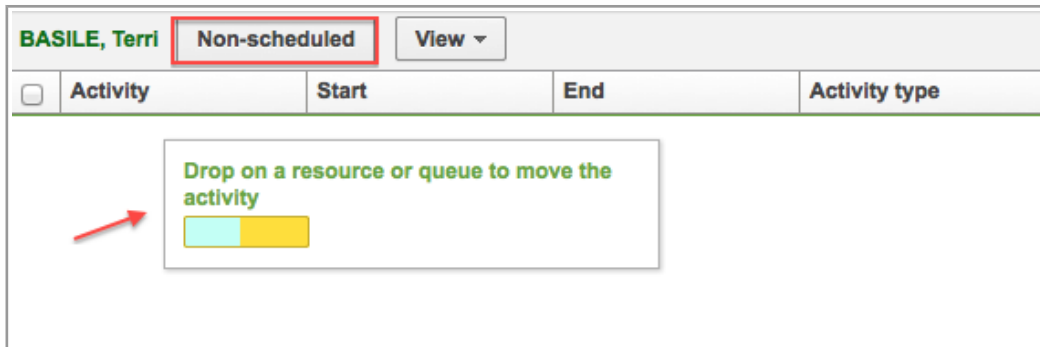


Figure 3: Successful activity move to non-scheduled pool with drag-and-drop

2.4 Quota Management

2.4.1 Improvements

2.4.1.1 'Within' Field Size Increased

In the previous versions the 'Within' field of the 'Recurring autofill' dialog window was too small to accommodate 5-digit values. The maximum allowed value is 65535, however, when this value or other 5-digit values were entered, part of the value was hidden (Figure 4).

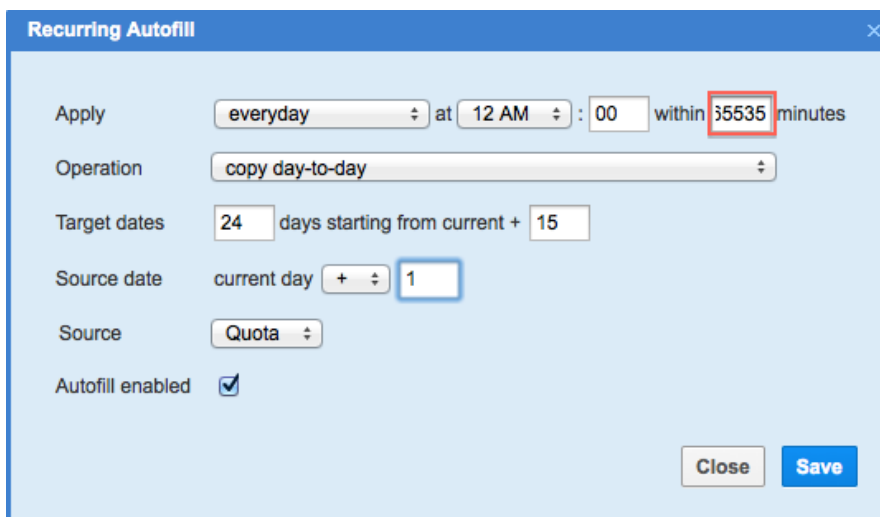


Figure 4: 'Within' window too small

Now the 'within' field size has been adjusted so that it now can accommodate maximum values allowed for this field (Figure 5).

Figure 5: 'Within' field size adjusted

2.4.1.2 'Plan' Column Total Shown on Time Slot Level

If the 'Enable Plan column that shows data set in Forecasting' option was enabled in 'Company Settings' → 'Display', the Quota grid showed the 'Plan' column. However, in the previous versions this column only showed the data for each time slot and capacity category and did not show the total figure (Figure 6).

Time slot Capacity categories	Thursday, April 3rd, 2014				
	Plan	Quota	Used	Used quota %	% to stop booking at
08-10			11582		
Install	2442		723		
Trouble Call	774		636		
Upgrade	4290		10223		
Total			11582		
10-12			8465		
Install	3672		895		
Trouble Call	770		1895		
Upgrade	4296		5511		
Total			8301		

Figure 6: 'Total' figure missing

As of version 4.5.14 the 'Plan' values are aggregated, and the cumulative values are shown in the 'Total' row as the sum total of all capacity categories in the selected time slot (Figure 7).

Time slot Capacity categories	Wednesday, April 23rd, 2014				
	Plan	Quota	Used	Used quota %	% to stop booking at
08-10					
Install	3576				
Trouble Call	861				
Upgrade	4410				
Total	8847				
10-12					
Install	5370				
Trouble Call	860				
Upgrade	4416				
Total	10646				

Figure 7: 'Total' figure shown

2.4.1.3 Quota Map Shows Correct Data

In the previous versions Quota Map showed work zones only for the current day regardless of the date selected in the Calendar.

In version 4.5.14 the Quota Map shows the work zone statuses for the date selected in the calendar. Also, whenever 'Map' is selected in the 'View' filter, the calendar switches to the 'Day' mode, therefore, the data for only one day is displayed.

2.4.1.4 'Mass Populate' Action Link Works Properly When Added to Group

If the 'Mass populate' action link was added to a group in the 'Quota' context layout, such action link did not work on the 'Quota' screen. When 'Mass populate' was clicked, nothing happened.

This issue has been resolved. The 'Mass populate' action link always works when the user has the permission to the 'Mass populate' functionality.

2.4.1.5 Number of Source Days/Weeks Restricted in 'Mass Populate'

The number of source days and weeks set in the 'Mass populate' window for the 'estimate future values...' operations has been restricted to 1,000 days or 150 weeks, depending on the selected operation. If an invalid (greater) value is entered, the form is rejected with the 'Field 'Source' has wrong value' error message (Figure 8).

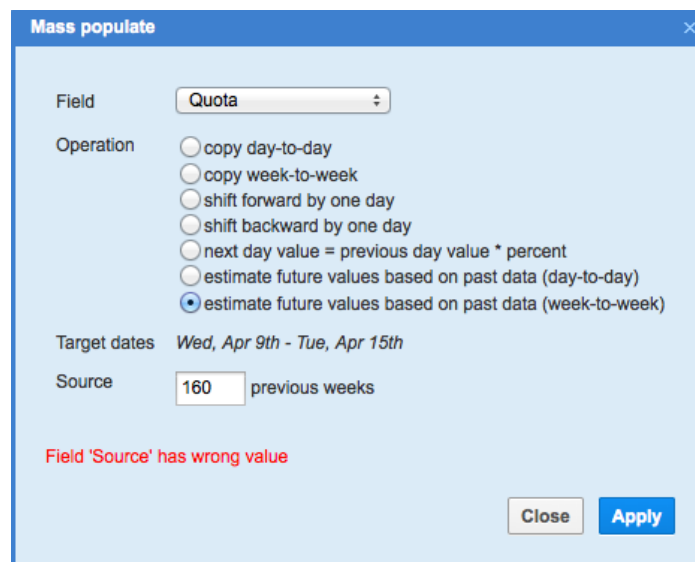


Figure 8: Error message for invalid 'Source' value

2.4.1.6 Number of Days/Weeks Restricted in 'Auto-Populate'

The number of source days and weeks set in the 'Auto-populate' window for the 'estimate future values...' operations has been restricted to 1,000 days or 150 weeks, depending on the selected operation. In addition, these fields now do not accept '0' as a valid value, as it makes no sense.

Also, the values of the offset fields for 'Source' and 'Target' have been restricted to the ranges of -1,000 to 1,000 days or -100 to 100 weeks, depending on the selected operation.

The following constraints are applied:

- Source offset -1,000 to 1,000
- Source days 0 (excluding) to 1,000
- Source weeks 0 (excluding) to 150

Target offset -100 to 100
 Source days 0 (excluding) to 1,000
 Source weeks 0 (excluding) to 150
 Within 0 to 65,535

If an invalid value is entered, the form is rejected with a error message (Figure 9-10).

The screenshot shows a 'Recurring Autofill' dialog box with the following settings:

- Apply: everyday at 12 AM : 00 within 60 minutes
- Operation: estimate future values based on past data (week-to-week)
- Target dates: 7 weeks starting from current + 1
- Source: 0 previous weeks (highlighted with a red box)
- Autofill enabled:

 A red error message at the bottom reads: "Mandatory parameter is empty". Buttons for "Close" and "Save" are visible at the bottom right.

Figure 9: Error message for invalid 'Source' value

The screenshot shows the same 'Recurring Autofill' dialog box with the following settings:

- Apply: everyday at 12 AM : 00 within 60 minutes
- Operation: estimate future values based on past data (week-to-week)
- Target dates: 0 weeks starting from current + 1 (highlighted with a red box)
- Source: 12 previous weeks
- Autofill enabled:

 A red error message at the bottom reads: "Inconsistent data". Buttons for "Close" and "Save" are visible at the bottom right.

Figure 10: Error message for invalid 'Target' value

2.4.1.7 'Locked' Hint Behavior Improved

Previously, the 'Locked' hint appearing when a Quota grid cell was clicked moved with the mouse scroll. This issue has been fixed. The 'Locked' hint now remains attached to the cell from which it has been called when the mouse scroll is applied.

2.5 User Management

2.5.1 Features

2.5.1.1 Group Action Links Displayed in Accordance with Users' Statuses

As of version 4.5.14, the group action links in the 'Users' screen ('Unlock', 'Activate' and 'Deactivate') are displayed according to the status of the selected users. Particularly, if all selected users have the 'Active' status, the 'Activate' group action link is not shown (Figure 11). And the other way round, for users with the 'Inactive' status no 'Deactivate' link is shown (Figure 12).

Users > Sunrise Enterprise									
View ▾ Add new									
With 3 selected: Deactivate Set login policy Set display profile									
<input type="checkbox"/>	ID	User Name	Login ↑	Provider	Profile	Status	Locked	Language	Login Policy
<input type="checkbox"/>	4400	Jeffery McGee	jeffery	MCGEE, Jeffery	Technician	✓	✓	English	Default policy
<input checked="" type="checkbox"/>	4418	Jeffery	jeffery_droid	MCGEE, Jeffery	Technician	✓	✓	English	Default policy
<input checked="" type="checkbox"/>	4404	johnny	johnny	(inv. req.) ALFORD, Johnny	Technician	✓	✓	English	Default policy
<input checked="" type="checkbox"/>	4410	Julia	julia	FL, USA	CSR	✓	✓	English	Default policy

Figure 11: No 'Activate' link shown for active users

Users > Sunrise Enterprise									
View ▾ Add new									
With 1 selected: Activate Set login policy Set display profile									
<input type="checkbox"/>	ID	User Name	Login ↑	Provider	Profile	Status	Locked	Language	Login Policy
<input type="checkbox"/>	4400	Jeffery McGee	jeffery	MCGEE, Jeffery	Technician	✓	✓	English	Default policy
<input type="checkbox"/>	4418	Jeffery	jeffery_droid	MCGEE, Jeffery	Technician	✓	✓	English	Default policy
<input type="checkbox"/>	4404	johnny	johnny	(inv. req.) ALFORD, Johnny	Technician	✓	✓	English	Default policy
<input type="checkbox"/>	4410	Julia	julia	FL, USA	CSR	✓	✓	English	Default policy
<input checked="" type="checkbox"/>	4398	Kathleen Disney	kathleen	DISNEY, Kathleen	Technician	✗	✓	English	Default policy

Figure 12: No 'Deactivate' link shown for inactive users

The only exception is the situation when all users (both active and inactive) are selected and when the selected users list is several pages long.

2.6 Mobility Application

2.6.1 Features

2.6.1.1 Inventory Search by Inventory Type Name Possible

As of version 4.5.14 inventory search can be performed by inventory type name. As all inventory falls under certain inventory types defined in ETAdirect, this enhances inventory search functionality allowing to find all inventories belonging to the specified type.

2.6.2 Improvements

2.6.2.1 Inventory Search by 'Inventory Pool' Field Improved

Inventory search in the Mobility Application is possible by the 'Inventory pool' field with the 'Inherited Text' used as the search key. However, in the previous versions inventory pool IDs were used as search keys which led to errors. No search results were shown while, in fact, matching results were available.

2.6.2.2 Online Plugins Behavior Improved

In the Mobility Application the main file for online plugins was executed twice while it should be executed only once.

In version 4.5.14 this issue has been resolved, and now online plugins work properly in the Mobility Application.

2.6.2.3 Multi-Line String Properties with XSL Transformation Displayed Correctly

A string property with XSL transformation displayed as a multi-line text field was actually displayed in the Mobility Application without HTML tags escaping.

The necessary changes have been made, and now multi-line text properties are correctly displayed with XSL transformation.

2.6.2.4 Synchronization Alerts Improved

When the Mobility Application user returns online, the offline synchronization starts accompanied by the 'Synchronization in progress. Please wait' message. At the same time, the loading progress is shown in the bottom right corner as 'Loading (x%)'. When the synchronization is complete, the progress indicator disappears, but the 'Synchronization in progress. Please wait' message remains. The user has to click 'OK' to return to the application.

This message was not informative, as it did not alert the user of synchronization completion. As of version 4.5.14 it has been changed. Now, when synchronization has been completed correctly, the message changes to 'Synchronization complete' (Figure 13). If any errors occurred during synchronization, the corresponding error message is displayed.

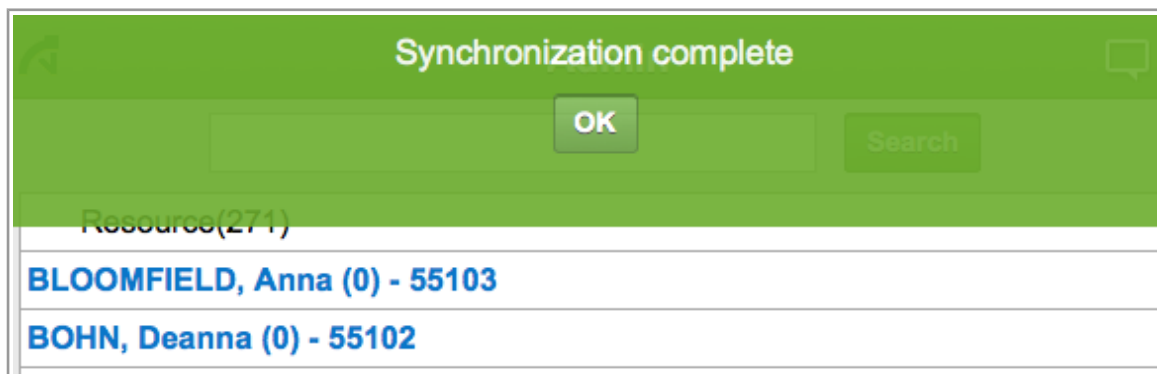


Figure 13: 'Synchronization complete' message

2.6.2.5 Pending Activities Have Correct 'Position in Route' Values

In the previous versions all pending activities in the route had 'Set first' as the 'Position in route' value in the Mobility Application. At the same time, the same activities had different values of the 'Position in route' field in the Manage Application (e.g. 'At the beginning', 'After activity 1', etc.).

In version 4.5.14 the necessary changes have been made. Now the activities have correct 'Position in route' values.

2.6.2.6 Non-Accessible Resources Handling Improved

As of version 4.5.14 handling of resources not accessible to the current user has been improved. When the user attempts to search a non-existent or inactive resource or a resource not available to the user according to their permissions, the 'Resource list is empty' message is returned.

2.6.2.7 Unauthorized Users Logout Improved

If a user had no permission to use the Mobility Application but attempted to login, a blank screen was shown without any possibility to change the user.

The logout procedure has been changed. The user having no permission for the Mobility Application are not logged in, and the Mobility login page is displayed. A different user can login to the Mobility Application.

2.6.2.8 'More' List Behavior Improved

If the 'More' link was tapped to open the list of more options in the Mobility Application and the 'Send request' option was selected, the list remained expanded. This behavior was observed both for the 'Send activity request' and 'Send inventory request' options.

As of version 4.5.14 the expanded list is hidden as soon as the user is redirected to the 'Send request' screen.

2.6.2.9 'Adjust Time' Action Works Properly

If the 'Start-End' property was not added in the 'Edit/View activity' context layout, the 'Adjust time' action link did not work. Tapping this link produced no result.

This reason was that the 'Adjust time' functionality requires the ETA value which was unavailable with the 'Start-End' field absent. As of version 4.5.14 the ETA field value is available regardless of the 'Start-End' field presence in the context layout, and the 'Adjust time' action now works properly.

2.6.2.10 'Signature' Field Behavior on Android Devices Improved

When an Android device user tried to make a signature in the 'Signature' field, many additional lines appeared on the screen in response to a single touch.

The 'Signature' functionality has been improved in version 4.5.14, so that now lines appear only where the user touches the screen. Signatures look correct now.

2.6.2.11 'Assists to' Field Available Immediately

When the 'Add activity' screen is opened in the Mobility Application, one of the available activity types was immediately shown. When such automatically selected activity type supported teamwork, the 'Assists to' field was not shown. It appeared only when a different activity type supporting teamwork was selected.

The check determining whether the activity type supports teamwork has been improved. Now the 'Assists to' field appears as soon as the 'Activity type' field contains an activity type supporting teamwork.

2.6.2.12 Activity Identifiers Arranged in Same Order in Different Browsers

In the previous versions the properties used to identify activities (those defined in the 'Identify activity by' context) were arranged in a different order in different browsers.

In order to maintain the uniform appearance of ETAdirect in different browsers, the sorting function used to order the properties has been changed, so that the properties are now arranged in the same order in

all browsers.

2.7 Mobility Offline Synchronization

2.7.1 Features

2.7.1.1 'Add to Installed' and 'Add to Deinstalled' Actions Logged Correctly

Previously, the 'Add to installed' and 'Add to deinstalled' actions in the Mobility Application were logged in the same way in the Activity History, 'Add/Update inventory'. In the event of any synchronization errors it was impossible to determine the type of action (install or deinstall).

In version 4.5.14 the synchronization process has been changed. All actions are now logged under their names in case of a synchronization conflict, therefore, 'Add to installed' can now be distinguished from 'Add to deinstalled'.

2.7.2 Improvements

2.7.2.1 Route Activation Time Conflicts Logged Properly

If the route activation time set in the Manage application was different from the time of actual route activation by the technician in the Mobility Application, the details of such synchronization conflict were not logged. Moreover, the actual route activation time in the Mobility Application in the offline mode was not recorded, either.

The synchronization functionality has been changed to record route activation conflicts in the database and to inform the Mobility Application user of the conflict. The user is requested to review their route. The conflict details are recorded in the log and shown on the 'Offline synchronization' screen.

2.7.2.2 Synchronization Errors Related to Support Requests Logged Correctly

Previously, synchronization errors related to support requests were logged in Daily Extract tables and shown in the Activity History with many irrelevant fields, such as 'resource id', 'inventory id', 'created', 'date', 'activity id' and 'support request id. Such behavior was observed for all types of support requests – resource, activity and inventory.

As of version 4.5.14 the above-mentioned fields are no longer logged in Daily Extract tables and shown in the Activity History in connection with support request synchronization errors.

2.7.2.3 File Properties Can Be Added in Offline Mode

Previously, a file property added in the Mobility Application in offline mode was not saved after synchronization.

The synchronization logic has been changed, and now file properties are processed correctly in the offline mode. They are saved and remain accessible after synchronization.

2.8 Parts Catalog

2.8.1 Features

2.8.1.1 Parts Catalog API – 'get_transactions_list' Method Implemented

As of version 4.5.14 the new 'get_transactions_list' method has been implemented in the Parts Catalog API. This method is used to get the list of upload transactions for the selected catalog. It provides information about the catalog upload history. At the same time, the method allows to view the list of active transactions along with their transaction keys.

The 'get_transactions_list' must contain the mandatory 'label' and 'language' parameters which identify

the catalog a transaction is requested for.

2.8.1.2 Support of Custom Weight Labels Implemented

Previously, the catalog items were loaded to the Mobility Application according to their default weight labels.

As of version 4.5.14 the Parts Catalog functionality has been enhanced by the possibility to load catalog items according to custom weight labels. A custom weight label of an item corresponds to a technician's external id. This way, every technician can have their own unique set of catalog items to be loaded into the mobile device cache, which they may use when offline.

2.8.2 Improvements

2.8.2.1 Parts Catalog API – Correct Response Status Code Returned for 'delete_weight' Function

When the 'delete_weights' request was sent without mandatory fields set, the response contained an incorrect status code - '500 Server error' while the correct status code would have been '400 Bad Request'.

In version 4.5.14 the status code has been changed to the correct one, '400 Bad Request'.

2.8.2.2 Offline Search by Item Label Possible

When an item was searched in the offline mode (from the Parts Catalog cache) with the item label used as the search key, no results were returned, although the matching items were available in the Parts Catalog.

In version 4.5.14 item label has been added to the list of searchable fields, therefore, search by item label is now possible in the offline mode.

2.8.2.3 Offline Search Query Now Case-Insensitive

Previously, when an item was searched in the offline mode (from the Parts Catalog cache), the search query was case-sensitive. Search keys typed in uppercase returned no results when the matching item was entered in lowercase, and vice versa.

In version 4.5.14 Parts Catalog search from the cache has been made case-insensitive, therefore, whenever there are items matching the search key, they are now returned regardless of the search key case.

2.9 SmartCollaboration

2.9.1 Improvements

2.9.1.1 Chat History Improved

Previously, the chat history was shown only after the user re-logged in to the Manage Application. At the same time, in the Mobility Application the chat history was shown to the user immediately after leaving the chat. Moreover, the resumed chat also disappeared from the history only after relogin to the Manage Application.

The history query has been improved, and now chat history is available to the user immediately after leaving the chat. Similarly, the conversation resumed by the user is removed from the history immediately.

2.9.1.2 Search Results No Longer Multiplied

If a Mobility Application user tapped 'Search' several times or repeatedly pressed 'Enter', the search

results were multiplied (Figure 14).

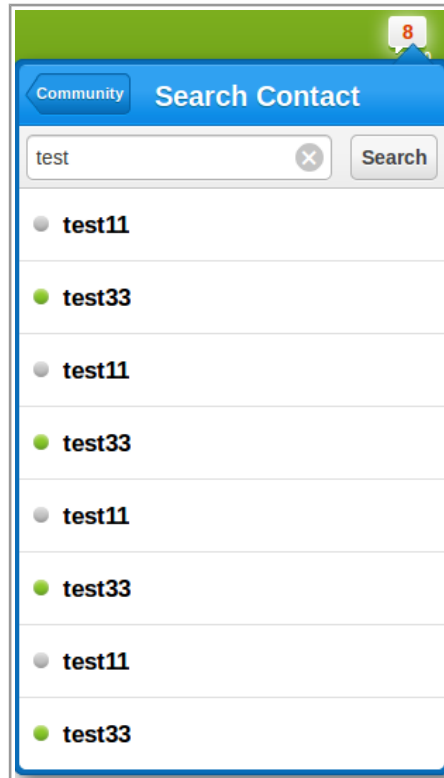


Figure 14: Search results multiplied

This issue has been resolved, and now search results are no longer multiplied when the user taps 'Search' or clicks 'Enter' several times.

2.9.1.3 Activity Reassignment to Same Resource No Longer Possible

In the Manage Application it was possible to reassign an activity to the same resource via SmartCollaboration. When a user having a conversation with the resource in whose route the activity was, dragged and dropped the activity to the chat window, the 'Reassign' link was available, thus, the activity could be reassigned to the same resource.

This issue has been fixed by adding an additional check. Now activity reassignment to the same resource is no longer possible – the 'Reassign' link is not available and the 'Forbidden resource' message is displayed.

2.9.1.4 List of Available Helpdesks No Longer Duplicated

In the Manage Application on attempt of transferring a conversation between helpdesks, the list of available helpdesks is duplicated in the 'Transfer Conversation' window (Figure 15).

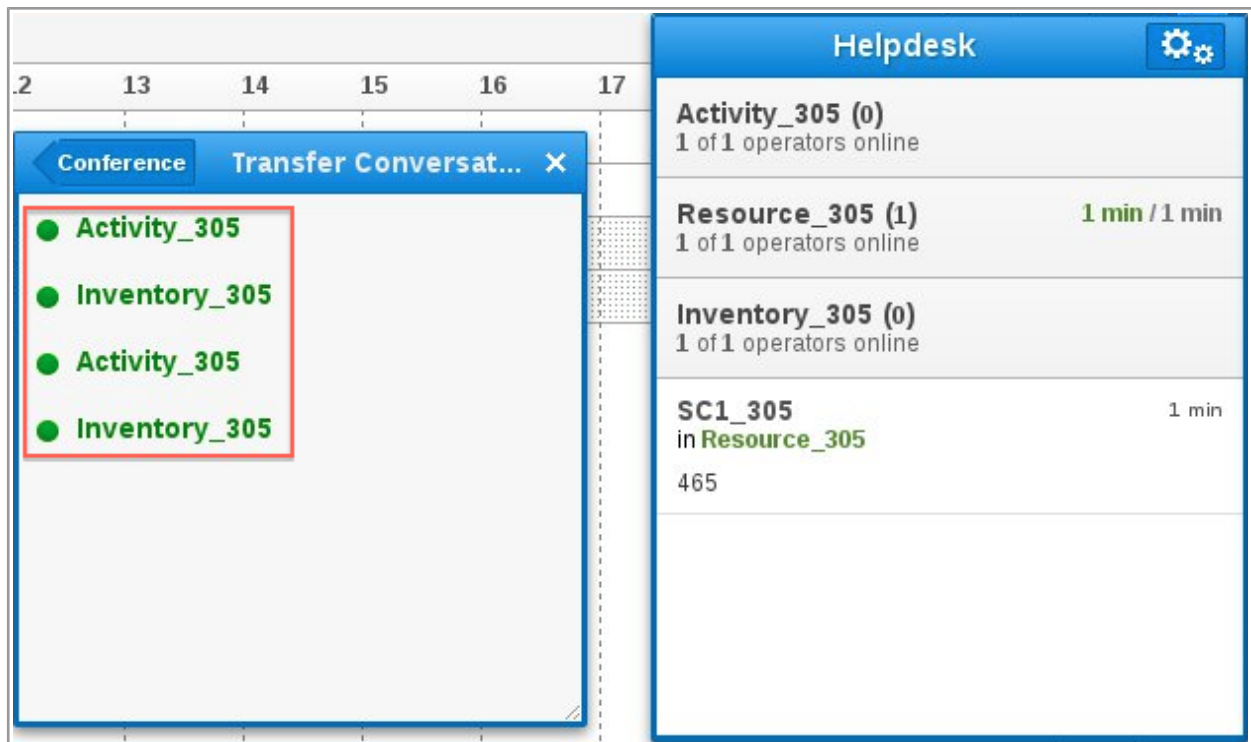


Figure 15: List of available helpdesks duplicated

An additional check has been added to helpdesk filtering, and the list of available helpdesks is no longer duplicated when a helpdesk operator attempts to transfer a conversation to a different helpdesk.

2.9.1.5 Online Helpdesks and Operators Displayed Properly

In some cases, on attempt of transferring a conversation no available helpdesks were displayed even when some helpdesks and operators were online. The system responded with the 'There are no online operators at the moment' message, and the conversation could not be transferred.

An additional filter has been added which resolves this issue. Conversations can be transferred properly, as the available helpdesks and operators are visible to the transferring user.

2.9.1.6 System Messages Displayed Properly

Both in the Manage and Mobility Applications system messages about users leaving or joining the conversation were either overwritten by other messages or not displayed at all. When the same user left the conversation and later returned to it, in the Manage Application on the sender's side the 'User left' message was overwritten by 'User joined', while on the recipient's side no system messages were displayed at all. In the same case in the Mobility Application only the 'User joined' message was displayed on that user's side, while the other user received no system messages.

The system messages functionality has been improved. Now the Manage Application users see system messages about other users leaving or joining conversations. If the Mobility Application both users receive system messages about their own or other users' leaving or joining conversations.

2.10 Routing

2.10.1 Improvements

2.10.1.1 On-Call Resources without Routes No Longer Sent to Routing

Previously, resources having only on-call calendars but empty routes were sent to Routing. This approach was incorrect and has been changed in version 4.5.14.

Now resources with empty routes are not sent to Routing if they have only on-call calendars.

2.10.1.2 Reoptimization Enabled or Disabled According to Routing Plan Settings

When a reoptimization filter was added to the Routing Plan, Reoptimization was always enabled, regardless of the 'Enable reoptimization' checkbox setting. Routing produced the same results both with the 'Enable reoptimization' checkbox checked or unchecked, the only difference being the Routing result in the Routing execution log. With the checkbox checked the result was 'succeeded. Completed with reoptimization', and with the checkbox unchecked – 'succeeded'.

As of version 4.5.14 the Application Server starts Reoptimization only when it is enabled in the Routing Plan. When Reoptimization is disabled, activities with the Reoptimization flag are not sent to Routing.

2.11 Resource Management

2.11.1 Features

2.11.1.1 Map Implemented on 'Resource Work Zones' Screen

As of version 4.5.14 the 'Resource Work Zones' screen has a map showing the work zones of the selected resource (Figure 16). The map shows the location of the resource's work zones and their statuses. This allows more optimal planning of the resources' routes.

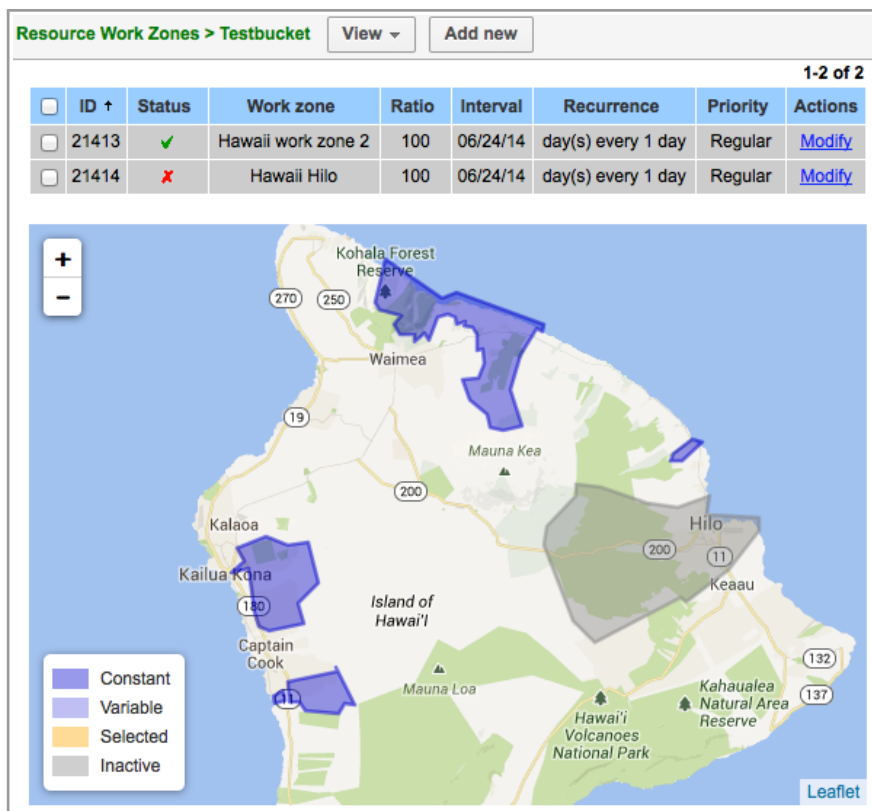


Figure 16: Resource work zones map

The map automatically zooms so that to show all work zones of the selected resource at the same time. Work zone statuses are shown in different colors which are explained in the legend in the bottom left corner. The following statuses are shown on the map:

- Constant (blue) – active work zones repeating every day with no end date, with a start date on the 'As of' date or earlier and with no overrides.
- Variable (light blue) – active repeating work zones with an end date or overriding work zones
- Selected (orange) – work zones selected in the list
- Inactive (gray) – inactive work zones according to the settings in the 'Work Zones Dictionary'

By default, only the active work zones are shown. The 'View' window contains the 'Status' filter allowing to select active, inactive or all (*) work zones to be displayed on the map and in the list.

When a work zone is selected in the list by checking its checkbox, the corresponding area on the map is highlighted in orange (Figure 17).

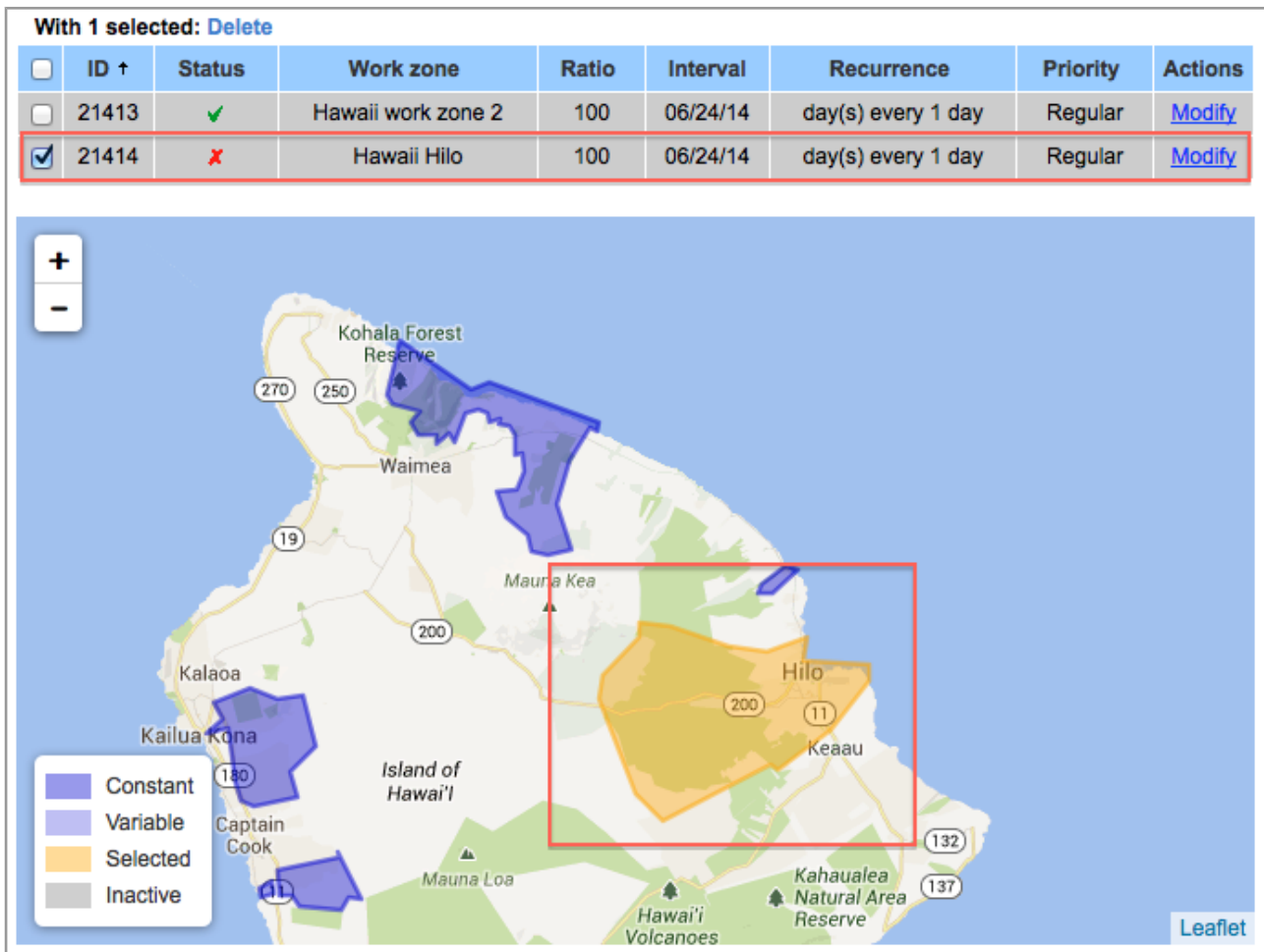


Figure 17: Selected work zone

When a work zone is clicked on the map, a hint is shown containing the following details (Figure 18):

- Work zone id – ID of the work zone according to the 'Work Zone Dictionary'
- Resource work zones ids – ID of the work zone in the context of assignment to the resource. The value corresponds to the value in the 'ID' column of the resource work zones list
- Work zone – name of the work zone according to the 'Work Zone Dictionary'

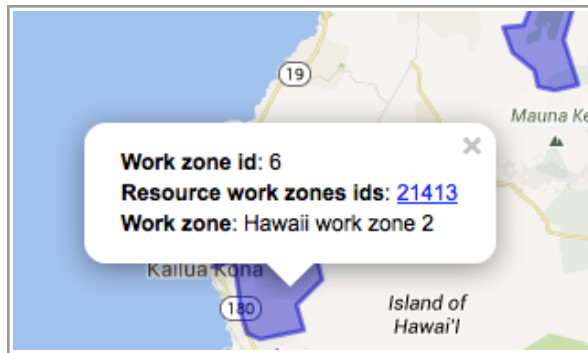


Figure 18: Work zone hint

The 'Resource work zone id' value is a link selecting or deselecting the corresponding work zone both in the list and on the map.

Note: only the work zones with resolved coordinates are displayed on the map. When no work zones with resolved coordinates are available, the map focuses on the country center.

2.11.2 Improvements

2.11.2.1 'Time Slots' and 'Capacity Categories' Fields for Quota Buckets Displayed Correctly on 'Resource Info' Screen

Previously, when assigning time slots and/or capacity categories to a quota bucket, the corresponding fields were not properly displayed on the 'Resource Info' screen. These fields were either hidden or duplicated depending on their placement configurations in the 'Resource Info' context layout. Such behavior occurred in the following scenarios:

- if the 'Time slots' field was set outside the 'Quota management' section
- if the 'Time slots' or 'Capacity Categories' field was included into a custom section
- if the 'Time slots' field was not included in the same section as the 'Quota management' checkbox

This issue has been addressed in version 4.5.14. Now, the 'Time Slots' and 'Capacity categories' fields are always displayed under the 'Quota Management' Section whenever the Quota management checkbox is checked (Figure 19).

Figure 19: 'Time Slots' and 'Capacity Categories' Shown with 'Quota Management' checked

2.11.2.2 Work Schedules Reflect Changes in Related Shifts

If the previous versions, if the shift parameters ('Time from', 'Time to', 'Points') were modified via the 'Shifts' screen in Company Settings, those changes would not be reflected in the resource's work schedules which included that shift (Figure 20-21).

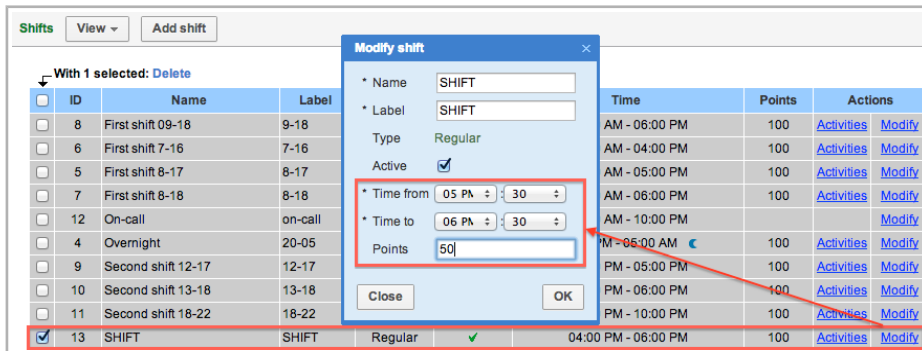


Figure 20: Shift parameters modified via 'Shifts' screen

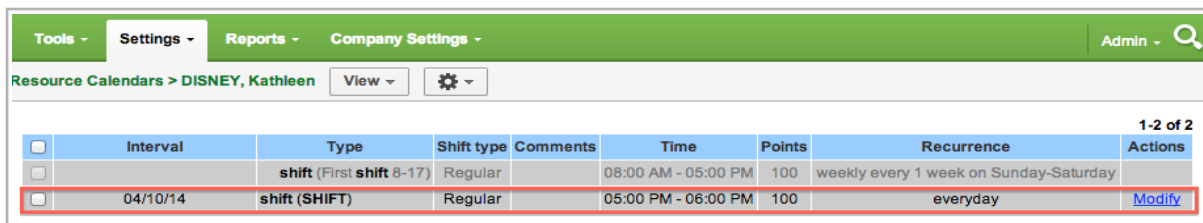


Figure 21: Related work schedules remain unchanged

As of version 4.5.14 this issue has been fixed so that any update of shift parameters performed in Company Settings → Shifts is automatically disseminated to all related work schedules.

2.11.2.3 Resource Tree Shown Properly After Resource Reassignment

In the previous versions, if a resource, found through the search in the Manage Application, was reassigned, that resource would not be displayed in the Resource Tree afterwards. The resource would only be shown in the Resource Tree upon refresh.

This issue has been fixed in version 4.5.14 to ensure that the Resource Tree is shown properly with all child resources as expected.

2.12 Activity Details

2.12.1 Features

2.12.1.1 Linked Activities Enhanced with Filtering by Status Option

As of version 4.5.14, Linked Activities functionality has been enhanced with the ability to filter Linked Templates by status.

The 'Hide inactive templates' option has been added to View filter on the Link Templates screen (Figure 22) and is enabled by default.

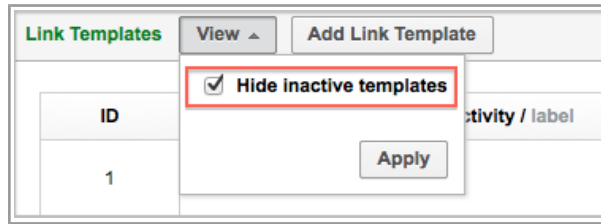


Figure 22: Hide inactive templates option

2.12.2 Improvements

2.12.2.1 SLA Start Field No Longer Automatically Changes upon Opening Activity Details Screen

In the previous versions SLA start field would automatically change to current time upon opening Activity Details screen for mass and/or repeating activities, which is incorrect behavior.

As of version 4.5.14 this issue has been fixed and thus SLA start field no longer changes upon opening Activity Details screen for mass and/or repeating activities.

2.12.2.2 Search by Name Works Correctly with Capital Letters for Work Skill Conditions Screen

Previously, if search by name in work skill conditions included capital letters, the search would only display results for work skill condition but not the name.

This issue has been fixed in version 4.5.14 and now if work skill conditions include capital letters in their name, they can be found using search on the Work Skill Condition screen as originally intended (Figure 23).

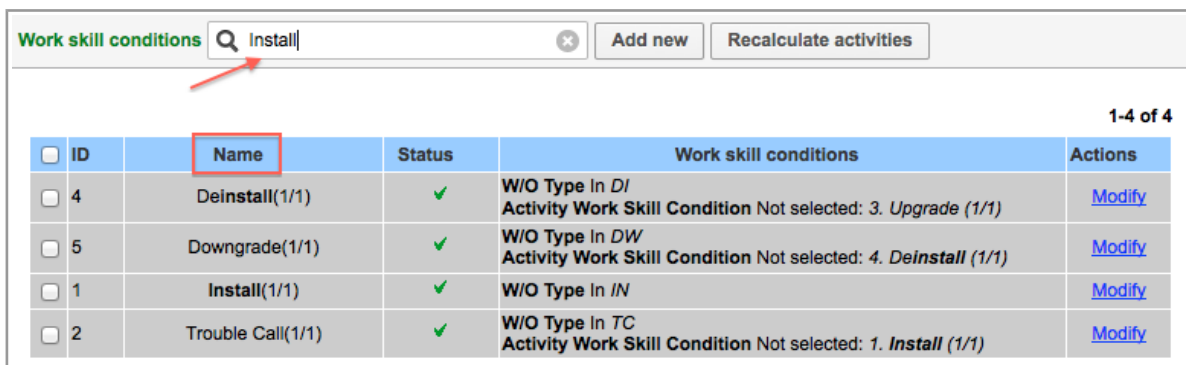


Figure 23: Search by name working properly on work skill conditions

2.12.2.3 Exported XSLX Files Open Properly

In the previous versions, there were cases when an xlsx exported file wouldn't open in Excel 2007 or Excel 2011 (Figure 24) due to presence of certain characters.

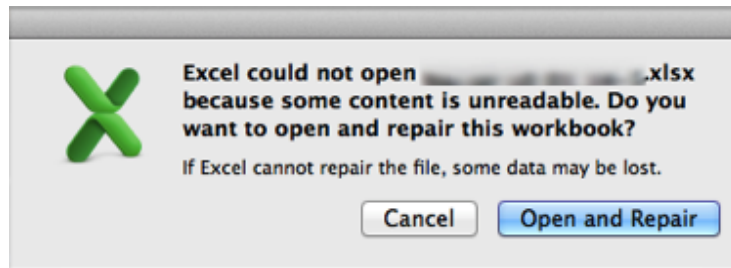


Figure 24: Unable to open an xlsx exported file

This issue has been fixed in version 4.5.14 and now xlsx exported files open correctly.

2.13 Activity Views

2.13.1 Improvements

2.13.1.1 Mass or Repeating Activity Cancellation No Longer Affects Other Activities Display

If a mass or repeating activity was cancelled only for today's date, all activities following such activity in the resource's route disappeared from the Time View. However, when the user switched to the List View, the activities became visible again and remained visible when the screen was again switched to the Time View.

In version 4.5.14 this issue has been resolved. If a mass or repeating activity is cancelled, no other activities disappear from the Time View.

2.13.1.2 'Reactivated' Filter Condition Applied Correctly

If 'Reactivated' was selected as the filter condition with the value 'Is null', such filter returned incorrect results. The results consisted on resources both with and without reactivated routes, while the correct results would have been to return only resources without reactivated routes.

The necessary changes have been made, and the filter with the 'Reactivated' condition returns correct results.

2.13.1.3 Activities Can Be Rescheduled to Different Day of Same Resource

In the Manage Application an activity could not be moved between two days (including non-scheduled pools) of the same resource by dragging and dropping. The operation was rejected with the 'Reorder inside the route is not permitted' message.

This issue has been resolved. Now activities move described above is possible by dragging and dropping.

2.14 Company Settings

2.14.1 Features

2.14.1.1 New Delivery Window Calculation Logic Implemented

As of version 4.5.14 the delivery calculation logic has been changed to provide additional handling of 'service window start', 'SLA start', and start of the work day.

New Delivery Window Calculation algorithm has been introduced:

1. calculate a raw value of delivery_window_start
 1. delivery_window_start := $ETA - dev$
 2. apply the minimal agreed ETA value constraint

- if delivery_window_start < minimal agreed ETA value, delivery_window_start := minimal agreed ETA value
2. calculate a raw value of delivery_window_end
 1. delivery_window_end := ETA + dev
 2. if there is an idle time, calculate 'delivery_window_end' as if there is no the idle time
 3. apply the delivery window minimal size constraint, and, if the check does not succeed:
 1. delivery_window_start := ETA - delivery_window_minimal_size / 2
 2. apply granularity (align right)
 3. apply the minimal allowed ETA value constraint
 - shift delivery_window_start right using the granularity until the condition becomes true
 4. delivery_window_end := delivery_window_start + delivery_window_minimal_size
 5. if delivery_window_end < ETA + delivery_window_minimal_size / 2 AND delivery_window_minimal_size < delivery_window_maximal_size
 - delivery_window_end := delivery_window_end + granularity
 6. stop calculation
 4. apply granularity
 1. align delivery_window_start left
 2. align delivery_window_end right
 5. apply the delivery window maximal size constraint (if the maximal size <> 0), and, if the check does not succeed:
 1. delivery_window_start := ETA - delivery_window_maximal_size / 2
 2. apply granularity (align right)
 3. apply the minimal allowed ETA value constraint
 - shift delivery_window_start right using the granularity until the condition becomes true
 4. delivery_window_end := delivery_window_start + delivery_window_maximal_size

Additional constraints on configuration parameters have been implemented:

- delivery window minimal/maximal size values should satisfy the granularity rule
- delivery window minimal size >= granularity
- delivery window maximal size >= delivery window minimal size

Changes have been made to the Statistics screen:

The 'Delivery window minimal/maximal side' controls are represented as dropdown lists.

These lists are automatically filtered to satisfy the constraints mentioned above (Figure 25).

The screenshot shows a configuration panel titled "Delivery window parameters". It contains the following fields and controls:

- Delivery window factor:** A text input field containing the value "0.9".
- Delivery window granularity:** A dropdown menu with "15" selected.
- Delivery window minimal size:** A dropdown menu with "60" selected.
- Delivery window maximal size:** A checked checkbox followed by a dropdown menu with "240" selected.
- Delivery window should not start earlier than:** A checked checkbox followed by a dropdown menu with "15" selected, and a label "30 minutes prior to start of service or SLA window".

A red rectangular box highlights the "Delivery window minimal size" and "Delivery window maximal size" dropdown menus.

Figure 25: 'Delivery window minimal size' and 'Delivery window maximal size' dropdown

'Delivery window should not start earlier than ### minutes prior to start of service or SLA window' parameter has been added to the statistics screen in the Delivery Window parameters section (Figure 26).

Figure 26: 'Delivery window should not start earlier than ### minutes prior to start of service or SLA window' parameter

2.14.2 Improvements

2.14.2.1 Questions can be Added to the Survey Screen

Previously, there were cases when it was impossible to add a new question to the Survey screen. Regardless of the fact that the respective permissions for a certain security profile were set to ReadWrite, the Add New button was still not available.

This issue has been fixed in 4.5.14 and now if respective permissions are set to ReadWrite, the 'Add new' button is available (Figure 27).

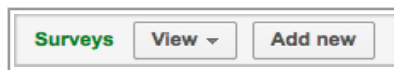


Figure 27: 'Add new' button on the survey screen

2.14.2.2 Editing is not Available for Users with 'ReadOnly' Permissions on Work Skills/Conditions Screens

If a user had 'ReadOnly' permissions set for 'Company Settings > Work Skills' and 'Company Settings > Work Skill Conditions', UI options provided to the user led him to believe that it was possible to make edits, when in reality this was naturally not the case due to lack of the necessary permissions. The user wouldn't be able to discover inability to make edits until after hitting the 'Save' button and getting a respective error message. This behavior is incorrect and may be misleading.

This has been fixed in version 4.5.14. Now, if 'Company Settings > Work Skills/Conditions' permissions are set as 'ReadOnly' for the selected user, then 'Modify' action link is not available for this user respectively.

2.15 Date/Time Conversion

2.15.1 Improvements

2.15.1.1 Time Change in Manage Application Improved

In previous versions during time change from standard to daylight or vice versa, for example, the time in the Manage Application always changed at midnight regardless of the time corresponding to the selected time zone. Therefore, the Manage and Mobility Applications displayed different time.

This has been fixed in version 4.5.14 and now the time in the Manage Application is changed at the moment according to the selected time zone.

2.15.1.2 Correct Time Displayed in 'Subject' Line of Report Execution Email

Previously, incorrect time would get displayed in the 'Subject' line of the scheduled report execution email. The time that was displayed was the one before the daylight saving shift (Figure 28).

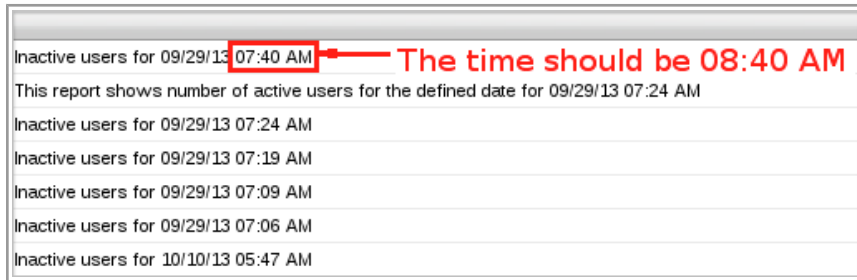


Figure 28: Incorrect display of the time in the subject line

This has been fixed in 4.5.14 and now the time after the daylight saving shift is displayed, which is the correct one.

2.16 Displays

2.16.1 Improvements

2.16.1.1 Action Links Behavior for Inventory Improved

Previously, when the visibility for the inventory action link depended on the activity type, the conditions for Action Links on the Inventory screens did not work correctly. The action link was always hidden when such visibility was defined.

As of version 4.5.14, action links on inventory screen work as intended, depending on the defined conditions.

2.16.1.2 It Is Possible to Add Condition to Inventory with Dependency on Resource's Fields

Previously, at an attempt to save a visibility with relation to inventory which is dependent on resource's fields a 'Save failed' error was returned (Figure 29).

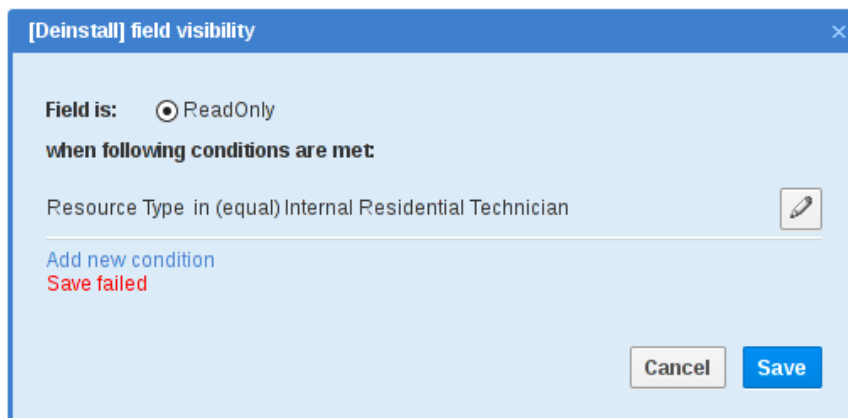


Figure 29: 'Save failed' error message

As of version 4.5.14 this has been fixed and it is possible to add a condition to inventory with dependency on resource's fields.

2.17 Inventory

2.17.1 Improvements

2.17.1.1 Required Inventory Details Shown Correctly

Previously, required inventory details would not show for required inventory without model property under Equipment list in started activity. An empty screen would show instead.

As of version 4.5.14, this issue has been fixed. Upon tapping on 'Inventory', equipment list is displayed showing correct required inventory details along with action links.

2.18 Map

2.18.1 Features

2.18.1.1 Distance Measurement Units Apply to Manage Application

As of version 4.5.14 distance measurement units apply to Manage Application akin to Mobility Application. Now, the units that have been set in Business Rules (Figure 30) apply to the Directions screen in Manage Application (Figure 31).

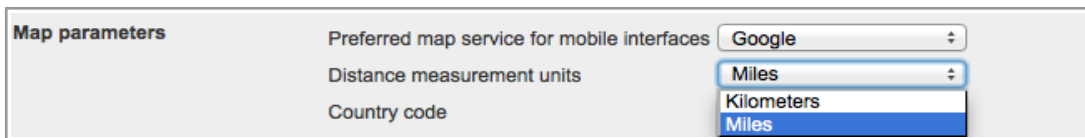


Figure 30: Distance measurement units

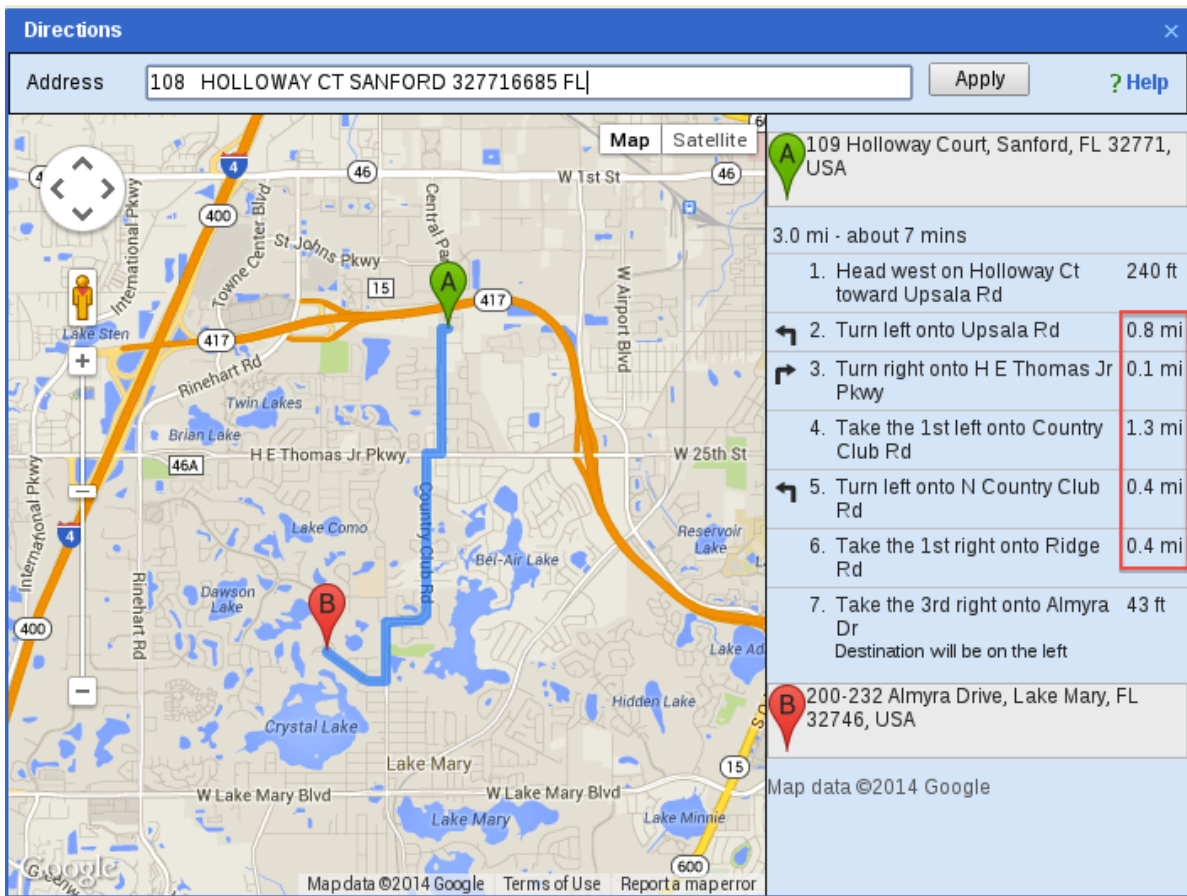


Figure 31: Distance measurement units applied

2.19 Reports

2.19.1 Features

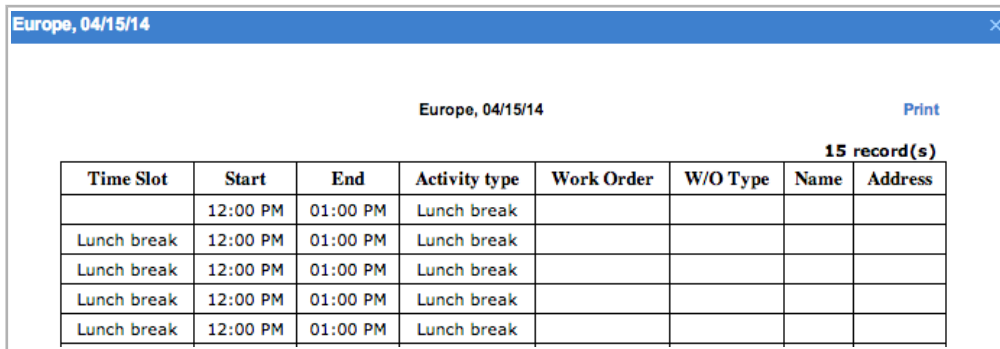
2.19.1.1 'Sigma2' Column Replaced by 'Dev' in Statistics Reports

As of version 4.5.14 the 'Sigma2' parameter in the 'Work Statistics' and the 'Travel Statistics' reports was replaced by the 'Dev' parameter (standard deviation), which is more convenient, and easier to interpret.

2.19.2 Improvements

2.19.2.1 Technician's Name Shown on Route Print Preview

Previously, when the 'Print' action was chosen for a bucket with the 'Apply hierarchically' filter applied, the list of routes displayed on the print preview screen didn't show technicians' names, which is incorrect (Figure 32). Neither could the technician's name (or external ID) be added to the 'Activity fields for print' context layout.

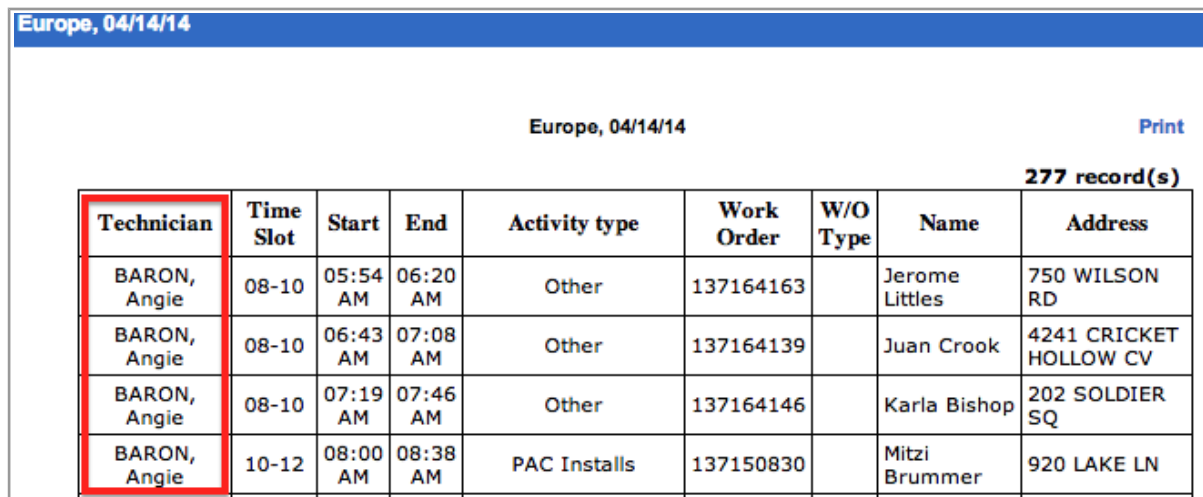


The screenshot shows a window titled "Europe, 04/15/14" with a "Print" button in the top right. Below the title bar, the text "Europe, 04/15/14" and "15 record(s)" are displayed. A table with 8 columns is shown, but the "Name" column is empty for all rows.

Time Slot	Start	End	Activity type	Work Order	W/O Type	Name	Address
	12:00 PM	01:00 PM	Lunch break				
Lunch break	12:00 PM	01:00 PM	Lunch break				
Lunch break	12:00 PM	01:00 PM	Lunch break				
Lunch break	12:00 PM	01:00 PM	Lunch break				
Lunch break	12:00 PM	01:00 PM	Lunch break				

Figure 32: Route Print Preview Screen missing Technicians' names

This issue has been fixed in version 4.5.14. Now, the column indicating technicians' names is displayed along with other route details on the preview list, as intended (Figure 33).



The screenshot shows a window titled "Europe, 04/14/14" with a "Print" button in the top right. Below the title bar, the text "Europe, 04/14/14" and "277 record(s)" are displayed. A table with 9 columns is shown, with the "Technician" column highlighted in red. The "Name" column now contains technician names.

Technician	Time Slot	Start	End	Activity type	Work Order	W/O Type	Name	Address
BARON, Angie	08-10	05:54 AM	06:20 AM	Other	137164163		Jerome Littles	750 WILSON RD
BARON, Angie	08-10	06:43 AM	07:08 AM	Other	137164139		Juan Crook	4241 CRICKET HOLLOW CV
BARON, Angie	08-10	07:19 AM	07:46 AM	Other	137164146		Karla Bishop	202 SOLDIER SQ
BARON, Angie	10-12	08:00 AM	08:38 AM	PAC Installs	137150830		Mitzi Brummer	920 LAKE LN

Figure 33: Route Print Preview Screen with 'Technician' column displayed

2.20 Statistics

2.20.1 Improvements

2.20.1.1 Travel Statistics Calculated Correctly when Resource ID Equals '0'

In previous versions, when calculating travel statistics on the aggregator level, the stats agent ignored the records with the resource ID equal to '0'.

This issue has been fixed in version 4.5.14. Now, the data with the resource ID = '0' is considered by the stats agent in the matrices as the records with the resource key ID = '0' (an empty key).

2.21 Message Engine

2.21.1 Features

2.21.1.1 'Pending Activity Order' Message Blocking Condition Implemented

As of version 4.5.14, the Message Engine has been enhanced by adding the new 'Pending activity order' condition. This blocking condition provides possibility to notify a technician, that an activity added to their activated route is the first in the pending order, which means, it is the next one to be performed.

Also, the following message blocking conditions have been moved from the 'Others' to the 'Activity' section:

- 'Days to activity'
- 'Position in route'
- 'Is activity scheduled?'

2.22 Public API

2.22.1 Improvements

2.22.1.1 Outbound API – Activity Properties Cannot Be Updated in the Past with 'set_message_status' Method

In the previous versions, it was possible to update activity properties from the past on the following day. It was done by using the element "data" of the 'set_message_status' method. This is incorrect behavior since activity properties are not supposed to be updated for the previous days.

As of version 4.5.14 this behavior has been addressed and now activity properties cannot be updated in the past with the 'set_message_status' method.

2.22.1.2 Application Server Disconnects Immediately after Receiving a Response

There were cases when the Application Server would stay connected for some time after receiving a response from the other end, while it is supposed to close the connection immediately.

This has been fixed in version 4.5.14 and now the Application Server disconnects right after the response has been received.

2.22.1.3 Inbound API – 'update_activity' Command Keeps Activity Coordinates Unchanged

In the previous versions, 'update_activity' command would erase existing coordinates from the activity, if both new address and the same coordinates were sent in a request.

This has been addressed and changed in version 4.5.14. Now the address gets changed and the coordinates remain unchanged.

3 ETAdirect Version 4.5.15

3.1 Changes Overview

['ETAdirect.com' page name in Mobility Application now editable](#)

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[Resource Tree expand/collapse buttons correspond to filter settings](#)

[Resource Tree updated with resource calendar change](#)

[Calendars consisting of different types applied properly](#)

[Chat history available in offline mode](#)

[Persistent sound notifications implemented](#)

['@" symbol has no effect on inventory transfer](#)

[Resource Tree remains visible in Map View](#)

[Change effect notifications implemented on 'Business Rules' screen](#)

[Change effect notification implemented on 'Statistics Parameters' screen](#)

['Cut Limit' field removed](#)

[Placeholders spelling corrected](#)

[Inactive values of enumeration properties no longer visible](#)

[Behavior of 'Daily Extract Configuration' screen improved](#)
[Error message in 'Daily Extract Configuration' screen changed](#)
[Number of days available in calendar restricted](#)
[Logout point kept after session expiration](#)
[Surefox – 'Submit' button visibility settings no longer cause browser crash](#)
[Files download and view improved](#)
['Synchronization Complete' message changed](#)
['Add Activity' screen behavior improved](#)
['Add Activity' screen offers correct list of time slots](#)
[Logout after session expiration possible](#)
[Route activation conflicts logged properly](#)
['Others' filter works properly](#)
[List of properties supported by 'set_property' method increased](#)
['SLA window warning' trigger works properly](#)
[Offline search now case-insensitive](#)
[File name validation implemented](#)
[Dots in property labels no longer cause errors](#)
[Mobile Client API, Activity Management API – 'route_reactivation_time' field added to 'get_route' method](#)
[Resource Management API – managed profiles setting implemented](#)
[Resource Management API – managed profiles validation implemented](#)
[Activity Management API – 'get_activities' method implemented](#)
[Inbound API – correct error message returned for invalid 'time_of_booking' field format](#)
[Inbound API – activities management in routes improved](#)
[Inbound API – property length restricted](#)
[Resource Management API – correct error message returned in 'set_resources_calendars' method](#)
[GPS API – 'get_info' method removed](#)
[SmartLocation API – 'limit' field processed correctly](#)
[Capacity API – 'set_quota' request for past dates no longer causes errors](#)
[History API – buffer size increased to 2,000,000 records](#)
[History API – redundant field removed](#)

3.2 General

3.2.1 Improvements

3.2.1.1 'ETAdirect.com' Page Name in Mobility Application Now Editable

Previously, 'the ETAdirect.com' page title of the 'About' screen in the Mobility Application had no corresponding placeholder and, therefore, could not be edited (Figure 34).



Figure 34: ETAdirect.com' page title on the 'About' screen in Mobility Application

As of version 4.5.15 this has been changed. In order to better support the customization, a new placeholder (13419 – 'ETAdirect.com') has been added, which will allow editing the title, if necessary.

3.2.1.2 Idletime Threshold Value Displayed Correctly

By design, the idletime threshold parameter configured in the GPS section of the Business Rules has the measurement units set in minutes (Figure 35).

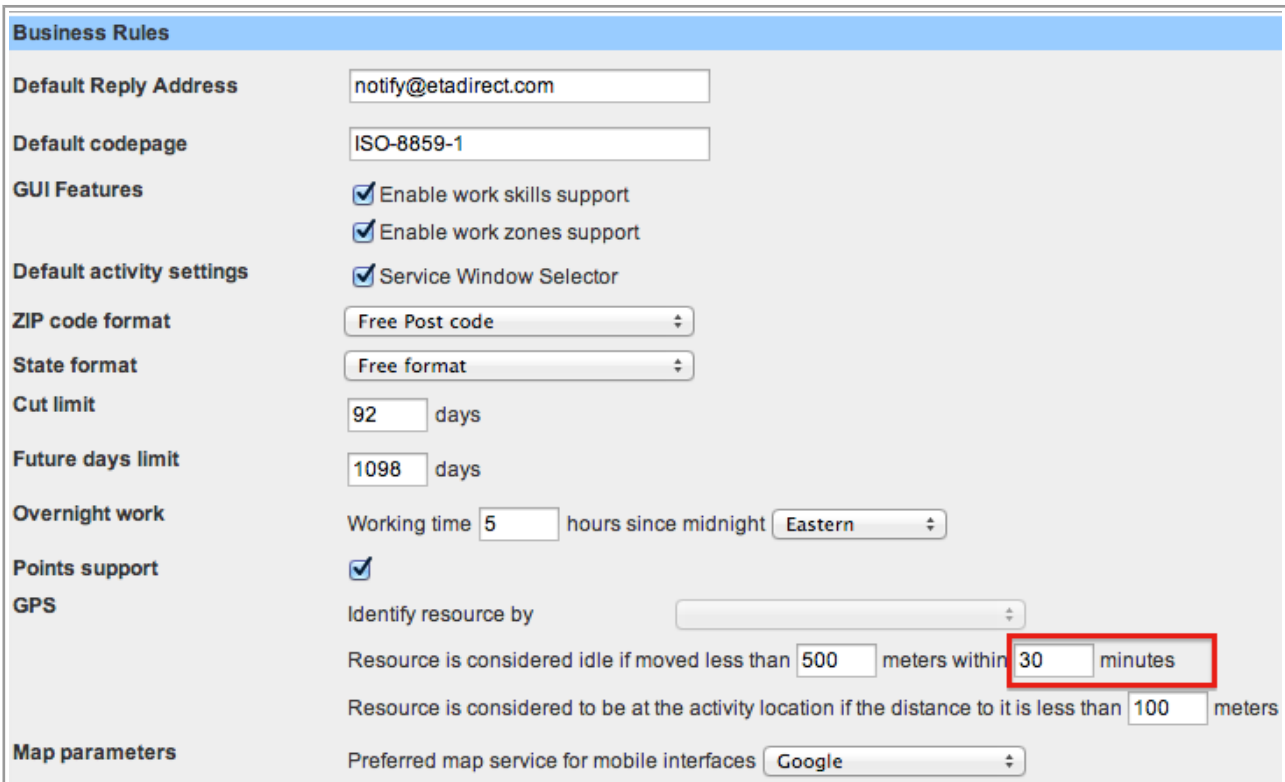
A screenshot of the 'Business Rules' configuration screen. The 'GPS' section is expanded, showing the 'Identify resource by' dropdown, and the 'Resource is considered idle if moved less than 500 meters within 30 minutes' text. The '30' and 'minutes' are highlighted with a red box. Other settings include: Default Reply Address: notify@etadirect.com; Default codepage: ISO-8859-1; GUI Features: Enable work skills support, Enable work zones support; Default activity settings: Service Window Selector; ZIP code format: Free Post code; State format: Free format; Cut limit: 92 days; Future days limit: 1098 days; Overnight work: Working time 5 hours since midnight Eastern; Points support: checked; Map parameters: Preferred map service for mobile interfaces Google.

Figure 35: Idletime threshold parameter set in minutes in Business Rules

However, in previous versions the value of the idletime threshold was interpreted as seconds without actual recalculation, when communicating with the SmartLocation module.

This issue has been resolved in version 4.5.15.

3.3 System

3.3.1 Features

3.3.1.1 Idletime Handling Logic Improved

As of version 4.5.15 the idle time handling logic has been improved to ensure more accurate estimated and actual travel time calculation.

There are the following major idle time cases considered:

- 1.** There is a predicted idle time before the activity start because of an early start constraint (e.g. 'service window start', 'SLA window start', an activity link constraint) which doesn't allow to start that activity immediately after a technician arrives to the site
- 2.** A technician has an idle stage before an activity, either because the activity was assigned after they had completed all activities in the route, or because the first activity was assigned some time after the start of the work day.

For those idle time cases, travel time is now processed as follows, respectively:

- 1.** If there is a predicted idle time before the activity start, then the travel time to this activity is not recorded to the travel history
 - If the time period between the end of the previous activity and the start of the current activity exceeds the estimated travel time to the current activity, the travel time value is not updated, and the estimated travel time value remains unchanged
 - If the time period between the end of the previous activity and the start of the current activity is less than the estimated travel time to the current activity, the travel time value is updated, and it equals the actual period of time between the end of the previous activity and the start of the current one
- 2.** If the end time of the previous activity (or, the route activation time, in case there were no previous activities in the route) is earlier than the time of the current activity assignment, then the following logic is implemented:
 - Time period between the end of the previous activity/route activation time and the current activity assignment is handled like an idle time
 - Travel to the current activity is calculated starting from the current activity assignment time (not from the end time of the previous activity)

3.4 Manage Application

3.4.1 Features

3.4.1.1 Interval of Dates Served by Application Server Restricted

In order to prevent excessive memory usage, the number of past and future days served by the Application Server has been restricted. The interval of days served is now restricted both in the past and in the future. The number of days in the past is limited to the number defined by the agreement between the customer and TOA Technologies. The number of days in the future is restricted by the 'Future days limit' parameter introduced in the 'Business Rules' screen (Figure 36).

Business Rules

Business Rules

Default Reply Address

Default codepage

GUI Features
Enabling / Disabling these fields may affect the Routing module logic.

Enable work skills support

Enable work zones support

Default activity settings Service Window Selector

ZIP code format
Changes to this field may affect the Inbound interface logic.

State format

Future days limit days

Overnight work
Changes to this field may change the DWH saving logic.

Working time hours since midnight

Points support

Figure 36: 'Future days limit' setting

The 'Calendar' logic has also been changed, so that the above-mentioned restrictions are applied to Calendars, too. Particularly, no dates beyond the limits defined in the 'Business Rules' can be selected in the Calendar – they are shown as inactive (Figure 37).

Friday, May 16th, 2014							View	Settings												
April							May							June						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5					1	2	3	1	2	3	4	5	6	7
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
27	28	29	30				25	26	27	28	29	30	31	29	30					

Figure 37: Dates not available for selection in the calendar

3.4.2 Improvements

3.4.2.1 'List/Time/Map' Placeholder Added

The 'Filters' screen can be filtered by selecting certain options in the 'View' window. Particularly, the filters list can be set to show only the filters visible on certain screens. One of the available options ('List/Time/Map') had no corresponding placeholder and, therefore, could not be modified or translated (Figure 38).

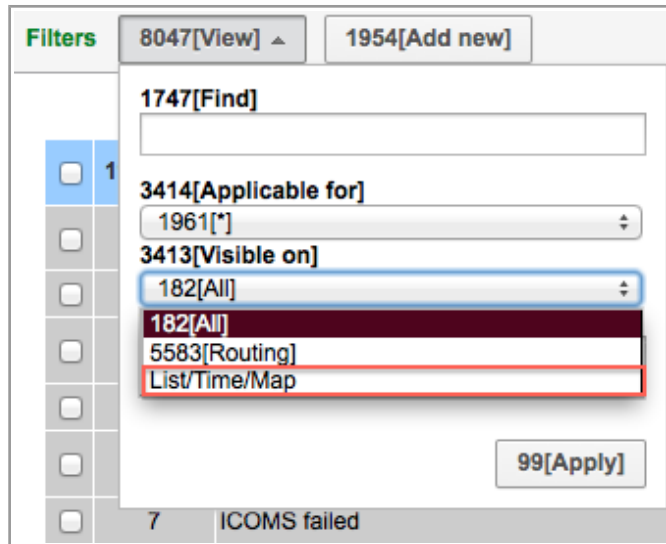


Figure 38: No placeholder for 'List/Time/Map' option

In version 4.5.15 the 'List/Time/Map' placeholder has been implemented (Figure 39).

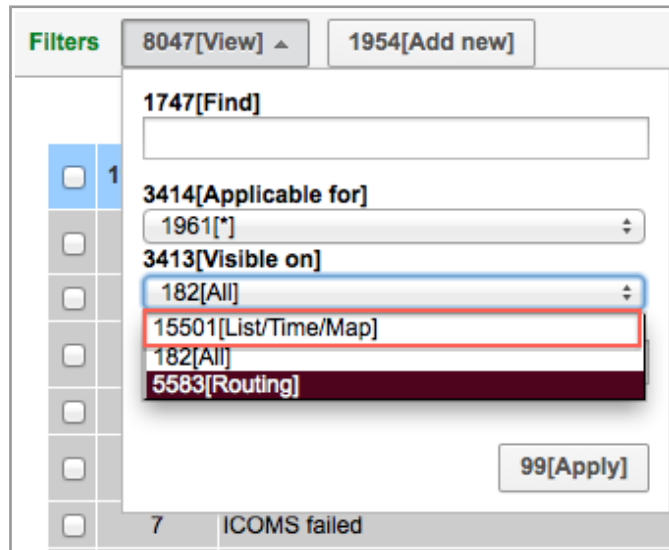


Figure 39: 'List/Time/Map' placeholder available

3.4.2.2 Final Travel Shown Correctly on Time View in Deactivated Routes

The Time View shows final travel after the last activity in the route. However, when the resource's route included both a regular calendar and an on-call calendar, final travel was sometimes shown in a wrong place. Namely, when a pending activity was added to the route after its deactivation, final travel was shown after such pending activity (Figure 40).

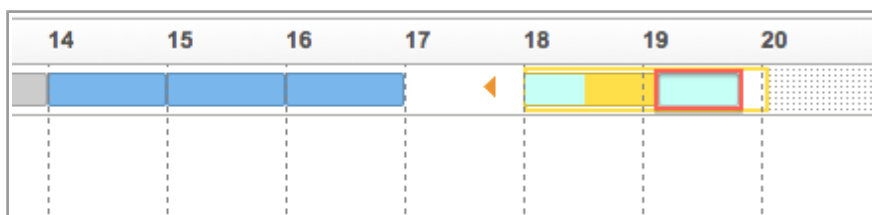


Figure 40: Final travel shown after pending activity

This logic has been changed, and as of version 4.5.15 final travel is shown after the last completed/not-done/suspended activity in the deactivated route (Figure 41).

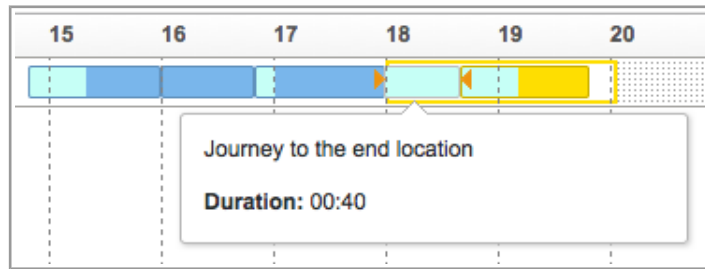


Figure 41: Final travel shown after last completed activity

3.4.2.3 Search Displays Non-Scheduled Activities Correctly

In ETAdirect non-scheduled not-ordered activities have no ETA, while non-scheduled activities have ETA set to 3000-01-01 00:00:00. The Activities Search returned all non-scheduled activities with the date '1 Jan' which was incorrect and sometimes misleading (Figure 42).

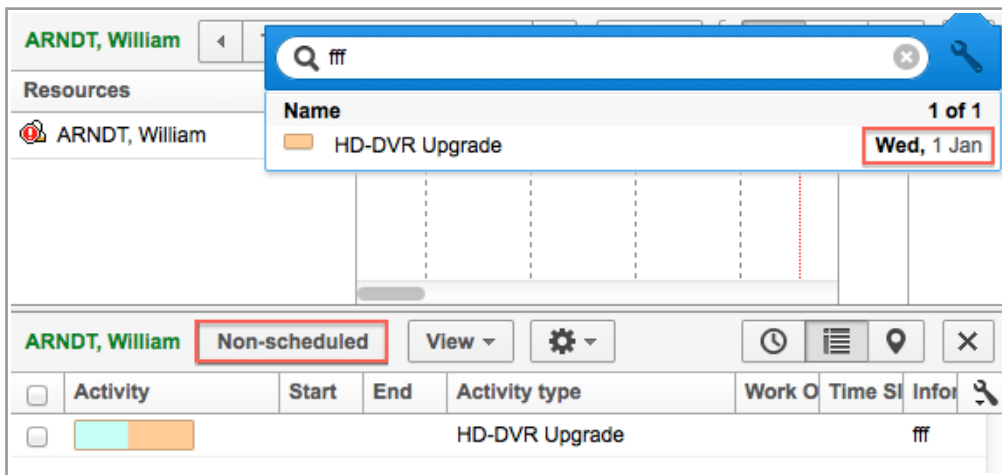


Figure 42: '1 Jan' shown for non-scheduled activities

As of version 4.5.15 all non-scheduled activities are shown in the search results as 'non-scheduled' (Figure 43).

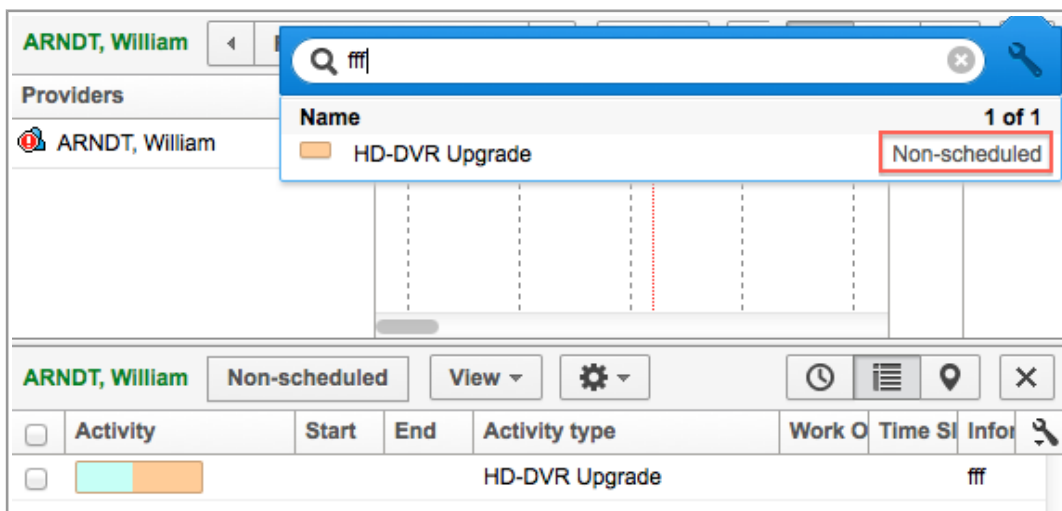


Figure 43: 'Non-scheduled' in Activity Search results

3.4.2.4 'End Activity' Window Behavior Improved

If the 'End activity' window contained a mandatory property and several enumerated properties linked to the mandatory one, the activity was always ended at the current time, regardless of the user's entries. Any value entered in the 'Ending at' field was ignored. This issue occurred when the 'Ending at' value was set before the linked properties were filled.

A new algorithm has been added which prevents 'Ending at' value reset when the form is refreshed by the linked properties. The activity end time can now be set by the user.

3.4.2.5 'Offline Synchronization' Permissions Applied Correctly

In the previous versions the permissions set for the 'Offline synchronization' screen were not applied. When the permission was set to ReadOnly, the screen showed the same available actions as when the permission was set to ReadWrite.

An additional check has been added. Now the actions available to the user on the 'Offline synchronization' screen depend on the permission defined for such user.

3.4.2.6 Internet Explorer 8 – Resource Tree Now Responds Promptly

When the Manage Application was used in the Internet Explorer 8 browser, the Resource Tree in the 'User' screen ('Users' → 'Add new' → 'Resources' → 'Add new') responded very slowly – a branch of the Resource Tree took about 30 seconds to open.

The process has been optimized, and now the Resource Tree opens promptly.

3.4.2.7 String Property Values Validated Correctly

Previously, values of string properties with the GUI option set to 'URL' were not validated. As the result, the property accepted and saved values which were not URLs.

In version 4.5.15 the property validation has been improved. Now string properties with the GUI representation as URL accept only valid URLs. Otherwise, an error message is displayed, and the form is rejected (Figure 44).

Add activity (ARNDT, William)

* Activity type: HD-DVR Upgrade Position in route: Ordered

URL_property: Tesdghsf78 Go(new window) * Duration: 1 h. 00 min.

* Name: test Time Slot: [dropdown]

Work Order: [input]

Customer info Service info

Address: [input] Time Zone: Eastern

City: [input] Message language: English

ZIP: [input] Send day before confirmation alert:

State: [input] Reminder: 0

Account Number: [input] E-mail: [input] Write

Sub Type: [dropdown] Phone: [input] Call

Cellular Phone: [input] Call

'URL_property' is wrong

Figure 44: URL property validation

3.4.2.8 Not-Ordered Activities Selection Improved

If resources were displayed in the Time View with the 'Apply hierarchically' option enabled, not-ordered activities could not be selected for the last resource in the list. The popup showing the total number of resources and the date overlapped the not-ordered activities count. Clicking in that area did not hide the popup, and the not-ordered activities list was not opened.

As of version 4.5.15 the popup hides upon a click on it, and the user is able to open the bottom panel with the not-ordered activities list.

3.5 Activity Views

3.5.1 Features

3.5.1.1 Hint Added to Travel Time Bar

As of version 4.5.15 the travel time bar appended to the last activity of a deactivated route has a hint containing the travel time duration (Figure 45). The travel time is calculated as the difference between the end time of the last activity in the route and the route deactivation time. The hint appears when the mouse is hovered over the travel time bar.

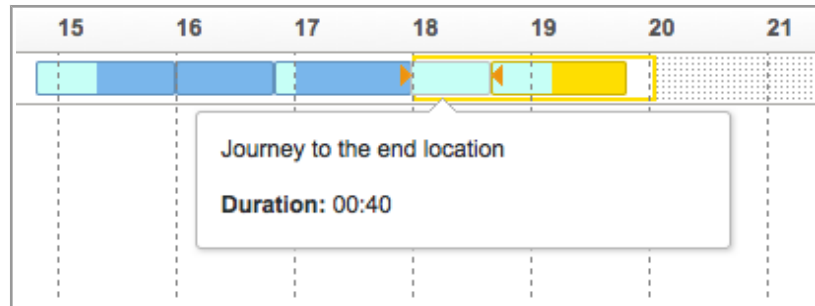


Figure 45: Travel time hint

3.5.1.2 'Resource' Field Added to 'List Columns Configuration' Window

The 'List Columns Configuration' window is used to define the columns visible on the Activities List View as well as their order. As of version 4.5.15 this window also includes the 'Resource' column (Figure 46).

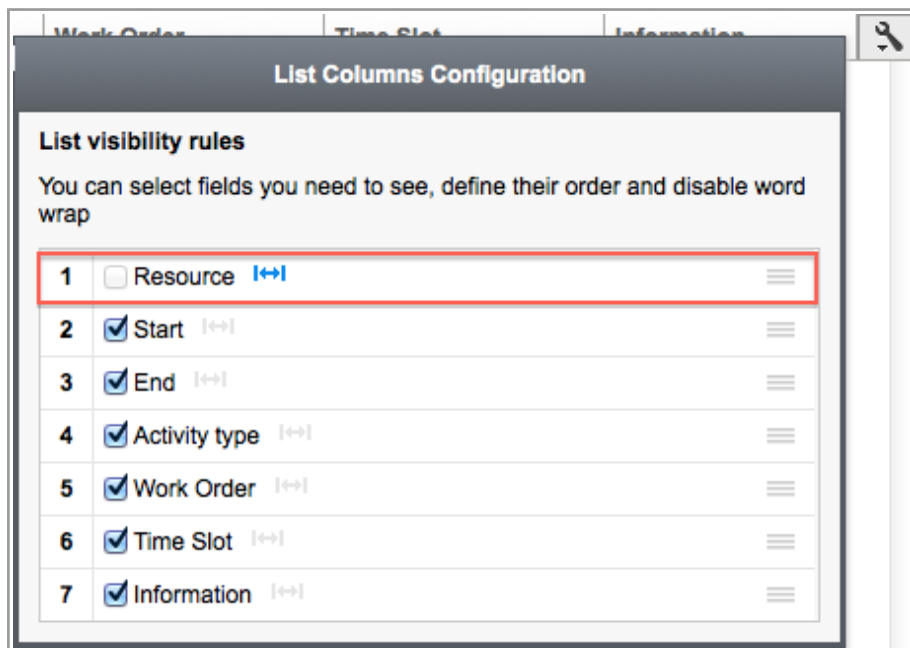


Figure 46: 'Resource' column added

This improvement allows changing the order of the 'Resource' column in the Time View and enable or disable word wrapping in this column, thus increasing the usability of the Activities View.

However, the visibility of the 'Resource' column cannot be controlled from the 'List Columns Configuration', as this column is visible only with the 'Apply hierarchically' option enabled. Therefore, when 'Apply hierarchically' is enabled, the 'Resource' checkbox is always checked, otherwise it is always unchecked (Figure 47).

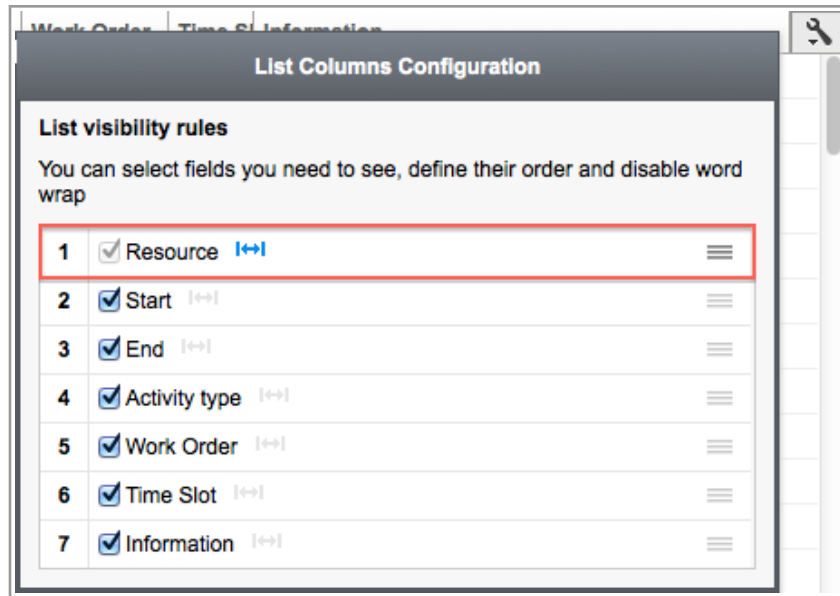


Figure 47: 'Resource' column visible with 'Apply hierarchically' option enabled

3.5.2 Improvements

3.5.2.1 Not-Ordered Activities with SLA Warnings Shown Correctly

Previously, a not-ordered activity with SLA warning was shown differently in the Manage and Mobility Applications. It was shown in the 'warning' color in the Mobility Application (correctly) (Figure 48) and in the 'not-ordered' color in Manage (incorrectly) (Figure 49).

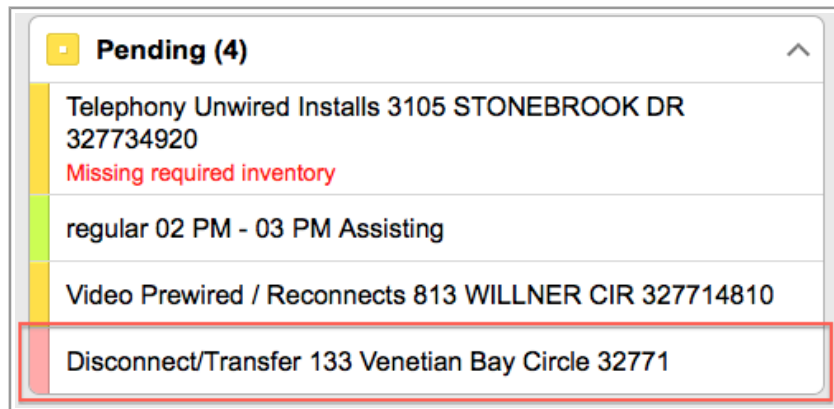


Figure 48: Not-ordered activity with SLA warning in Mobility Application

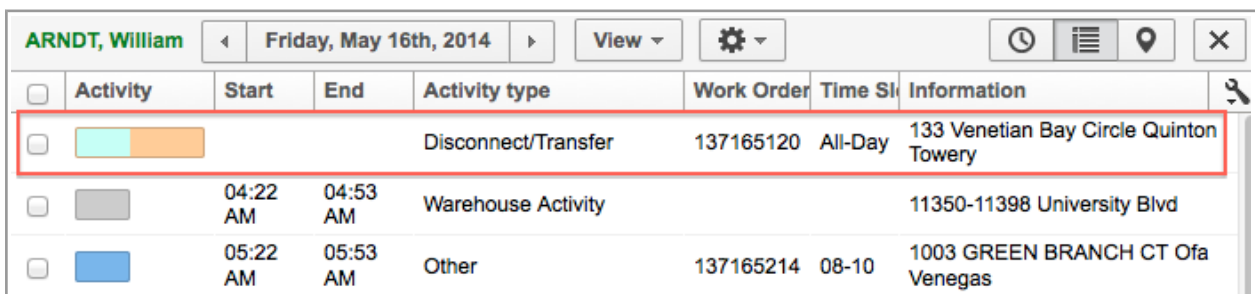


Figure 49: Not-ordered activity with SLA warning in Manage Application

As of version 4.5.15 pending not-ordered activities with SLA warnings are shown in the 'warning' color in both applications.

3.5.2.2 List View/Print Route/Export Work Correctly

If the context of a mass or repeating activity contained one of the following fields:

- First manual operation performed by user
- Auto-routed to resource
- First manual operation performed by user,

the List View/Print route/Export actions returned no activities and the application server returned a wrong response.

This issue has been resolved. Now the List View, 'Print route' and 'Export' work properly.

3.6 Activity Details

3.6.1 Improvements

3.6.1.1 Activity Markers Displayed Correctly

If the user switched between different resources on the Map View, the activity markers were sometimes missing (Figure 50). This issue occurred when several activities with addresses close to each other (within 200 m) were added to one resource, and several activities with addresses far from each other (over 1 km) were added to the other resource

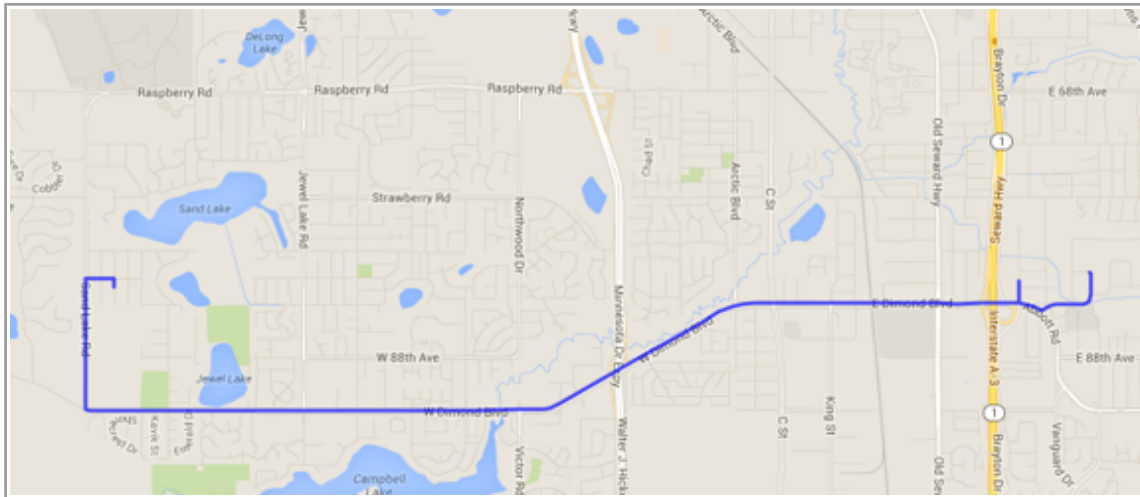


Figure 50: Missing activity markers

In version 4.5.15 the necessary changes have been made. Now all activity markers are displayed correctly.

3.7 Quota Management

3.7.1 Improvements

3.7.1.1 Capacity Bucket Configuration Changes Logged

As of version 4.5.15 changes to the capacity bucket configuration are logged in the Resource History. This significantly increases the options of tracking the changes which affect the capacity and quota management.

3.7.1.2 Status of Locked Quota Cells Changed Properly

If a quota cell was locked, changes of its status had incorrect results:

- the 'Open all' and 'Open partially' options worked correctly, but unlocked the quota for the cell
- the 'Close all' option applied from the 'Open partially' window worked as 'Open all' and unlocked

quota for the cell

- the 'Close all' option applied from the 'Open all' window had no effect

The status changing algorithm has been changed, so that quota cell statuses are set according to the applied options.

3.7.1.3 Error Message Displayed for Resource Not Being Capacity Bucket

If the user attempted to display Quota for a resource for which the 'Quota management' option was disabled, the system responded with a blank screen. At the same time an error was logged. The same behavior was observed when the selected resource was not a capacity bucket or a child resource of a capacity bucket.

Now, when a resource not being a capacity bucket is selected in the Quota View, the screen shows an error message.

If the selected resource is a child resource of a capacity bucket, the Quota View switches to such parent capacity bucket.

3.7.1.4 'Recurring Autofill' Window Improved

Previously, the 'Target dates' and 'Source Date' fields of the 'Recurring Autofill' window were too small to fully display the figure entered in the field. Some figures were cut by the borders of the input field.

As of version 4.5.15 the 'Target dates' and 'Source date' fields have been changed to accommodate 4-digit figures (Figure 51). Also, the input has been restricted to 4 characters.

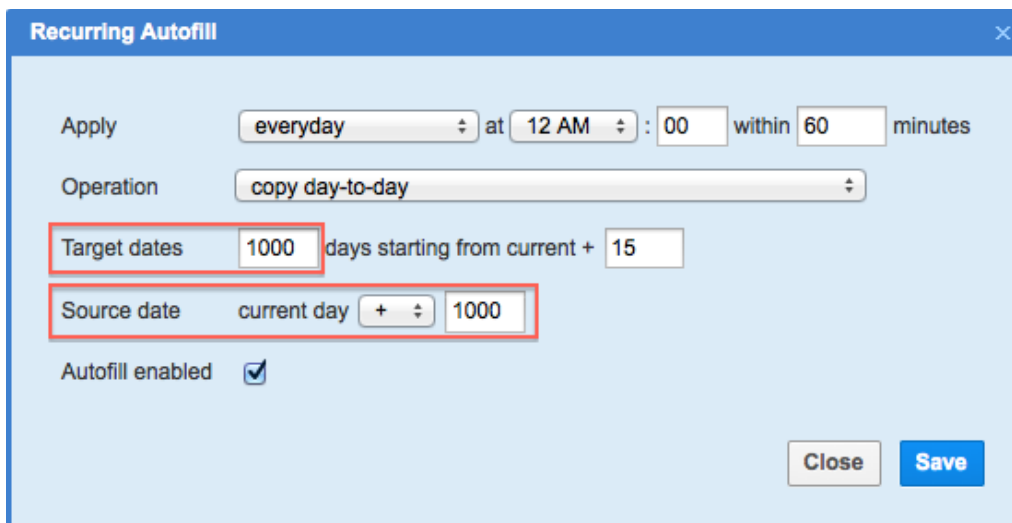


Figure 51: 'Target dates' and 'Source date' field increased to 4 digits

3.7.1.5 Cell Lock Works Properly with 'Status' Column Hidden

When the 'Status' column was hidden after some quota cells were locked, such cells became unlocked. Moreover, other quota cells locked with the 'Status' column hidden, became also unlocked after the changes were saved. Their values changed with changes to the 'Total' cell value. However, when the 'Status' column was shown again, the cells became locked.

As of version 4.5.15 the locked cells remain locked regardless of the 'Status' column visibility on the Quota View.

3.7.1.6 Resource Remains Highlighted after Search

If the user searched a resource in the multi-level Resource Tree, the resource was no longer highlighted if

the user cleared the search string.

Now the resource selected by search remains highlighted after the search string is cleared.

3.7.1.7 Quota Map Keeps Resource Selection

If the user opened the Quota Map for a capacity bucket, then switched to the 'Activities' screen to select a different resource and then returned to the Quota Map, the previously selected resource was not saved.

The Quota View attempted to load the map for the resource selected in the 'Activities' screen. The user had to select the bucket in the Resource Tree again to continue working.

Now an additional check has been added. The Quota View reverts to the initially selected resource and displays its map.

3.7.1.8 'Quota Status' Window Shows Correct Date

The 'Quota status' popup window always showed the current date in the title, regardless of the date selected in the calendar (Figure 52). However, this issue did not affect quota statuses saving to the database or their further handling. Only the visual representation of the 'Quota status' window was affected.

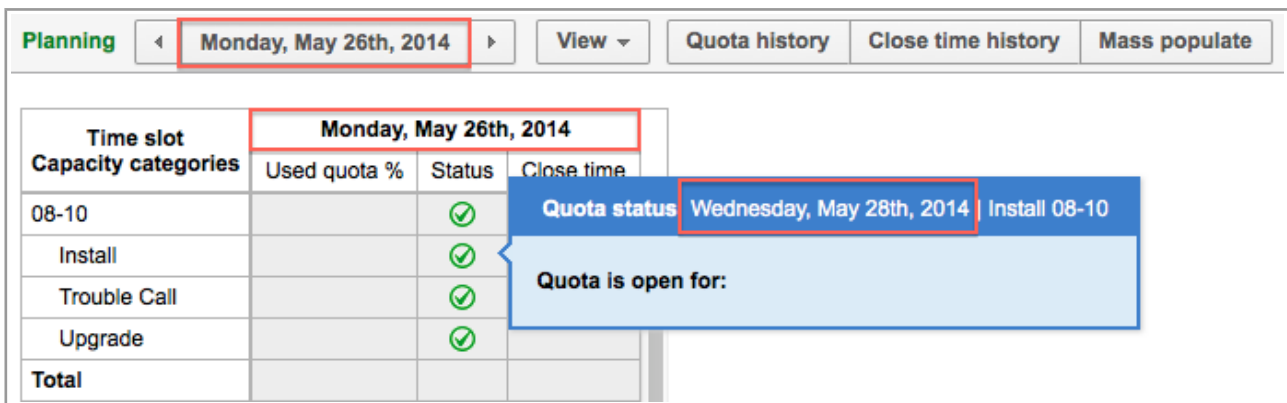


Figure 52: Current date in 'Quota status' window title

As of version 4.5.15 the 'Quota status' popup window shows the same date as is selected in the calendar.

3.7.1.9 Quota Closing on Certain Day Applied Correctly

In some cases, changes of day on which quota was to be automatically closed resulted in quota closing for the current day instead. The changed value was shown in the 'Close time' popup window but was not applied.

The issue has been addressed. Now the settings of quota closing on a certain day are applied correctly.

3.7.1.10 Quota Grid Hidden with All 'View' Options Disabled

Previously, when all checkboxes in the 'View' window were unchecked, the Quota grid still remained visible showing a limited number of columns (Figure 53). Such behavior was observed at all Quota levels (Day, Time Slot and Capacity Category).

Planning < Tuesday, May 27th, 2014 > View Quota history Close time history

Time Slot	Capacity Categories	Max available	% Quota
08-10		11040	
	Install		
	Trouble Call		
	Upgrade		
Total			
10-12		11040	
	Install		
	Trouble Call		
	Upgrade		
Total			
13-15		11640	
	Install		
	Trouble Call		
	Upgrade		
Total			

View

Capacity category

Category

Time Slot

- Max available
- % Quota
- Plan
- Quota
- Booked activities
- Used
- Used quota %
- Status
- Close time

Apply

Figure 53: Quota grid visible

Now, when all 'View' options are disabled, the Quota grid is hidden. The screen shows a 'No columns selected' message instead (Figure 54).

Planning < Tuesday, May 27th, 2014 > View Quota history Close time histo

No columns selected

View

Day

- Max available
- % Quota
- Min quota
- Quota
- Booked activities
- Used
- Used quota %
- Status
- Close time

Apply

Figure 54: Quota grid hidden

3.7.1.11 Quota History Displays Correct Data

If Quota History was filtered by several options in the 'Actions' column, it sometimes showed irrelevant results. For example, it could show records related to work zones not assigned to the currently selected bucket or actions which were not performed in such bucket.

Such behavior was caused by Quota History referring to dates and resources other than selected. This issue has been resolved. Now only the actions related to the selected bucket are displayed in the Quota History.

3.8 Resource Management

3.8.1 Improvements

3.8.1.1 Resource Tree Expand/Collapse Buttons Correspond to Filter Settings

Previously, the +/- buttons expanding or collapsing the Resource Tree were displayed regardless of the resource statuses and Resource Tree filter settings. Particularly, if a bucket contained only resources with activated routes and the filter was set to 'Show resources with not activated routes' only, the expand/collapse buttons were still available for the bucket. However, they had no effect, the bucket could not be expanded.

As of version 4.5.15 the expand/collapse buttons are not available for buckets containing resources not matching the selected filter.

3.8.1.2 Resource Tree Updated with Resource Calendar Change

If a resource was assigned to a bucket, it inherited the working calendar of the bucket. However, if the resource was then assigned non-working time, such resource's icon was not changed. It continued displaying such resource as working.

In version 4.5.15 this issue has been resolved. The resource's icon is updated according to the calendar currently assigned to the resource.

3.9 Resource Calendars

3.9.1 Improvements

3.9.1.1 Calendars Consisting of Different Types Applied Properly

If a calendar was added to the resource so that it 'split' the resource's previous calendar, the second part of the initial resource's calendar was not applied properly.

In version 4.5.15 this issue has been fixed. Split calendars are applied properly.

3.10 SmartCollaboration

3.10.1 Features

3.10.1.1 Chat History Available in Offline Mode

If the Mobility Application goes offline, SmartCollaboration is disabled and cannot be used. However, in version 4.5.15 the functionality has been enhanced by adding the ability of accessing the chat history in the offline mode. All other SmartCollaboration options are still disabled, though.

When the Mobility Application switches to the offline mode, all online actions are hidden. Only the 'History' link is available which displays the list of chats and the chats history in the ReadOnly mode (Figure 55). At the same time, all active chats remain shown in the Community window for the user to view in the offline mode.

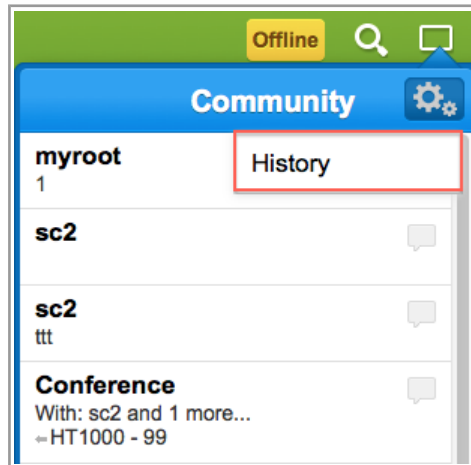


Figure 55: 'History' available in offline mode

As soon as the user returns online, the rest of the SmartCollaboration options become available again.

3.10.1.2 Persistent Sound Notifications Implemented

The SmartCollaboration functionality has been enhanced by adding the option of repeating sound notifications of an incoming message. This feature has been implemented for the Mobility Application users.

Now the 'Sound' field on the 'My Display' screen and in the 'User' screen has the 'Persistent' option (Figure 56).

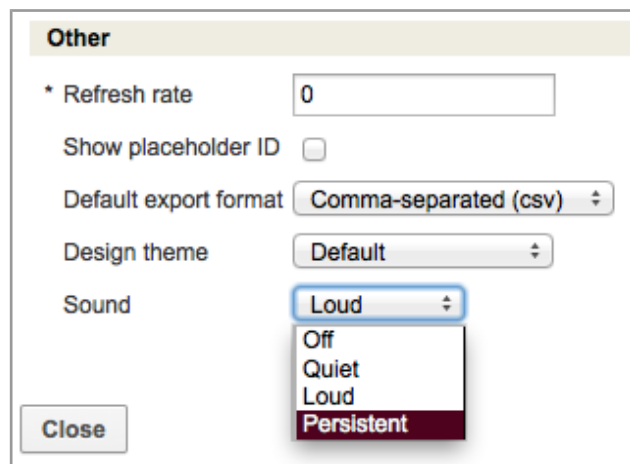


Figure 56: 'Persistent' sound option

When the 'Persistent' sound option is enabled, the sound notifications are repeated with a 5-second interval until the user opens the chat. This audio-notification helps users to answer chats promptly.

3.10.2 Improvements

3.10.2.1 '@' Symbol Has No Effect on Inventory Transfer

If a user's login contained the '@' symbol, it was impossible to transfer inventory to such user via SmartCollaboration in the Mobility Application. The 'Transfer Inventory' menu item was missing on the screen.

Now the '@' symbol is processed correctly, and logins containing '@' have no effect on the inventory transfer functionality. The 'Transfer inventory' menu item is available and can be used.

3.11 Map

3.11.1 Improvements

3.11.1.1 Resource Tree Remains Visible in Map View

If Map View was selected for a bucket containing activities, the map with activities was displayed but the Resource Tree disappeared and only empty space remained instead.

The issue has been resolved. Now the Resource Tree remains visible on the Map View.

3.12 Company Settings

3.12.1 Features

3.12.1.1 Change Effect Notifications Implemented on 'Business Rules' Screen

The 'Business Rules' screen contains the settings defining the basic principles of the company operation, thus, care must be taken when changing such settings.

As of version 4.5.15, the 'Business Rules' screen contains notifications advising the user of the consequences of changes to certain fields or sections (Figure 57).

The following notifications have been introduced:

GUI Features	Enabling / Disabling these fields may affect the Routing module logic.
ZIP code format	Changes to this field may affect the Inbound interface logic.
Overnight work	Changes to this field may change the DWH saving logic.
GPS	Changes of these fields may essentially affect the SmartLocation module work.
Map parameters	Changes to these parameters may change the Map and Routing work logic (including schedule or routing run).
Enable the Visit functionality	Changes to the current field may affect the logic of Message Steps and Activities relations.
Activity/Inventory Search Fields	Change in search fields can lead to search slowness. Please be careful.

Business Rules

Business Rules

Default Reply Address

Default codepage

GUI Features
Enabling / Disabling these fields may affect the Routing module logic.

Enable work skills support

Enable work zones support

Default activity settings Service Window Selector

ZIP code format
Changes to this field may affect the Inbound interface logic.

State format

Future days limit days

Overnight work
Changes to this field may change the DWH saving logic.

Working time hours since midnight

Points support

GPS
Changes of these fields may essentially affect the SmartLocation module work.

Identify resource by

Resource is considered idle if moved less than meters within minutes

Resource is considered to be at the activity location if the distance to it is less than meters

Map parameters
Changes to these parameters may change the Map and Routing work logic (including schedule or routing run).

Preferred map service for mobile interfaces

Distance measurement units

Country code

Geocoding type

Figure 57: 'Notifications on 'Business Rules' screen

3.12.1.2 Change Effect Notification Implemented on 'Statistics Parameters' Screen

The settings on the 'Statistics Parameters' screen may affect activities assignment to resources and influence the general company performance. It is, therefore, important that users use sufficient care when changing 'Statistics Parameters' settings.

Now, the 'Statistics Parameters' screen has a notification at the top: 'Please note: Adjusting the settings on this page may significantly change the work load for each technician, as well as significantly impact the logic of gathering statistics for the work done.' (Figure 58). It advises the user of the consequences of any changes.

Statistics Parameters	
Please note: Adjusting the settings on this page may significantly change the work load for each technician, as well as significantly impact the logic of gathering statistics for the work done.	
Default duration average time	48 minutes
Default duration standard deviation	14 minutes
Ignore value of duration time field less than	3 minutes
Ignore value of duration time field more than	1440 minutes
Default travel average time	30 minutes
Default travel standard deviation	15 minutes
Ignore value of travel time field less than	3 minutes
Ignore value of travel time field more than	480 minutes
Default Deviation Factor	0.2

Figure 58: Notification on 'Statistics Parameters' screen

3.12.1.3 'Cut Limit' Field Removed

The 'Cut limit' field in the 'Business Rules' screen which was used to define the number of past days processed by the application server, has been removed. This limit is now defined by the agreement between TOA Technologies and the customer and is no longer subject to user modifications.

3.12.2 Improvements

3.12.2.1 Placeholders Spelling Corrected

A number of misspelled placeholders have been corrected (for example, 'Duplicate filter **seleted**' changed to 'Duplicate filter **selected**').

Other placeholders have been rephrased to better express the intended meaning (for example, 'Activity has unallowed type' changed to 'Activity type not allowed').

3.12.2.2 Inactive Values of Enumeration Properties No Longer Visible

If an enumeration property was configured with the ReadWrite visibility and all values were selected as visible (by checking their checkboxes instead of selecting the '*' option), all values of such property were visible and available for selection at all times, even when some of them were deactivated in the property settings.

The logic has been changed so that enumeration properties behavior is now correct. When an enumeration property is added to a context layout, only active values are visible and available for selection.

3.12.2.3 Behavior of 'Daily Extract Configuration' Screen Improved

In the previous versions, when the 'Daily Extract Configuration' screen was opened, the Main Menu was not disabled and other screen could be accessed. In addition, if a field was selected in the Daily Extract file structure, the details of this field remained on the screen even after the user switched to a different view and then back to 'Daily Extract' (Figure 59).

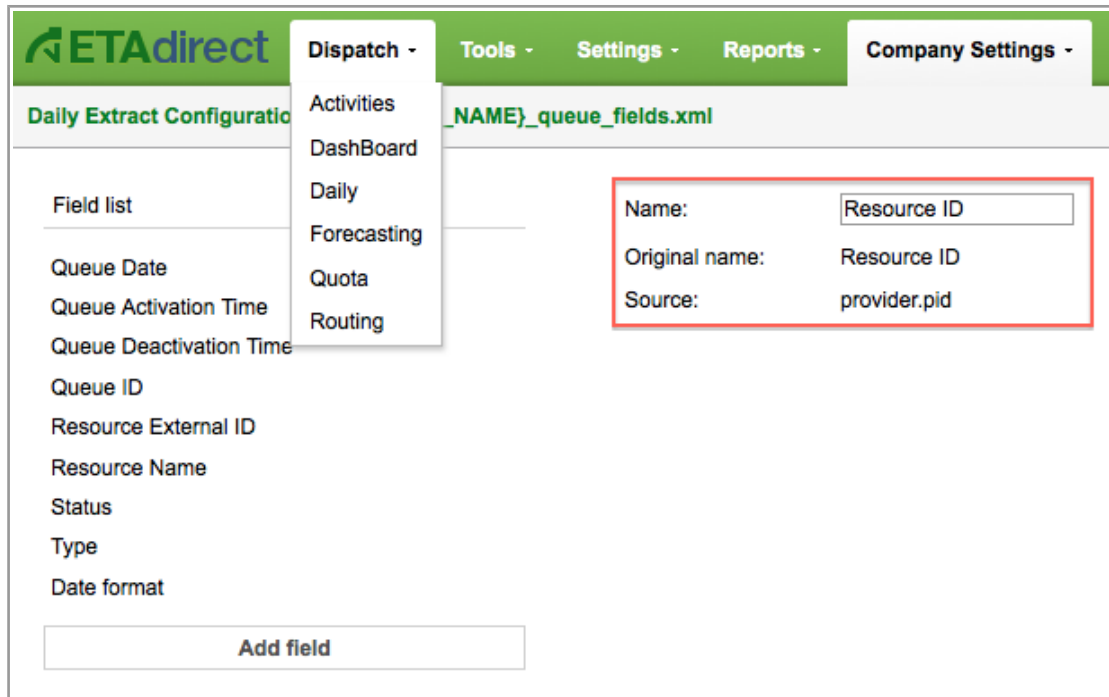


Figure 59: Active Main Menu and field details displayed on 'Daily Extract Configuration' screen

Now the 'Main Menu' is locked when the 'Daily Extract Configuration' screen is opened. Also, details of non-selected fields are hidden.

3.12.2.4 Error Message in 'Daily Extract Configuration' Screen Changed

If a file of an invalid type was selected for import in the 'Daily Extract Configuration' screen, the error message read: 'Type import file must be XML'. Now it has been changed to 'Import file type must be XML' which is grammatically correct (Figure 60).

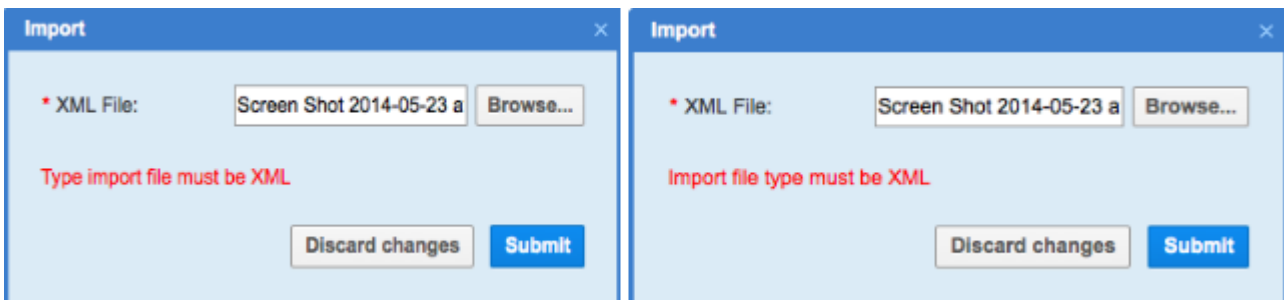


Figure 60: Incorrect (left) and correct (right) error message

3.13 Mobility Application

3.13.1 Features

3.13.1.1 Number of Days Available in Calendar Restricted

With the restriction of the interval of dates served by the Application Server, the same restrictions have been implemented in the Mobility Application calendars. The calendar in the Mobility Application shows the past dates up to the number defined by the agreement between the customer and TOA Technologies. The range of future dates to be shown in the Mobility Application is now controlled by two parameters set in the Manage Application:

- 'Display' → 'Number of days to view on "Calendar" screen'
- 'Business Rules' → 'Future days limit'

The calendar in the Mobility Application shows the future dates up to and including the earliest of the dates defined by these two parameters.

3.13.2 Improvements

3.13.2.1 Logout Point Kept after Session Expiration

Upon the user's session expiration in the Mobility Application, the user was redirected to the login screen with 3 fields – 'Company', 'Login', 'Password'. The URL to be used for re-login was not kept.

The necessary changes have been made. Now, upon the session expiration, the user is redirected to the same URL from which they initially logged in.

3.13.2.2 Surefox – 'Submit' Button Visibility Settings No Longer Cause Browser Crash

Sometimes, in the Surefox browser visibility conditions set for the 'Submit' button could cause the browser crash. At the same time, the visibility conditions were not applied, and the 'Submit' button remained available at all times.

The issue has been resolved. Now the 'Submit' button is active or inactive in accordance with the visibility conditions defined in the corresponding context layout. The browser remains available.

3.13.2.3 Files Download and View Improved

If a user attempted to upload a file in the Mobility Application without filling-in a mandatory parameter, the upload was rejected with the 'Validation failed, please review your form' error message. However, when the user afterwards filled-in the missing parameter and actually uploaded the file, the file could not be downloaded or viewed later.

This issue has been fixed in version 4.5.15. Files can be downloaded and viewed properly.

3.13.2.4 'Synchronization Complete' Message Changed

The 'Synchronization complete' message displayed after the Mobility offline synchronization is finished has been changed to 'Synchronization completed' which is more grammatically correct. Also, the corresponding placeholder has been implemented to enable users to edit and translate the message when necessary.

3.13.2.5 'Add Activity' Screen Behavior Improved

When 'Add activity' was clicked for the resource with a user for which 'Teamwork' activity group was hidden in the context layout settings, the 'Resource list is empty' warning message was shown for all activity groups.

The issue has been resolved. The teamwork-related warning messages are shown only when activities of the 'Teamwork' group are added to resources with users for which 'Teamwork' is hidden.

3.13.2.6 'Add Activity' Screen Offers Correct List of Time Slots

When only some of the time slots were available for an activity type, the 'Add activity' screen still offered all time slots existing in the company. The 'Time slot' drop-down list contained all time slots.

This issue has been resolved. Now only the time slots available for the selected activity type can be chosen in the 'Add activity' screen.

3.14 Mobility Offline Synchronization

3.14.1 Improvements

3.14.1.1 Logout after Session Expiration Possible

When in the Mobility Application the user's session expired due to relogin timeout while the user was working offline, the user could not return online and log out to log in again.

Now the user is automatically logged out with the session expiration and is able to log in again.

3.14.1.2 Route Activation Conflicts Logged Properly

If the same resource's route was activated in different time in the Manage Application and Mobility Application in the offline mode, such synchronization conflict was not logged in the 'History'. However, the conflict was logged in the 'Offline synchronization' screen.

An additional check has been added, and now synchronization conflicts related to route activation can be found in the 'History' tab of the 'Activity details' screen.

3.15 Routing

3.15.1 Improvements

3.15.1.1 'Others' Filter Works Properly

Previously, in case of a regular Routing run, the Application Server used to send all available resources in a bucket to the Routing, even when the filters defined resources to which activities could not be assigned. This was due to the 'Others' filter in the 'Activities in existing routes' section which was also involved in the resource filtration. This could result in reordering of already assigned activities with service window warnings, a wrong number of resources involved in a particular Routing run and in general decrease of Routing performance.

Now the application server sends to the Routing only the resources to which activities can be assigned. The 'Others' filter in the 'Activities in existing routes' section is no longer involved in resources filtration in case of a regular Routing run.

3.16 Message Engine

3.16.1 Features

3.16.1.1 List of Properties Supported by 'set_property' Method Increased

The 'set_property' functionality used to set values to certain fields and properties of ETAdirect has been enhanced by increasing the number of supported activity fields. The following fields have been added:

- time_slot (the message body should contain the label of the time slot)
- service_window_start (the message body should contain time in the HH:MM:SS format)
- service_window_end (the message body should contain time in the HH:MM:SS format)
- sla_window_start (the message body should contain the date and time in the YYYY.MM.DD HH:MM:SS format)
- sla_window_end (the message body should contain the date and time in the YYYY.MM.DD HH:MM:SS format)

3.16.2 Improvements

3.16.2.1 'SLA Window Warning' Trigger Works Properly

The 'SLA window warning' trigger used to send a message notifying of the activity not being completed

before the SLA window end, in fact, sent no such notification when a scheduled activity with SLA window end was moved to the non-scheduled pool.

After the necessary improvements have been made, the 'SLA window warning' trigger works as intended. SLA warning notifications are sent properly.

3.17 Parts Catalog

3.17.1 Improvements

3.17.1.1 Offline Search Now Case-Insensitive

Previously, offline search in the Mobility Application returned no results, even when matching items were available. No items were found.

The search has been made case-insensitive, and now items can be searched in the offline mode by searchable/preview fields typed in either upper or lower case.

3.18 Daily Extract

3.18.1 Improvements

3.18.1.1 File Name Validation Implemented

As of version 4.5.15 the names of Daily Extract files created in the Manage Application are validated. This is done to prevent invalid symbols used in file names which cause errors. Particularly, slash ('/') used in a file name resulted in the Daily Extract script failure and no data written to the database.

As of version 4.5.15 the user is informed on an unacceptable symbol in a file name with the following message: 'Slash is a forbidden symbol for a file name' (Figure 61). The file is not saved.

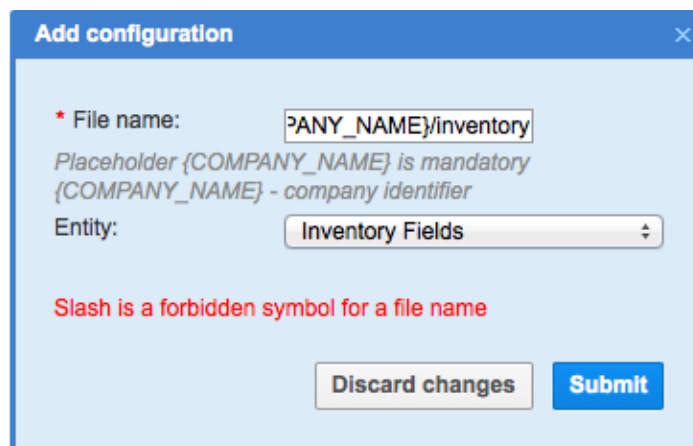


Figure 61: Error message in 'Daily Extract Configuration' screen

The user must change the file name avoiding slashes to save the Daily Extract file.

3.18.1.2 Dots in Property Labels No Longer Cause Errors

If a property with a dot ('.') in its label was added to a Daily Extract file, the Daily Extract script was executed with errors.

This issue has been fixed. The Daily Extract script runs without errors when a file contains properties with dots in their labels.

3.19 Public API

3.19.1 Features

3.19.1.1 Mobile Client API, Activity Management API – 'route_reactivation_time' Field Added to 'get_route' Method

With the introduction of the 'route reactivation time' field to ETAdirect, the corresponding field has been also added to the 'get_route' method of the Mobile Client API and Activity Management API. In addition to the 'route_start_time' and 'route_end_time' fields, the 'get_route' response now contains the 'route_reactivation_time' field corresponding to the time when the route was reactivated (if ever). The new field is returned in the YYYY-MM-DD HH:MM:(SS) format.

3.19.1.2 Resource Management API – Managed Profiles Setting Implemented

The Resource Management API has been enhanced to differentiate between setting security profiles and managed profiles for the same user. In the previous versions the 'insert_user' method assigned the same profiles to the user as both security profiles and managed profiles. In fact, there may be cases when a user has to have a permission to manage other profiles or when one user has to manage multiple profiles (as an administrator).

Therefore, the 'insert_user' and 'update_user' methods now have a new element, 'managed_profiles' which sets the profiles which the user can manage. At the same time, the 'profiles' element now only sets the user's security profiles. The 'managed_profiles' element has the following format:

```
<managed_profiles>
  <profile>Corporate</profile>
</managed_profiles>
```

The 'get_user' method has also been changed to return an additional element – 'managed_profiles' containing the profiles managed by the user.

3.19.1.3 Resource Management API – Managed Profiles Validation Implemented

The 'insert_user' and 'update_user' requests now check if the requesting user (the user defined in the 'user' authentication structure) has all profiles specified in the 'profiles' and 'managed_profiles' elements of the request in their own managed profiles. This new check ensures that the requesting user has the appropriate permission to assign profiles to other users.

If the requesting user does not have the required managed profiles, the method returns an error for which the new error code and message have been introduced:

```
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
```

3.19.1.4 Activity Management API – 'get_activities' Method Implemented

As of version 4.5.15 the Activity Management API has been enhanced by adding a new method, 'get_activities'. This method is intended to return a list of activities matching certain filters. The 'get_activities' request specifies the resource whose activities are to be returned (with the option of defining whether activities of child resources are to be returned), the date range in which the activities are to be searched and the filters by which the search results are to be selected. Also, the request can specify the properties to be returned for the found activities.

The filters are defined as an array of 'filter_expression' elements defining either a single expression to

which the activity properties are to be compared or a number of expressions joined by the 'and' or 'or' principle. The comparison principles are set with the 'operator' fields sent for each expression (for example, 'contains', 'less_than' or 'one_of').

The response returns the activities matching the criteria specified in the request. The activities search has certain limitations, such as the limitation of the number of activities returned in the response, the date range in which the search is performed, the number of custom properties to be returned, etc. Whenever the limits are exceeded, the response will contain an error message. The response size and the operation run time are also limited. When the response size or the operation run time is exceeded, the response contains only some of the activities and the 'have_more_results' field indicating that there are more activities matching the requested criteria. In this case the response is to be repeated to return the rest of the activities.

Please refer to the 'Activity Management SDK' document for details.

3.19.2 Improvements

3.19.2.1 Inbound API – Correct Error Message Returned for Invalid 'time_of_booking' Field Format

When the 'time_of_booking' field in a request had incorrect format, the Inbound API returned the following error message: 'Field contents is not a date-time: SLA window'. This message was misleading as, in fact, the problem was with the 'time_of_booking' field and not with 'SLA window'.

As of version 4.5.15 the Inbound API returns the correct error message in the situation described above: 'Field contents is not a date-time: time_of_booking.' This error message immediately indicates the error to the user.

3.19.2.2 Inbound API – Activities Management in Routes Improved

In some cases, if several Inbound requests simultaneously creating activities and canceling other activities in the route were sent one after the other, the results were other than expected. Some activities which were to be canceled remained pending and the 'Unable to insert a new appointment after the specified one. ApptPreviousID = <some_id>' error message was returned.

This issue has been resolved in version 4.5.15. Now the Inbound API requests perform according to their design – the activities which have to be cancelled are cancelled and new activities are created properly. No error messages are returned any longer in such situations.

3.19.2.3 Inbound API – Property Length Restricted

Previously, the maximum length of activity property in the database was restricted to 64K while no such restriction existed for the API and the application server. Therefore, when properties with longer values were added via the API, it could cause problems in the applications.

This issue has been resolved by restricting the property value in the Inbound API to 65,535 bytes. Now, when a property longer than 65,535 bytes is sent, it is truncated and the warning in the following format is returned: 'Property value too long – truncated. Property label='WO_COMMENTS', received length=262140, max allowed length=65535'.

3.19.2.4 Resource Management API – Correct Error Message Returned in 'set_resources_calendars' Method

If a 'set_resources_calendars' request contained an invalid value of the 'points' field, such request returned the following error: 'Invalid duration: {ptsvalue}'. At the same time, the 'duration' value had no relation to the actual error.

In version 4.5.15 the error message text has been changed to the correct one: 'Invalid points: {ptsvalue}'. This message clearly indicates the problem in the request.

3.19.2.5 GPS API – 'get_info' Method Removed

The 'get_info' method has been removed from the WSDL of the GPS API. The GPS API, in fact, uses only two methods, 'set_position' and 'get_position', and the 'get_info' method has been removed as unused.

3.19.2.6 SmartLocation API – 'limit' Field Processed Correctly

According to the design, the 'limit' field used in the 'get_sources_in_area' request to restrict the number of returned records is optional. At the same time, it was processed as mandatory, and a request with a missing 'limit' field returned an error.

The issue has been resolved. Now the 'limit' field is processed as optional, and no error messages are returned when the 'limit' field is missing.

3.19.2.7 Capacity API – 'set_quota' Request for Past Dates No Longer Causes Errors

Previously, if a 'set_quota' request was sent to set the quota for a past date, the response contained an incorrect error message. If the same request was repeated, the second response contained the correct error message.

The issue has been resolved. If a 'set_quota' request is sent for a past date, the correct error message (Action on past date is not allowed) is returned already in the first response.

3.19.2.8 History API – Buffer Size Increased to 2,000,000 Records

The size of the buffer storing the data to be retrieved by the History API has been increased to 2,000,000 records. This ensures data consistency and prevents loss of historical records.

3.19.2.9 History API – Redundant Field Removed

Previously, History API responses contained a redundant field – number of package ("#"):

```
"found": true,
  "next_token": "140305-2066,4",
  "history": [
    {
      "operation": "create_route",
      "action_time": "2014-03-05 14:19:53",
      "user": "in132",
      "route": {
        "date": "2014-03-05",
        "resource_id": "mobility_directions",
        "changes": {
          "time_zone": "Eastern",
          "traveling_time": "10",
          "calendar_time_from": "2014-03-05 05:00:00",
          "calendar_time_to": "2014-03-06 04:55:00"
        }
      }
    },
    {"#": "140305-2066"}
  ]
}
```

In version 4.5.15 the package number field has been removed from the History API response.

4 ETAdirect Version 4.5.16

4.1 Changes Overview

[Resource track in Map and Time View improved](#)

[Visibility conditions applied properly](#)

[Action links generate correct requests](#)

[Correct message shown in case of connection interruption](#)

[Mobility Application performance in poor connection improved](#)

[Application behavior in case of connection loss improved](#)

[Surefox – image capture improved](#)

[Inventory shown correctly for activities moved from non-scheduled to scheduled pool](#)

['You must be online to relogin' message displayed at attempt to login in offline mode](#)

[Surefox – sound notifications work properly](#)

[Message status icons applied correctly](#)

['Nearby' screen shows correct users list](#)

[Activity Management API – new error codes implemented for 'get_activities' method](#)

4.2 Activity Views

4.2.1 Improvements

4.2.1.1 Resource Track in Map and Time View Improved

In version 4.5.16 the resource tracking functionality has been significantly improved in respect of data display consistency between the Time View and the Map. Particularly, the following aspects have been addressed:

- Previously, the Time View showed the resource's track incorrectly if the resource and its parent bucket were in different time zones. The resource's track was shown to begin according to the bucket time zone.
As the result, the resource track beginning could be shifted several hours against its actual time. This issue has been resolved. The Time View now shows the resource's track according to its time zone.
- If the resource's idle track point was within the activity duration when the activity had not been started, the Map and Time View showed such idle point differently. The Map View showed a blue dot (compliance), while the Time View showed a yellow dot (idle).
The process of data exchange with the SmartLocation server has been improved. Idle time is now represented correctly both in the Time View and on the Map. The same colors are used in both cases.
- The idle time settings in the 'Business Rules' screen are now processed correctly. Both the Time View and the Map show idle time according to these settings.
- The Time View now correctly displays the idle time data received from the SmartLocation server which improves the overall representation of the resource's movement.
- The Time View now displays the travel time in accordance with the data received from SmartLocation.
- The Map has been enhanced to display the alert points according to the resource history of the Time View.

4.3 Activity Details

4.3.1 Improvements

4.3.1.1 Visibility Conditions Applied Properly

Previously, when the 'not in', 'doesn't contain', '<' and '<=' conditions were applied to an empty property which was not then visible on the screen, such conditions were always returned as 'false'. This resulted in incorrect calculation of property visibilities, and some property values were not saved.

As of version 4.5.16 the conditions have been improved, so that when they are applied to empty properties they are returned as 'true'. Therefore, the corresponding visibilities are calculated correctly and the properties are saved and visible.

4.4 Plugin API

4.4.1 Improvements

4.4.1.1 Action Links Generate Correct Requests

In the previous versions action links related to external plugins having only the 'Relative path/URL' parameter configured generated HTTP GET requests in the Mobility Application and HTTP POST requests

in the Manage Application. At the same time, such plugins should always be processed as GET requests, regardless of whether they were sent from the Manage or Mobility Application.

The external plugins behavior has been improved. Now they are always processed as GET requests if the user does not use the 'POST data' field.

4.5 Mobility Application

4.5.1 Improvements

4.5.1.1 Correct Message Shown in Case of Connection Interruption

If in the Mobility Application the connection was interrupted while the scripts were still loading, the screen displayed the 'Wait...' message which remained on the screen indefinitely (Figure 62).



Figure 62: 'Wait...' message

In version 4.5.16 this issue has been fixed. Now the user sees the correct error message, 'Network instability detected. Please refresh page or relogin' where 'relogin' is a link redirecting to the logout screen (Figure 63).

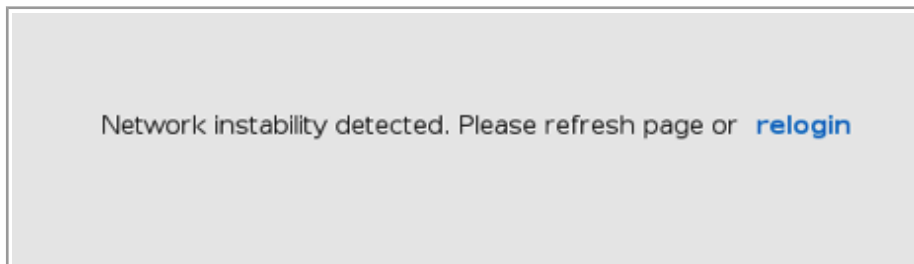


Figure 63: Correct error message

4.5.1.2 Mobility Application Performance in Poor Connection Improved

In version 4.5.16 the system has been improved to increase its performance in poor Internet connection. Particularly, handling of resources not fully loaded during the application initialization has been improved. If some resources have not been fully loaded, the user is advised to refresh the browser page or to relogin. (Figure 64).

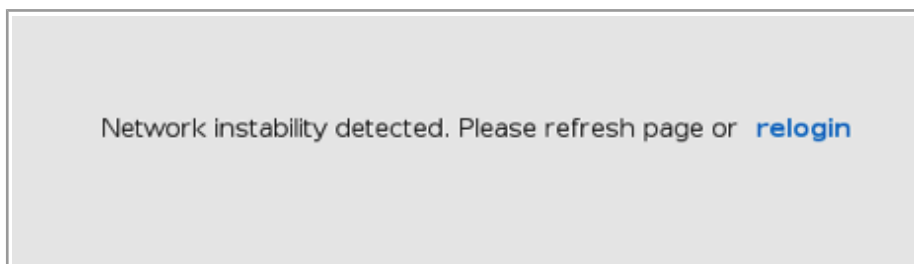


Figure 64: Message displayed for incompletely loaded resources

The application loading process can now be visually monitored. For this purpose a new indicator has been implemented. This indicator displays the loading progress as one, two or three dots appended to the 'Loading' message. The loading progress indicator is located under the 'Wait... ' message (Figure 65).

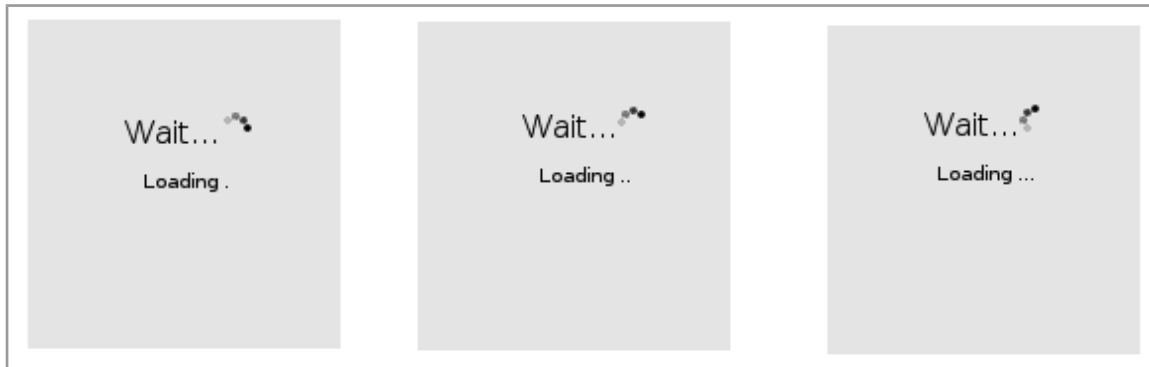


Figure 65: 'Loading' indicator with one (left), two (center) and three (right) dots

4.5.1.3 Application Behavior in Case of Connection Loss Improved

If the 'Add activity' button was tapped immediately following the Internet connection loss, the screen would freeze and remain so for some time. The reason was that the Mobility Application always sent requests for all resources available for teamwork, whenever the 'Add activity' button was tapped. Now the resources are searched for teamwork only when the company has activity types with the 'Teamwork' feature enabled. The Mobility Application screen no longer freezes in case of the Internet connection loss.

4.5.1.4 Surefox – Image Capture Improved

If the user created a file property of the 'Capture image' type with large size (the 'Maximum picture width (in pixels)' and 'Maximum picture height (in pixels)' fields) and then added it to a Mobility Application context, the functionality was not working properly. After a photo was taken, the screen became corrupted. If the device was then rotated horizontally or vertically, the screen became normal again, but the photo was not uploaded.

In version 4.5.16 image processing has been improved, so that the image has a correct format and can be saved properly.

4.5.1.5 Inventory Shown Correctly for Activities Moved from Non-Scheduled to Scheduled Pool

If a resource had a non-scheduled activity with customer inventory and then that activity was moved to the scheduled pool, the customer inventory was missing. The customer inventory pool was empty. As of version 4.5.16 customer inventory is displayed correctly when the activity is moved from non-scheduled to scheduled pool.

4.6 Mobility Offline

4.6.1 Improvements

4.6.1.1 'You must be online to relogin' Message Displayed at Attempt to Login in Offline Mode

If a user tried to login in the offline mode, the screen displayed the 'Wait...' message. Such behavior could be misleading.

In version 4.5.16 this issue has been fixed, and at an attempt to access the login page in the offline mode, the 'You must be online to relogin' message appears which contains the correct description of the problem (Figure 66).

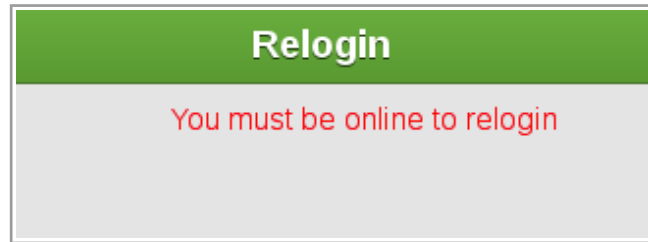


Figure 66: Correct error message

4.7 SmartCollaboration

4.7.1 Improvements

4.7.1.1 Surefox – Sound Notifications Work Properly

Users of mobile devices based on Android 4.0.4 using ETAdirect in the Surefox browser were not getting sound notifications of incoming messages. Only for the first received message the sound notification was heard, while for all further messages no such notifications were received.

This issue has been fixed. Now sound notifications are received in the Surefox browser properly.

4.7.1.2 Message Status Icons Applied Correctly

Previously, if the connection was very poor, the 'Delivered' icon (envelope) was shown even after the message had been already read.

The necessary changes have been made. Now the status icons are applied correctly and indicate the actual message status.

4.7.1.3 'Nearby' Screen Shows Correct Users List

When resources of the same parent bucket were joined in a teamwork, their users were sometimes duplicated in the 'Nearby' screen in SmartCollaboration in the Mobility Application (Figure 67). This behavior was observed when some of the resources in the teamwork had no users and shared their geolocation.

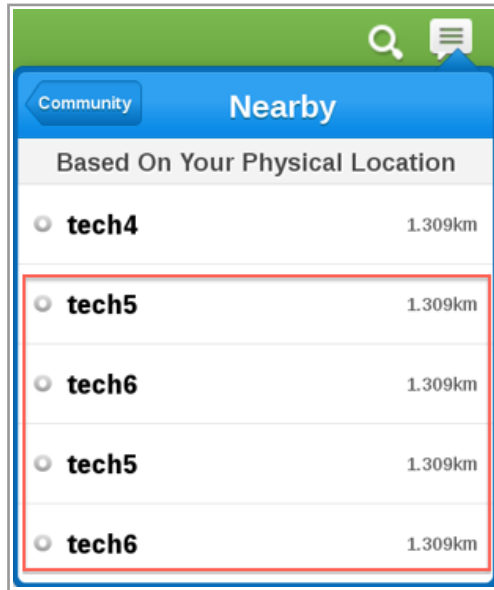


Figure 67: Duplicated resources on 'Nearby' screen

The logic of nearby resources search has been improved. Now the 'Nearby' screen shows the correct list of nearby users without duplicating entries.

4.8 Public API

4.8.1 Improvements

4.8.1.1 Activity Management API – New Error Codes Implemented for 'get_activities' Method

The 'get_activities' method allowing to search activities by multiple search criteria has certain restrictions. Particularly, only 3 requests can be run simultaneously and only 10 requests can be queued for processing. Also, a single operation can run no longer than 30 seconds.

As of version 4.5.16 new error codes to be returned when these limits have been exceeded have been implemented as follows:

- 32 Too many concurrent requests (the maximum number of requests has been exceeded)
- 33 Request too expensive (the request runs longer than the maximum time)

5 ETAdirect Version 4.5.17

5.1 SmartCollaboration

5.1.1 Improvements

5.1.1.1 Sound Notifications Work Properly in Surefox

In the previous versions, sound notifications for SmartCollaboration did not work properly for incoming messages.

This occurred due to backward compatibility issues in Surefox and Android.

The issue has been fixed in version 4.5.17 and now sound notifications in SmartCollaboration are present and work as intended upon receiving messages.

In order for the SmartCollaboration notifications to function properly, please make sure that:

- all relevant options for sound notification and message sending are set for the respective user profile
- all sound related settings in the browser are enabled.

6 ETAdirect Version 4.5.18

6.1 Changes Overview

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['% to stop booking' at' value color-coded correctly](#)

[Quota statuses handled correctly](#)

[Work zone status change shown correctly in history](#)

[Status icon shown only for allowed Quota levels](#)

[Quota recalculated properly with 'Max Available' value empty](#)
[Maximum period of Quota recalculation increased](#)
[Time slot and capacity category selection added to Quota Map](#)
['Mass Populate' copies values correctly](#)
[Next Quota cell selected after 'Enter' key is pressed](#)
[Locked cells ignored by 'Mass Populate' functionality](#)
[Quota Map shows work zones correctly](#)
[Nested tabs behavior improved](#)
['Identify Inventory by' context displayed properly](#)
[Activity Types displayed properly](#)
[Special characters in visibility condition values no longer affect context performance](#)
[Large display profiles re-imported correctly](#)
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[SmartCollaboration only displays current helpdesk conversations](#)
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[Re-connect Message Only Appears When Appropriate](#)
[Natural Learning Algorithm for daily repeated non-stationary processes improved](#)
[Start-time statistics only includes activities that conform to Service Window or SLA constraints](#)
[Natural learning statistics module improved](#)
[Start-time statistics algorithm improved](#)
['Day of Call' calculated and displayed correctly](#)
[Respective values recalculated correctly for 'Time Slot' and 'Service Window'](#)
[History API – 'realm' field removed](#)
[History API – customer inventory updates retrieved](#)
[GPS API – service location point URL contains correct domain name](#)
[Activity Management API – successful 'get activities' responses contain correct header](#)
[Daily Extract – files exported correctly with properties absent from database](#)
[Activity duration calculated correctly with 'Define Duration Manually' feature disabled](#)
[Activity move improved](#)

6.2 Manage Application

6.2.1 Improvements

6.2.1.1 Manage Application Works Properly with Iframe Integration

Previously, the Manage Application did not work when iframe integration was used. A security error was displayed instead.

As of version 4.5.18 the Manage Application can be accessed properly through the iframe functionality.

6.2.1.2 Resource Status Shown Correctly

Previously, if a resource had been set to 'Inactive', on next opening its status was shown as 'Active'. The resource was marked as inactive in the Resource Tree, though. Such behavior was only observed for the resources with ReadWrite visibility of the 'Quota management' field.

This issue has been resolved. Now the 'Status' field of the 'Resource Info' screen shows the actual status of the selected resource.

6.2.1.3 Visibility Settings of 'Show Placeholder ID' and 'Force Password Change' Fields Improved

In the previous versions the 'Show placeholder ID' and 'Force password change' fields had only one visibility option – ReadOnly (Figure 68). When one of these fields was added to a context layout, the user could either set the ReadOnly visibility or no visibility at all.

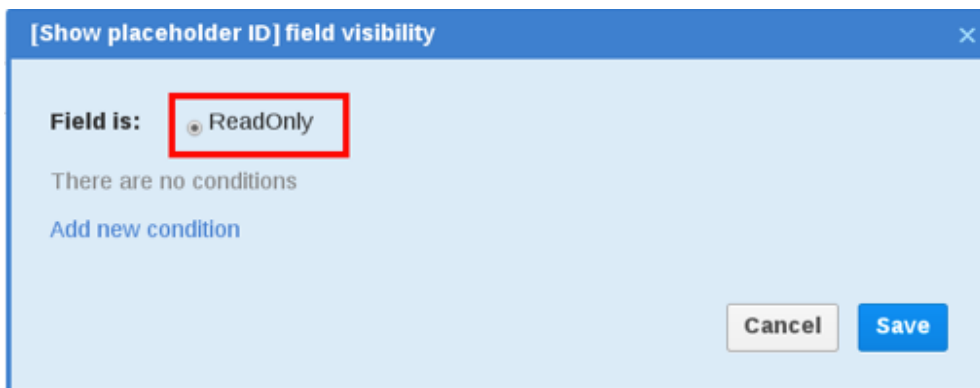


Figure 68: ReadOnly visibility

The necessary changes have been made. Now the 'Show placeholder ID' and 'Force password change' fields have all applicable visibility options – ReadOnly, ReadWrite, and Mandatory (Figure 69).



Figure 69: All visibility options

6.2.1.4 'Time Slot' Checkbox Value Saved Correctly

If an activity type does not support time slots, the 'Time Slot' field shows the service window value instead. In this case the 'Time Slot' field also has a checkbox defining whether the service window has been set.

In the previous versions the service window value was sent regardless of the 'Time Slot' checkbox setting.

This issue has been resolved in version 4.5.18. When the checkbox is unchecked, the service window value is not sent.

6.2.1.5 'Resource Work Zones Map' Permission Added

As of version 4.5.18 a new permission has been added – 'Resource Work Zones Map'. This permission controls the display of the map on the 'Resource Work Zones' screen (Figure 70).

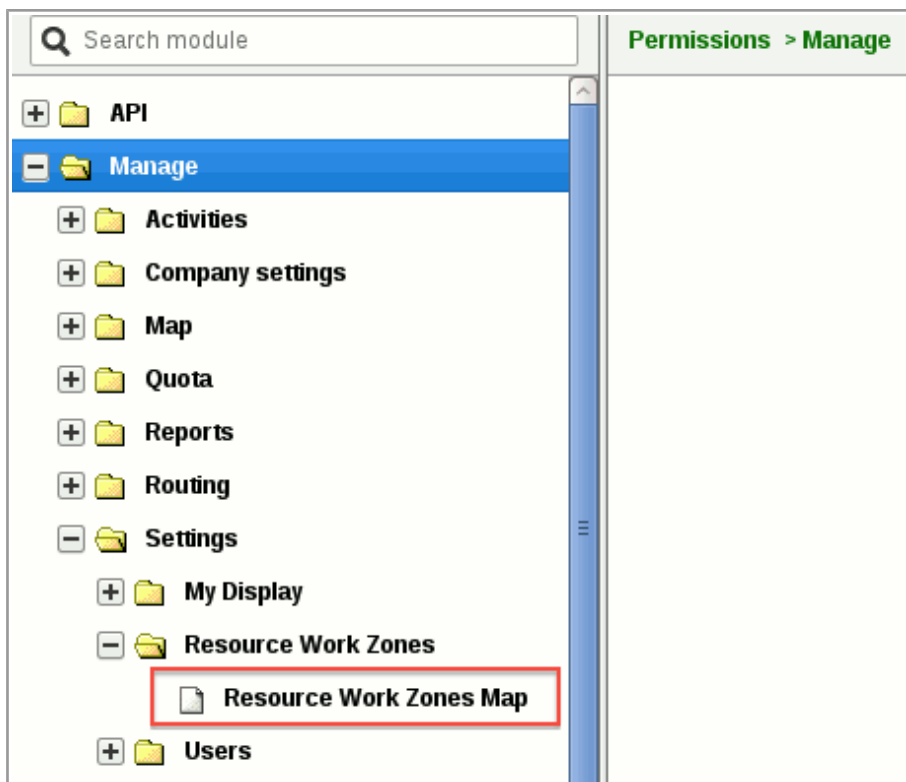


Figure 70: 'Resource Work Zones Map' permission

When the permission is denied to a user, the 'Resource Work Zones' screen only shows the list of work zones without the map.

6.2.1.6 Export as .xlsx File – Properties Exported Correctly

If the default export format was set to 'Excel 2007 (xlsx)', the Activity View export file contained only 26 properties even when the actual number of properties was higher. Other properties were not exported. The issue has been fixed. Now, all properties are exported in .xlsx file.

6.3 Activity Details

6.3.1 Improvements

6.3.1.1 'Get geolocation' Button Behavior Improved

In the previous versions the 'get geolocation' button was hardcoded in the Mobility Application, therefore it could not be translated or changed to any custom text.

As of version 4.5.18 the hardcoded text has been replaced by the proper placeholder – 12226 {Get geolocation}. Now, the property can be edited properly, as needed (Figure 71, 72).

The screenshot shows the 'Company Settings' interface with a 'Glossary' section. A table lists various glossary items. The row for ID 12226, 'Get geolocation', is highlighted with a red border. The 'Custom Text / Spanish' column for this row contains the text 'Spanish Geo location'. A 'Clear' button is visible next to the text input field. Below the table are 'Reset' and 'Save' buttons.

Category	ID	Inherited Text / English	Custom Text / Spanish
glossary	12234	Geolocation element >>	<input type="text"/> Clear
glossary	12226	Get geolocation >>	Spanish Geo location Clear
glossary	5158	Share geolocation in teamwork >>	<input type="text"/> Clear
glossary	9083	Track geolocation in mobile interfaces >>	<input type="text"/> Clear
glossary	5157	Track geolocation in mobile interfaces (requires GPS device and browser with HTML5 support) >>	<input type="text"/> Clear
glossary	9084	Track geolocation of resources with inactive routes >>	<input type="text"/> Clear
property_desc.pdgui	geolocation	geolocation >>	<input type="text"/> Clear

Figure 71: Translating 'Get geolocation' property to custom text

The screenshot shows the 'Add activity' form. The 'test_geolocation' field contains the text 'Spanish Geo location', which is highlighted with a red border. The form includes fields for 'Duration', 'Type' (set to 'Lunch break'), 'Orden de cita' (set to 'Ordenada'), and 'Notes'. 'Dismiss' and 'Submit' buttons are at the bottom right.

Figure 72: Translated property shown in the actual context

6.3.1.2 Grouped Properties Positioned Correctly on Context Screens

If some properties were grouped in one section within a tab on the 'Context layout structure' screen, such section would always be positioned below other not-grouped properties in the actual context, regardless of its position in the context layout settings (Figure 73,74).

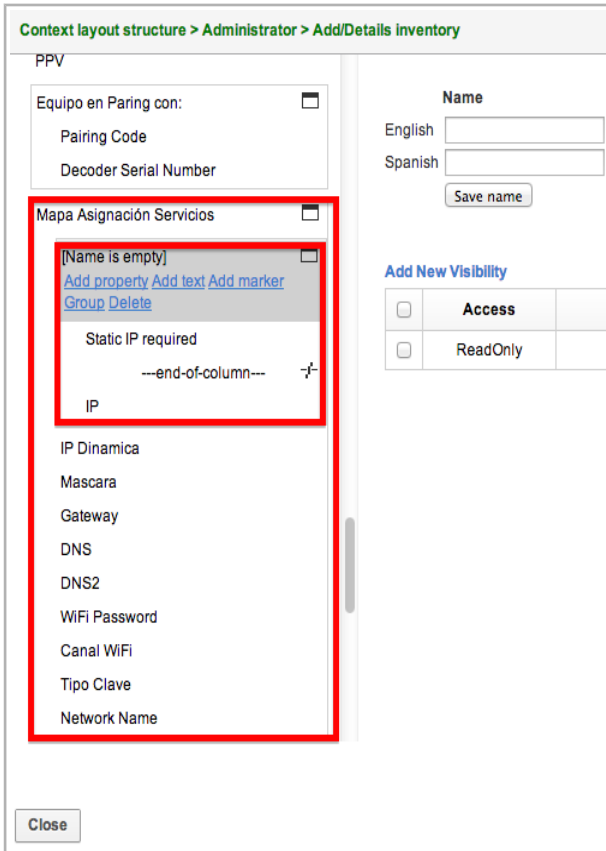


Figure 73: Grouped properties position on 'Context Layout Structure'

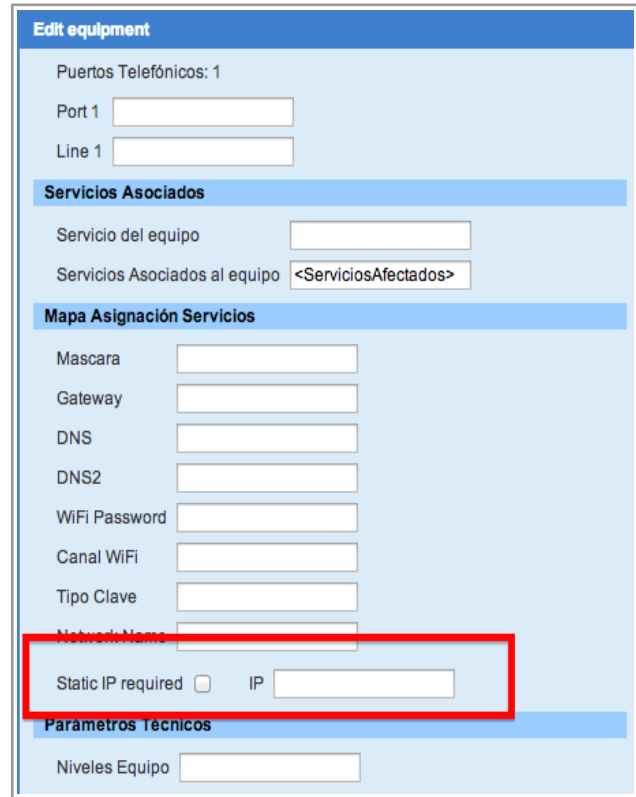


Figure 74: Position of grouped properties in the actual context

This issue has been resolved. As of version 4.5.18, grouped properties are always displayed correctly on the context, according to configuration.

6.3.1.3 Date/Time Fields Logged Correctly to Activity History

By design, the Activity History stores all the date/time fields in UTC.

However, when the date/time field for a non-scheduled activity was updated, the new values were saved to Activity History without any time zone adjustment performed.

This issue has been fixed. As of version 4.5.18., the date/time field value updates for non-scheduled activities are sent to Activity History correctly.

6.3.1.4 Enumeration Properties Displayed Correctly in Filter Conditions

If an enumeration property included the '000' value index (Figure 75), such value was displayed (instead of the property name) along with the property label on the properties list in Filter conditions, which is incorrect (Figure 76).

As of version 4.5.18, the necessary changes have been made to ensure that enumeration property names are displayed correctly, regardless of their value index settings (Figure 77).

Add Enumeration Property

Property Info

* Property name: Jeopardy code

* Property Label: jeopardy

Property hint:

* Language: English

* Entity: activity

Combobox
 Radio group
 Clone property on Reopen/Prework

Enumeration values

Active

Add Edit

Values

a[000]
b[111]
c[222]

Cancel Add

Figure 75: Enumeration property with '000' value index

Add filter condition

Add filter condition

Field: a [jeopardy]

Dynamic

Condition: In

Value:

Available	Selected
b	
c	
a	

Cancel Add

Figure 76: Property value displayed instead of property name

Add filter condition

Add filter condition

Field: Jeopardy code [jeopardy]

Dynamic

Condition: In

Value:

Available	Selected
b	
c	
a	

Cancel Add

Figure 77: Property name displayed correctly

6.3.1.5 Correct Identifiers Shown for Mass/Repeating Activities in the Mobility Application

If there were only mass/repeating activities in a technician's route, the Mobility Application would show irrelevant IDs, that confused a user (Figure 78).

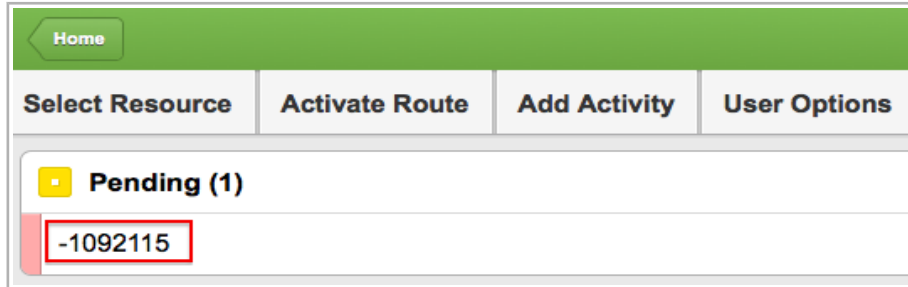


Figure 78: Confusing activity IDs in the Mobility Application

The necessary changes have been made, and now correct activity identifiers are displayed in the Activity List of the Mobility Application.

6.3.1.6 Mobility Application: Action Links to External URLs Work Properly in Chrome 35.xx

Previously, those action links in the Mobility Application, leading to external URLs, did not work in the Google Chrome browser version 35.xx.

As of version 4.5.18, processing of the action links has been improved to ensure that they work properly in the Mobile Chrome 35.xx.

6.3.1.7 Time Slot Checkbox Works Properly

Previously, at an attempt to create a not ordered activity in the Manage Application, the 'Time Slot' checkbox on the 'Add activity' screen was always sent to the Application Server as checked, even though it was unchecked by the user. Therefore, the activity would always be created as ordered.

As of version 4.5.18, the 'Time Slot' checkbox works properly, so not ordered activities can be successfully created.

6.3.1.8 Activity Move to 'Not Ordered' List by Drag-and-Drop Improved

At an attempt to drag-and-drop an activity to the 'Not ordered' section in the 'Move' context, such activity would be successfully moved, only if dropped in the very beginning of the list. If dropped elsewhere in the section, the activity would be placed to the 'Do not move' pool.

As of version 4.5.18 this has been fixed. The activity can be moved to not-ordered list by dragging and dropping it at any place in the 'Not ordered' section.

6.3.1.9 Final Travel Time Shown For All Routes

Previously, travel time from the last activity in the route would only be shown if that route was deactivated.

As of version 4.5.18, the final travel time is shown for all routes regardless of their status, as intended.

6.4 Activity Views

6.4.1 Features

6.4.1.1 Resource Sorting Improved

Resource sorting in the Resource tree used to be case sensitive in the Time View. Resources with name starting with uppercase letters were shown before resources with names starting with lowercase letters, even if such sorting was not alphabetic. In the List View, however, resource sorting was case-insensitive and they all were sorted alphabetically which is the correct behavior.

In version 4.5.18 the resource sorting has been improved. Now resource sorting is case-insensitive both in the Time and List View.

6.4.2 Improvements

6.4.2.1 'Operation Time' Shown Correctly in Activity History

Previously, the 'Activity History' screen was missing values in the 'Operation time' column.

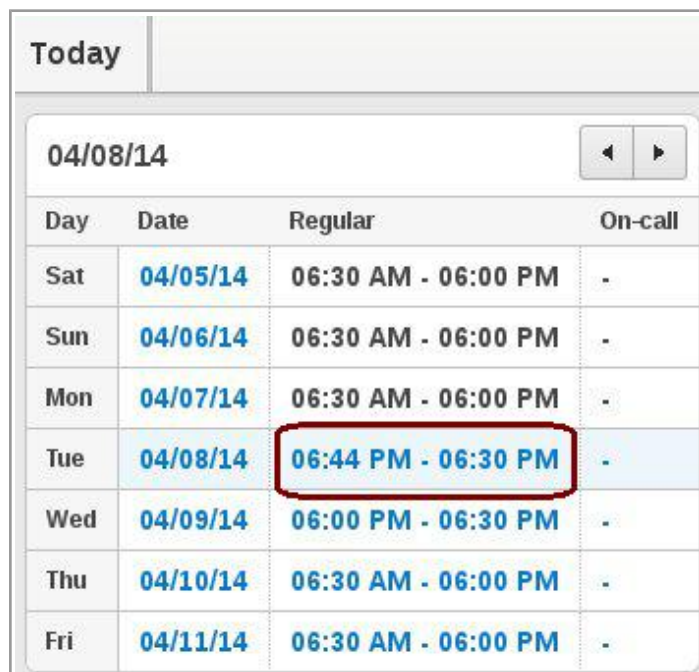
The issue has been resolved. Now, if the 'Operation time' has been logged, it is shown on the 'Activity History' screen.

6.5 Calendars

6.5.1 Improvements

6.5.1.1 Mobility Application – Working Start Time ReadOnly for Started Routes

In the Mobility Application the working start time in the Calendar could be edited even after the route start. This could result in start time being later than end time, even when Overnight was disabled (Figure 79). The Calendar form could be submitted with such data.



Day	Date	Regular	On-call
Sat	04/05/14	06:30 AM - 06:00 PM	-
Sun	04/06/14	06:30 AM - 06:00 PM	-
Mon	04/07/14	06:30 AM - 06:00 PM	-
Tue	04/08/14	06:44 PM - 06:30 PM	-
Wed	04/09/14	06:00 PM - 06:30 PM	-
Thu	04/10/14	06:30 AM - 06:00 PM	-
Fri	04/11/14	06:30 AM - 06:00 PM	-

Figure 79: Start time later than end time

An additional check has been added. Now the working start time remains ReadOnly after the route start.

6.5.1.2 Past Inconsistencies in 'provider_calendar' Have No Effect on Future Records Processing

When any inconsistent data was present in a past 'provider_calendar' record (for example, an empty 'Non-working reason' when the resource was recorded as non-working), such inconsistency could cause incorrect processing of future records of the same resource.

As of version 4.5.18 this issue has been resolved. Now future resource calendar records are processed correctly regardless of any inconsistencies in the past.

6.6 Company Settings

6.6.1 Improvements

6.6.1.1 Surveys Created Correctly

If a new survey was added in 'Company Settings' → 'Surveys', such new survey was added with an empty name. At the same time, an error was logged.

The issue has been resolved. Now new surveys appear on the 'Surveys' screen with their names. No errors are logged anymore.

6.6.1.2 Survey Questions Displayed Properly

Previously, if a new question was added to a survey in the Manage Application, such new question did not appear in the 'Questions' screen.

The necessary changes have been made. Now the newly-added questions are displayed in the 'Questions' screen of the current survey.

6.7 DashBoard

6.7.1 Improvements

6.7.1.1 'Auto-Routing Results' Report Filtered by 'Activity Type Group'

When the 'Auto-Routing Results' report was created for a bucket with activities belonging to different activity type groups, such report could not be filtered by activity type group using the 'Activity type group' drop-down list (Figure 80). The chart always showed the results for all activities in the bucket regardless of the filter setting.

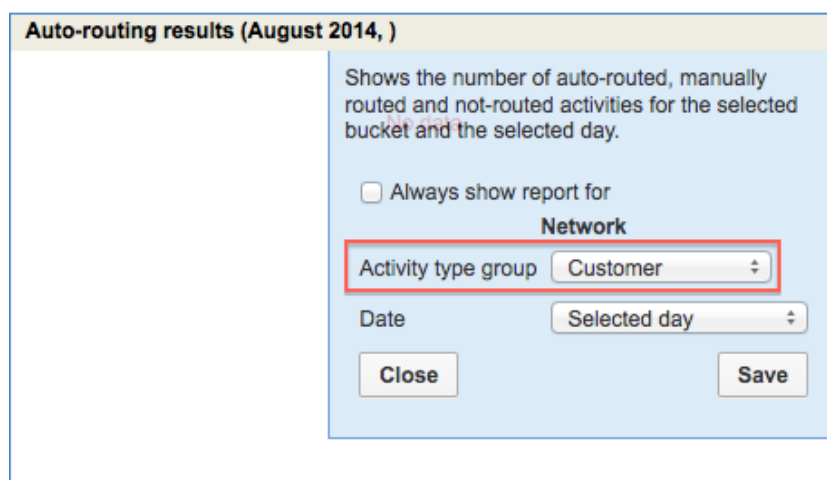


Figure 80: 'Activity type group' filter

This issue has been fixed in version 4.5.18. The 'Auto-routing results' chart shows the data according to

the 'Activity type group' filter setting.

6.8 Inventory

6.8.1 Improvements

6.8.1.1 Inventory Deinstall Works Properly in Manage Application

It was impossible to deinstall non-serialized inventory in the Manage Application. Upon entering a number of inventory into the 'Quantity' field of the 'Deinstall Inventory' screen, the form would be automatically refreshed with the 'Quantity' value deleted. Such behavior was observed every time, when there was another field visibility dependent on the 'Quantity' field value.

The necessary changes have been made. As of version 4.5.18, the 'Quantity' value no longer disappears, so that the inventory can be successfully deinstalled.

6.9 Daily Extract

6.9.1 Improvements

6.9.1.1 New Placeholders Added

Previously, there was one placeholder used in the Daily Extract folder paths, file names etc. That is the {companyname} – name of the company.

As of version 4.5.18 the new placeholder has been additionally implemented: {instancename}, that is a name of the instance. So, now there is a possibility to use both, the company name and the instance name in the Daily Extract structure.

6.10 Mobility Application

6.10.1 Improvements

6.10.1.1 Internet Explorer 9 – Login to Mobility Application Improved

In the previous versions, an attempt to login to the Mobility Application in the Internet Explorer 9 would result in the 'Wait...', 'Loading..' messages which remained on the screen without any further progress (Figure 81).



Figure 81: 'Wait...', 'Loading..' messages

As of version 4.5.18 the issue has been resolved. Now, users can successfully login to the Mobility Application using the Internet Explorer 9 browser.

6.10.1.2 'Submit' Button Shown in Accordance with Visibility Settings

There were cases, when the 'Submit' button would always be shown enabled in the Mobility Application screens, regardless of its visibility (enabled or disabled). If the 'Submit' button – that should have been disabled according to configuration – was tapped, nothing would happen, and the form would not be submitted.

Visibility calculation mechanism has been improved. Now, the 'Submit' button is always shown in a proper

state (enabled or disabled), depending on its visibility settings.

6.10.1.3 'View more' Button in Inventory Tab Works Properly

The 'View more' button did not work in the 'Inventory' tab of the Mobility Application in case the inventory had no 'Inventory type' set.

Note: By design, the 'View more' button appears only when a number of inventory in the list exceeds the 'Number of inventory per page' set in 'User Options'.

This issue has been addressed. As of version 4.5.18, the system uses the default inventory type if no 'Inventory type' has been selected, so the 'View more' button now works correctly according to design.

6.10.1.4 'Duration' Displayed Properly in 'Add activity' Screen

In the previous versions, the 'Duration' field would not sometimes appear in the 'Add activity' form of the Mobility Application, even though the 'Define duration manually' feature was enabled for the activity type, and the 'Duration' field was included in the layout structure with 'ReadWrite' visibility.

As of version 4.5.18, the Linked properties functionality has been fixed to ensure that the 'Duration' field visibility is properly linked to the Activity type group. Now the 'Duration' field is shown properly in the 'Add activity' form.

6.10.1.5 Work Skills/Work Zones Processing in Self-Assignment Improved

Previously, the algorithm filtering activities by work skills and work zones in the 'Self-assignment' and the 'Nearby activities' functionalities, did not account for corresponding activity type features and related permissions. Particularly, the following constraints were ignored:

- Activity type features:
 - Support of work skills
 - Support of work zones
 - Support of preferred resources
- Permissions:
 - 'Ignore workzones/ workskills mismatch on move'
 - 'Ignore rules mismatch on Move activity'

Such behavior eventually led to the situation, when a self-assignment bucket would show only those activities with the same work skills/ work zones as the selected technician had. However, more activities were, in fact, available.

As of version 4.5.18 the filtering algorithm has been enhanced to check if the corresponding constraints should be applied. Now, only the activities, matching the criteria are shown in a self-assignment bucket.

6.10.1.6 'Add to Installed' and 'Add to Deinstalled' Buttons Work Properly

In the previous versions the user was unable to add inventory to the installed or deinstalled pool because the 'Add to installed' and 'Add to deinstalled' buttons were not clickable.

In version 4.5.18 this issue has been fixed. Now the 'Add to installed' and 'Add to deinstalled' buttons lead the user to their respective screens.

6.11 Mobility Offline

6.11.1 Improvements

6.11.1.1 'END_TOO_EARLY' Offline Synchronization Conflict Resolved Correctly

If the activity start time in the Manage Application is later than the time the activity was set to complete/notdone by the technician in the Mobility Application, the synchronization conflict is resolved by setting end time = start time + 1 minute.

In the previous versions, however, the end time of activity was moved to the next day, if the timezone of the technician was other than UTC, which is incorrect behavior.

The synchronization functionality has been improved to ensure that the conflict is handled correctly, as intended.

6.12 Routing Interface

6.12.1 Improvements

6.12.1.1 Routing Requests Processed Correctly

There were cases, when routing requests, though successfully received by the Application server, were returned with the 'Connection reset by peer' error message. As a result, the routing results were not considered by the Application.

This issue has been resolved. Now, the routing requests are processed correctly.

6.12.1.2 Routing for Pending Overnight Activities Works Properly

There were cases, when the Routing functionality would reorder activities in a technician's route, if it included pending overnight activities.

As of version 4.5.18, this issue has been addressed. Now, the Routing functionality works properly, no longer reordering activities in the routes, that have overnight activities preassigned.

6.13 Routing GUI

6.13.1 Improvements

6.13.1.1 Routing Plans Get Modified Not Depending on the Routing Profile Name

Previously, after cloning a Routing profile, the routing plans were cloned with the same name. This led to inability to update newly-cloned routing plans, which could lead to confusion.

As of version 4.5.18, this issue has been fixed. Now it is possible to modify cloned routing plans that have the same names. Changes get successfully applied. It is also now possible to create routing profiles with the same names.

6.14 Security

6.14.1 Features

6.14.1.1 Support of LDAP Fallback Domains List Implemented at Password Change

As of version 4.5.18 the Application Server has been modified to support LDAP fallback domains list in case of a password change. Now, if an error message is returned from the LDAP Server at an attempt to change a password, the Application Server will retry the attempt in the next LDAP Server from the

fallback list, until the it is successful or, otherwise, until the list is exhausted.

Note: The user is responsible for configuring replication between the domain controllers.

6.15 Quota Management

6.15.1 Improvements

6.15.1.1 Work Zone Calendar Limits Applied Correctly

If the Quota View was set to display only the period within the work zone calendar limits, the work zones list was displayed correctly – only the work zones applicable to these days were shown. However, if the Quota View was set to display a period larger than the work zone calendar, all days displayed the whole list of work zones, even on the days within the work zone calendar limits when only one work zone was to be shown.

As of version 4.5.18 the work zones list in the popup windows is filtered according to the work zone calendars. Only the work zones applicable on the selected day are shown.

6.15.1.2 Work Zones Listed Correctly in Popup Windows

If a resource had a regular everyday work zone and a work zone recurring on certain days, the list of work zones for such resource was incorrect in the Quota popup windows. Work zones were duplicated in the 'Status' popup, 'Close time' popup and 'Mass populate' window.

The issue has been resolved. Now the popup windows in the Quota View show only the work zones applicable for the selected day.

6.15.1.3 '% to Stop Booking at' Value Color-Coded Correctly

The '% to stop booking at' values in the Quota View are displayed in different colors depending on the related Quota and 'Used' statuses. However, in the previous versions this value was shown in black color when the related 'Used' value was empty. By logic, the color should have been green meaning that the defined percentage had not been exceeded.

In version 4.5.18 the value of '% to stop booking at' is shown in green when not exceeded (Figure 82).

Time slot Capacity categories	Wednesday, August 13th, 2014					
	Quota	Used	Used quota %	% to stop booking at	Status	Close time
08-10					✓	01 AM
Install					✓	07 AM
Trouble Call	10000			34%	✓	
Upgrade					✓	
Total	10000					

Figure 82: '% to stop booking at' value in green color

6.15.1.4 Quota Statuses Handled Correctly

Sometimes, when several work zones in a capacity category were closed, the entire category was shown as closed although some work zones remained open. The close time for open work zones was shown incorrectly. Such cases occurred when some work zones were set to be closed later than the capacity category.

The algorithm of Quota statuses display has been changed. Now in the situations described above the capacity category is shown as partially open and the work zone close time is shown for the opened work

zone.

6.15.1.5 Work Zone Status Change Shown Correctly in History

Sometimes the situation requires that a single work zone within a capacity category is to be closed later than the entire capacity category. In such cases closing the capacity category opens the work zone. Such operation was displayed incorrectly in the 'Quota History' screen – the action had an empty name. The issue has been resolved in version 4.5.18. The automatic opening of a work zone is shown as 'Open' in the 'Quota History'.

6.15.1.6 Status Icon Shown Only for Allowed Quota Levels

In some cases the Quota View showed status icons also for the levels at which Quota could not be closed. Such behavior could be misleading for the user (Figure 83, 84).

Quota management

Time slots: 08-10, 10-12, 13-15, 15-17 ✎

Capacity categories: Deinstall, Downgrade, Install, Non-Pay, Restart/Reconnect, Service Request Order, Trouble Call, Upgrade ✎

Quota is entered for: day time slot capacity category

Quota can be closed for: day time slot capacity category work zone

Estimate maximum capacity for: day time slot capacity category

Figure 83: 'Quota can be closed for' settings

Time Slot Capacity Categories	Tuesday, August 12th, 2014				
	Quota	Used	Used quota %	Status	Close time
08-10				✔	
Install				✘	07 AM
Trouble Call				✔	
Upgrade				✔	

Figure 84: Status icon shown for time slot

In version 4.5.18 an additional check has been added with which status icons are only shown for levels where Quota can be closed. For the levels where Quota cannot be closed no icon is shown (Figure 85).

Time slot Capacity categories	Tuesday, August 12th, 2014				
	Quota	Used	Used quota %	Status	Close time
08-10					
Install				✘	07 AM
Trouble Call				✔	
Upgrade				✔	
Total					

Figure 85: No icon shown for time slot

6.15.1.7 Quota Recalculated Properly with 'Max Available' Value Empty

If Quota was defined as percentage of the available capacity, it was not recalculated if the 'Max available' and 'Other activities' values were empty. The Quota value remained the same as before the change. The necessary changes have been made. Now Quota is recalculated regardless of the empty values of 'Max available' and 'Other activities'.

6.15.1.8 Maximum Period of Quota Recalculation Increased

Previously, the maximum period of Quota recalculation was 72 days or 12 weeks (the settings in 'Business Rules' → 'Quota management'). In order to achieve better system flexibility, this value has been increased to 99 days or 15 weeks.

6.15.1.9 Time Slot and Capacity Category Selection Added to Quota Map

As of version 4.5.18 the 'View' filter of the Quota Map View has the 'Time slot' and 'Category' selectors. This allows displaying the map with the work zone statuses by time slots and capacity categories which greatly increases the usability of the Quota management.

Now, when 'Map' is selected in the 'View' filter, the filter window also shows the 'Category' and 'Time slot' drop-down lists where the capacity category and/or time slot can be selected (Figure 86).

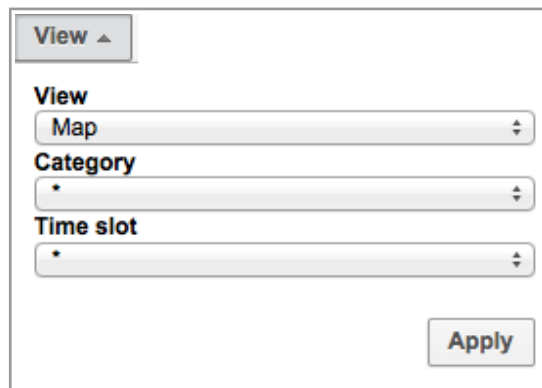


Figure 86: 'Category' and 'Time slot' selectors in Map View

6.15.1.10 'Mass Populate' Copies Values Correctly

If the bucket was configured with the 'Quota is entered as % of the maximum time slot capacity' and 'Automatically adjust '% Quota' values to keep their total equal to 100%' options enabled, the 'Mass populate' functionality inserted values which were slightly different from the source values. The 100% setting for the time slot on the Time Slot level was not copied, either.

As of version 4.5.18 the functionality has been changed so that the 'Mass populate' and 'Auto-fill' operations recalculate the dependent values after the main action is performed. This ensures correct values inserted by the 'Mass populate' and 'Auto-fill' operations.

6.15.1.11 Next Quota Cell Selected after 'Enter' Key Is Pressed

When the user edits cells of the Quota View, pressing of the 'Enter' key automatically selects the next cell in the grid. This improves the usability of the Quota screen, saves time and maintains the logical sequence of the user's actions.

6.15.1.12 Locked Cells Ignored by 'Mass Populate' Functionality

When a Quota cell is locked, it is not to be changed by any automatic operations. However, in the previous versions the 'Mass populate' functionality changed values of locked 'Quota' and '% Quota' cells.

The issue has been fixed. Now the 'Mass populate' functionality skips locked Quota' and '% Quota' values.

6.15.1.13 Quota Map Shows Work Zones Correctly

If a parent resource with no work zones had several child resources with different work zones, the Quota Map for such parent resource should show all work zones of child resources with their statuses. However, in the previous versions the Quota Map attempted to show the work zones of the parent resource which resulted in no work zones displayed at all.

The logic of retrieving child resource work zones has been improved. Now, when a parent resource with no own work zones is selected, the Map View shows work zones of its child resources. At the same time, when the parent resource has own work zones, the Map View shown the work zones of such parent resource.

6.16 Displays

6.16.1 Features

6.16.1.1 Nested Tabs Behavior Improved

Previously, when a context layout contained nested tabs (tabs inserted within other tabs) with linked properties, changing such linked properties caused the focus to move to a different tab. This affected the usability of the screen as the user had to find the tab they were working with again.

Now, nested tabs are saved correctly. The screen remains focused on the tab with which the user is currently working.

6.16.2 Improvements

6.16.2.1 'Identify Inventory by' Context Displayed Properly

If the 'Identify inventory by' context contained 'Text' elements, such context was displayed in incorrect order. The first property could not be moved which resulted in wrong context display.

The necessary changes have been made. Now text elements and properties of the 'Identify inventory by' context can be arranged as needed and then displayed correctly.

6.16.2.2 Activity Types Displayed Properly

In the previous versions in the Manage Application Activity Types were grouped by Activity Groups and ordered by Activity Type ID. At the same time, in the Mobility Application Activity Types from different groups were listed together and sorted by Activity Type Name. Also, the linked properties functionality did not filter the Activity Types.

As of version 4.5.18 the linked properties functionality has been improved and now it works for Activity Groups. Also, Activity Types are sorted by Activity Type Name within Activity Groups both in the Manage and Mobility Applications.

6.16.2.3 Special Characters in Visibility Condition Values No Longer Affect Context Performance

If a Mobility context layout was configured with visibility condition values containing special characters (*, ?, \, [,], (,)), such context could not be opened in the Mobility Application. No error message was shown, either.

In version 4.5.18 the 'contains' visibility condition has been improved. Now special characters used in the visibility condition value have no effect on the context layout opening. The context can be accessed properly in the Mobility Application.

6.16.2.4 Large Display Profiles Re-Imported Correctly

If a large display profile was re-imported, the system responded with a 'Service is unavailable. Please, try later' warning message. The re-import process continued in the background, though, and completed successfully.

The import notifications have been improved. Now re-import of large display profiles is performed without any redundant warnings.

6.16.2.5 'Add Inventory' Link Displayed Properly

In the previous versions the 'Add inventory' link in the 'Visible inventory grid columns' context was not displayed if it depended on a custom activity property. Regardless of the visibility conditions status, the action link was not displayed.

The visibilities of the 'Visible inventory grid columns' context have been improved. Now the 'Add inventory' action link is shown or hidden in accordance with the visibility condition status.

6.17 SmartCollaboration

6.17.1 Improvements

6.17.1.1 SmartCollaboration Only Displays Current Helpdesk Conversations

There were issues where SmartCollaboration would display old helpdesk conversations that had been taken and left by helpdesk operators. At an attempt to remove the conversations, by leaving them or refreshing the browser, the old conversations would still remain.

In version 4.5.18 this issue has been fixed and now old helpdesk conversations are no longer displayed and the application works as intended.

6.17.1.2 Helpdesk Chats Handled Correctly

When a helpdesk operator left a chat, such chat was returned to the list of not-answered chats after the page was reloaded, when it should have been removed from all helpdesk chat lists.

Now the helpdesk chat status handling has been improved. If the helpdesk operator has left a chat, this chat is no longer placed to the not-answered chats list again.

6.17.1.3 Re-connect Message Only Appears When Appropriate

In previous versions, the re-connect message appeared every 70 seconds, regardless of whether the connection had been lost or not.

This has been fixed in version 4.5.18, and now the re-connect message only appears if the connection is lost.

6.18 Statistics

6.18.1 Features

6.18.1.1 Natural Learning Algorithm for Daily Repeated Non-Stationary Processes Improved

As of version 4.5.8 Natural Learning Algorithm has been improved. The implemented changes will ensure correct estimation for daily repeated non-stationary processes.

The following changes have been implemented to the concept of Natural Learning Algorithm:

1. The new estimation takes into account the average duration value
2. The correcting coefficient is now determined by both general sampling size and the last day estimation

for the purpose of observing the coherence principle

3. Model includes the inactivity property in order to provide the system with the response to the change of predicted duration, namely decrease from the general trend

4. Estimations for technicians now take into account possible deviations from the duration set for the company.

6.18.2 Improvements

6.18.2.1 Start-Time Statistics Only Includes Activities that Conform to Service Window or SLA Constraints

Previously, start-time statistics could include activities which did not conform to service window or SLA, namely:

- activity is stated outside of its window
- activity is started before its SLA window start
- started activity, the estimated completion time of which is outside the SLA window end

Naturally, it does not make sense to include these activities into start-time statistics, thus they have been removed as of version 4.5.18.

The activities with the following conditions, however, are part of the start-time statistics:

- the resource that the activity is currently assigned to, can execute activities
- the activity is 'scheduled'
- the activity is 'ordered'
- if there is a service window, the activity is started within its interval
- there is no 'SLA warning'
- the activity is started after 'SLA start'
- the estimated completion time of the activity is before the 'SLA end'
- the activity is started and finished within a working time period determined by the calendar.

6.18.2.2 Natural Learning Statistics Module Improved

As of version 4.5.18, the natural learning statistics model has been improved. With the enhancements that took place, the calculation formula for duration estimation has been changed for Natural Learning Algorithm, which:

- allows to avoid strict limitation problems
- dynamically modifies the learning rate, which depends on the number of the cases in the correspondent group.

6.18.2.3 Start-time Statistics Algorithm Improved

As of version 4.5.18, an improved algorithm has been implemented which will ensure:

- Correct handling of activities with duration less than hour
- Preprocessing and filtering of start-time statistics upon loading from the database
- Applying constraints to expected used capacity
- Avoiding time zone adjustment.

6.19 Message Engine

6.19.1 Improvements

6.19.1.1 'Day of Call' Calculated and Displayed Correctly

In the previous versions, 'Day of call' and 'Time range of notification' would not get recalculated correctly

(Figure 87) and thus did not display correctly.

This has been fixed in version 4.5.18 and now 'Day of call' is displayed properly.

11/09/11 12:28	Voice	Day before	Day before	falsemethod		
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:28	Set Property	Add	new_appt (\$			property
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:28	Voice	Day before	Day before			
11/09/11 12:29	Email	Day before	Day before			
11/09/11 12:29	Email	Day before	Day before			
11/09/11 12:29	Email	Day before	Day before			
11/09/11 12:29	Email	Day before	Day before			
11/10/11 03:00	Email	SLA window warning	Service Window Warning (Service Window Warning)	new		test@mail.toa.loc
11/09/11 21:00	Email	SLA window warning	Service Window Warning (Service Window Warning)	new		test@mail.toa.loc

Figure 87: 'Day of call' calculated incorrectly

Also, there were cases when 'Day of call' was displayed incorrectly in messages to customers. Its value was set to today's date.

This has been fixed in version 4.5.18 by implementing a new algorithm, and now:

- 'Day of call' field is hidden if the message does not have a final status and its notification interval is for several days
- 'Day of call' field is shown in a date+time format, if the message does not include the final status but its interval is for one day
- 'Day of call' field is shown as date+time if the message has a final status.

6.19.1.2 Respective Values Recalculated Correctly for 'Time Slot' and 'Service Window'

Upon update of 'time slot' and 'service window', their dependent values (service window, route) need to be recalculated respectively. This did not occur in the previous versions, hence it is incorrect behavior.

This has been fixed in version 4.5.18 and now when a time slot is updated, the service window is adjusted. When a service window is modified, a corresponding route is recalculated, as intended.

6.20 Public API

6.20.1 Improvements

6.20.1.1 History API – 'realm' Field Removed

As the 'realm' is never used in retrieving data by the History API, this field has been removed.

Now the 'realm' field can no longer be found in the History API responses.

6.20.1.2 History API – Customer Inventory Updates Retrieved

As of version 4.5.18 the History API retrieves updates of customer inventory and delivers them to the users assigned to the activity resource. The customer inventory update record has the following format:

```
{
  "operation": "update_customer_inventory",
  "action_time": "2014-06-24 15:58:39",
```



```

    "user": "admin",
    "inventory": {
      "type": "AT",
      "status": "customer",
      "serial_number": "0005844452",
      "inventory_id": 20996430,
      "activity": {
        "date": "2014-06-24",
        "resource_id": "33035",
        "activity_id": 3954885,
        "appt_number": "#137165123",
        "customer_number": "019921925"
      },
      "changes": {
        "type": "AT",
        "ITEM_NUMBER": "234654634",
        "EQUIPMENT_ROOM_CODE": "2354235488"
      }
    }
  }
}

```

6.20.1.3 GPS API – Service Location Point URL Contains Correct Domain Name

The GPS API WSDL contained an incorrect URL of service location.

As of version 4.5.18 the GPS API WSDL uses the correct URL for the service location point.

6.20.1.4 Activity Management API – Successful 'get_activities' Responses Contain Correct Header

If a 'get_activities' request returned a successful response (with 'result_code' =0), such responses contained incorrect HTTP header. The header contained the following data:

```
Content-Type: text/html
```

As of version 4.5.18 successful 'get_activities' responses contain the correct HTTP header:

```
Content-Type: text/xml; charset=utf-8
```

6.21 Tools

6.21.1 Features

6.21.1.1 Daily Extract – Files Exported Correctly with Properties Absent from Database

If the Daily Extract was configured with certain properties, but such properties could not be found in the database, the export file was not created and errors were written to the log.

As of version 4.5.18 the approach to such cases has changed. Now, whenever the property specified in the Daily Extract configuration cannot be found in the database, a file is still created with the empty property and the rest of the export is processed in the usual manner.

6.22 System

6.22.1 Improvements

6.22.1.1 Activity Duration Calculated Correctly with 'Define Duration Manually' Feature Disabled

In the previous versions, if 'Define Duration Manually' feature was disabled for an activity, and the system was forced to recalculate activity, then the activity duration would not get updated.

This has been fixed in version 4.5.18 and even if 'Define duration manually' feature is disabled, the duration value for existing activities is successfully recalculated.

6.22.1.2 Activity Move Improved

If an activity was reordered within the same route in the Mobility Application but placed to the same position where it had originally been, such activity disappeared from the resource's route both in the Manage and Mobility Application. In this case the activity was removed from the route, but was not placed into any other route afterwards.

The issue has been resolved in version 4.5.18. Activities remain in the route after the 'move' operation.